

6 Schemata of Differentiation

The following section explores the role of schemas as fundamental elements of social cognition in the context of human differentiation. These schemas are grounded in evolutionary-anthropological and psychological foundations and are instrumental in enabling humans to differentiate and categorize. The comprehensive theoretical and empirical foundation of this book illuminates the underlying reasons for the persistence of certain cognitive biases and inequities in human differentiation. Schemas exert a profound influence on how individuals perceive, think, feel, and behave, as well as on how they internalize and entrench social norms and values. Schemas function as the underlying frameworks that shape personal experiences and uphold the complexities inherent in social structures and identities, through affective, cognitive, and somatic processes.

6.1 Social Cognition

This conception of social cognition encompasses all cognitive, affective, and bodily processes that both facilitate and result from interactions with others. Accordingly, the established term “social cognition” may be somewhat misleading, as “cognition” typically refers to thought processes and should ideally be augmented with the qualifiers “affective” and “bodily.” Social cognition represents a fundamental aspect of human experience, encompassing a range of processes and mechanisms through which individuals perceive, analyze, store, and react to information and stimuli from their environment. These processes include empathy, mentalization (the intuitive understanding of mental states, such as feelings, thoughts, and desires, in both oneself and others), the formation of stereotypes, the experience of cognitive dissonance, the development of self-knowledge, and phenomena of self-deception (Schlicht 2023, 13). It is similarly acknowledged that emotions and moods exert a pervasive influence on social interactions and are in turn shaped by them. This comprehensive perspective incorporates the critical role of emotions in directing attention, influencing decision-making processes, and forming memories. In light of these considerations, it becomes evident that cognition and

affectivity are inextricably linked. Given these insights, it is imperative to reframe the conceptualization of schemata as a multifaceted phenomenon, transcending the limitations of its traditional categorization as solely cognitive, physiological, or affective. In contrast, the current systemic-dynamic affect logic views these categories as being integrated in a seamless manner. In essence, social cognition provides the foundation for all practices of human differentiation, demonstrating the intricate interconnection between cognitive processes and emotional states in influencing human behavior and social structures. The perspective on schemas, social cognition, affects, and emotions presented here merges insights from traditional cognitivist theories with the latest findings from research on social cognition. It focuses on the four principal dimensions of social cognition: embodied, embedded, extended, and enactive (Gallagher 2023). This approach offers a comprehensive framework that not only enhances our understanding of the body's integral role in cognition but also broadens our conceptualization of differentiation schemata by emphasizing the interactions between the body, environment, culture, and the broader ecological system. This model categorically rejects the Cartesian dualism of mind and body through its seamless integration of thinking and feeling. The mechanistic explanations characteristic of cognitivism have frequently been the subject of criticism. These explanations liken the brain to a computer and reduce complex social interactions to simplistic, brain-centered processes. The prevailing cognitivist perspective tends to assume that thoughts are merely the result of external data being processed and mapped through syntactic operations as representational units within the brain. These perspectives posit that cognitive processes are associated with discrete neural activities within the cerebral cortex, analogous to the functioning of a computer (Sellars 1957/1999; Putnam 2011). Nevertheless, this cognitivist perspective is becoming increasingly recognized as inadequate for fully capturing the spectrum of human social cognition. By adopting a more holistic view that recognizes the brain as dynamically engaged with its environment—through embodied actions, embedded contexts, extended networks, and enactive engagements—this approach challenges the limitations of earlier models. The proposal offers a more fluid understanding of cognition, one that acknowledges the profound shaping of our mental processes by our physical bodies, our social environments, and the ongoing interactions between the two. Historically, theories of the mind, including prominent theory of mind, modularity theory, and early cognitive approaches in anthropology, have portrayed social cognition as fundamentally automated, akin to the operations of a computer. These theories frequently conceptualize social cognition as a series of automatic processing steps triggered by external stimuli, analogous to the functions of an intricate computer processor. However, the perspective advanced here reinterprets social cognition and the associated schemata not merely as functionalist elements akin to components of a vast computer, but rather as fundamental building blocks of human differentiation.

Accordingly, they are of great consequence with respect to the comprehension and interpretation of perceived data, extending beyond mere automated responses to encompass a more comprehensive and integrated approach. This revised viewpoint draws significantly on the insights of systems theory and enactivist approaches (F.J. Varela et al. 2017), which regard cognition as inherently embodied action (Gallagher 2023). These frameworks stress the significance of the body not merely as a mere conduit for external stimuli, but rather as an active and engaged participant in the cognitive process. This shift in perspective moves away from the traditional views that isolate the mind from the body and environment. Instead, it proposes that cognition is shaped by dynamic and continuous interactions with the surrounding environment. Cognition is inextricably linked to the experiences made possible by the sensorimotor capabilities of a particular human body, which are always situated within broader psychological and cultural contexts. Consequently, the actions of an individual cannot be considered in isolation from the perceptions and the associated cognitive processes that inform them. The actions of an individual are influenced and guided by perceptions, which are in turn shaped by the environment. This suggests a dynamic interplay between the individual and their social and material surroundings. This approach demonstrates the profound interconnectivity between cognition and its surrounding physical and social environments, indicating a dynamic exchange where each action exerts influence upon and is reciprocally influenced by these contexts. Furthermore, the systemic nature of these interactions demonstrates the complexity of human behavior, which is shaped by nonlinear processes that resist straightforward deduction. Despite an in-depth understanding of the underlying schemata, predicting outcomes remains a challenging endeavor. This inherent unpredictability enhances our investigation of human actions within their respective ecosystems, augmenting our comprehension of these intricate dynamics.

6.2 Emotions and Affects

The development of individual and group-based feelings and the associated identification processes are particularly relevant in the reflection of human differentiation practices and coding processes in social systems. This phenomenon is complex and influenced by a myriad of factors and structures from diverse realms. As previously discussed, this circumstance will be explored in greater depth in the subsequent sections. The objective here is to examine the nature of affects and emotions in the context of integration and cohesion within communities. From a systemic-anthropological perspective, this study examines the affective dynamics that fulfill both divisive and unifying functions within group structures. Particular emphasis is placed on the manner in which emotional influences, through the process of cultural

coding, contribute to the differentiation from external entities and bolster solidarity and unity within the group, thereby enhancing communication within their respective social systems. Emotions are fundamentally automatic response programs that are universally understood and triggered by identifiable objects or events. These responses act as central mediators for the structural coupling between systems, as part of the affective-cognitive-bodily schemata. This mechanism permits the integral role of emotions to be revealed in the intricate interplay between individual and collective behaviors, as well as in the broader systemic dynamics.

Emotions are elicited by specific objects or events and possess a foundation that transcends cultural boundaries. However, the manifestation of these emotions is shaped by cultural norms and practices. Basic emotional reactions, including fear, anger, sadness, joy, disgust, and surprise, exhibit universal elements observable across a range of species, including primates (Damasio 2011, 136). Nevertheless, the ways in which these emotions are experienced, interpreted, and expressed vary considerably across different cultures. These variations in emotional expression and interpretation are reflective of the respective social norms, values, and communication styles that are characteristic of each culture. The universality of these emotions, their automated processes, and the corresponding expressions is rooted in the fact that these emotional action programs are innate, not learned. While the intensity or duration of each emotion may vary slightly in different circumstances, the fundamental pattern remains strikingly consistent across all physiological levels, from bodily movements and changes in internal organs like the heart and lungs to hormonal adjustments (ibid.). The constancy of emotions, along with their predictability and stability as instinctual action programs, is rooted in their origins in natural selection and evolutionary imperatives encoded in the genome. These genetic directives have remained largely unaltered throughout the course of evolution, thereby ensuring the existence of a specific and reliable brain structure (Damasio 2011, 137). The fundamental role of emotions in the survival and development of individuals means that they are established reliably early in development. The underlying mechanisms of emotion in the human brain and physiology remain largely consistent, regardless of the specific circumstances and contexts involved. It is similarly crucial to acknowledge the unique characteristics of emotions. This particularity is evident in the ways that disparate cultures experience and contextualize emotions within their respective social frameworks, frequently through mechanisms such as reward and punishment. Indeed, the question of whether emotions are universally or particularly experienced is a challenging and contentious one, as they resist simplistic binary classifications. In consideration of the extensive array of emotions that are shaped by a multitude of cultural perceptions and influences, it is untenable to make a universally valid, ethnocentric assertion about emotions. For the purposes of this analysis, it is essential to recognize that emotions are intricately

woven into the fabric of the mental and physical systems of the human body and are shaped by a set of fundamental biological baselines that are inherent to our species.

The specific circumstances and emotional context determine whether emotions will motivate action or inaction. From a systemic-anthropological perspective, emotions not only function as adaptation mechanisms of the system to its environment but also as a means of supporting autopoiesis. Emotions give rise to motivational behavioral patterns that either facilitate the maintenance of systemic equilibrium or drive the requisite adaptations, thereby playing a pivotal role in both the stability and evolution of living systems. These dynamic adaptation processes illustrate the system's capacity to respond adaptively to internal and external stimuli, thereby ensuring resilience and functionality in a context of constant change. Emotions, therefore, constitute a central element in the process of systemic self-organization, facilitating learning and autopoietic evolution through the motivational influence they exert on action. In this way, our emotions direct our actions in a manner that is specifically adapted to the circumstances at hand. Emotions such as fear, joy, and sadness give rise to distinctive patterns of action or inaction (Kurth 2022, 223). This demonstrates that emotions are multidimensional phenomena that necessitate evaluation and are significantly influenced by situational and sociocultural contexts. Nevertheless, these variations do not affect the fundamental recognizability of the emotion, as the basic behavioral characteristics remain consistent.

The *intentionality* of emotions—their specific content and purposefulness—is interpreted as a systemic operation that acts to reduce complexity. Emotions facilitate the evaluation and direction of responses, thereby enabling the effective management of the vast array of information and ambiguity present in the environment. They facilitate the recognition of patterns, the establishment of priorities, and the navigation of our surroundings in an effective manner. These processes of complexity reduction and pattern recognition are essential for the self-organization and adaptability of the system in a dynamic and often unpredictable world. Therefore, emotions operate not only as internal signals but also as key mechanisms that modulate the resonance between the mental system and its environment, facilitating the integration of internal states and external demands. In addition to their impact on physiology and motivations, emotions exert a significant influence on cognition. They shape where attention is directed, the conclusions drawn, and the beliefs formed. These cognitive processes are inextricably linked to the evaluation of a situation or context, which plays a pivotal role in the genesis of emotions. The evaluation of a situation as threatening, challenging, or rewarding elicits specific emotions, which in turn influence our perception of reality and affect our decision-making processes. This dynamic reflects the complex interactions within the mental system, which is in constant communication with its environment. An expanded comprehension of emotions and affect indicates that they are not constrained to the boundaries of the individual mind or body. Instead, they permeate and extend

beyond the boundaries of the self, becoming embedded in the social and material structures of our environment. This perspective recognizes that our emotional experiences are enhanced and molded by the dynamic interplay between the individual and the environment, resulting in a continuous co-construction of subjectivity and intersubjective space.

In numerous social and cultural studies, a distinct separation is frequently drawn between the concepts of “affects” and “emotions” (Ahmed 2014; Massumi 2021; McCormack 2023). *Affects* are defined as a congruence of motivations, feelings, and goals that have not yet been subjectivized and thus are not classified or narratively captured within existing sociocultural categories. Although the reasons and arguments for this differentiation are substantial and acknowledged, certain logical and theoretical inconsistencies emerge within the context of this approach, necessitating a critical examination. For example, the rigid dichotomy between affect and emotion may fail to account for the fluid transitions and reciprocal influences among emotional phenomena. Such a strict dichotomy can result in an artificial segmentation of the human experience, which fails to capture the full complexity and dynamism of affective states. The notion of affects as pre-discursive and not yet subjectivized fails to acknowledge the influence of individual interpretation and cultural conditioning in shaping affective experiences. This view posits that affects exist in a kind of pre-social vacuum, which may not fully align with the complexity of human experience and the intrinsic interplay between the individual and culture. Furthermore, the assertion that affects are not classified within sociocultural categories and thus remain narratively inaccessible undervalues the significance of linguistic and narrative mediation in affective states. The ability to name and narrate affects is of great importance in articulating and understanding our emotional and affective landscape, and in integrating these experiences more fully into our social and cultural understanding. To address the identified shortcomings in reasoning and theoretical inconsistencies, it is imperative to develop an integrative model that acknowledges the intricate interdependence of affects and emotions. This model takes into account the significant influence of subjective experience, social mediation, and cultural contextualization in the emergence and expression of affective states. It is acknowledged that affects and emotions exist on a spectrum, ranging from direct, physical reactions to deeply reflected and socially integrated experiences. In this framework, affects are regarded as indispensable mediums of communication and as mediators of structural coupling between systems, facilitating mutual influence and adaptation. Accordingly, this approach does not regard affects and emotions as entirely distinct entities but rather distinguishes between them to the extent that affects serve as foundational, frequently preconscious reactions that establish initial contact and resonance between the individual and the environment. Affects are regarded as the fundamental, often preconscious form of emotional experiences, distinguished by their intensity and brief duration.

In contrast, emotions represent a more advanced and socially influenced form of affective state. They are constructed upon the foundation of initial affects and incorporate them into more intricate emotional domains that are shaped by social norms, cultural interpretative patterns, and individual reflection. This distinction permits an understanding of the dynamic interaction and interdependence of affects and emotions within the context of human experiences and social interactions. From this perspective, holistic schemata can be conceptualized, offering a comprehensive view of the convergence of cognition, affectivity, and physicality in shaping perceptions and responses to the world. These integrated patterns emerge from the system's interactions with its environment and exert influence over both our physical sensations and our cognitive and emotional processes. The proposed model effectively addresses the discontinuities in theoretical logic by demonstrating that mediation through affects is not an external process to social and cultural contexts but rather is deeply embedded within them. The concept of affects as mediators of structural coupling acknowledges their role in influencing both the immediate bodily response and the complex social and cultural processes through which individuals engage with each other and their environment. The recognition of affects as a medium of communication is based on the insight that they are central factors in the construction of social reality and individual identity. Affects not only facilitate an initial, intuitive response to environmental stimuli but are also crucial for the development of shared meanings and the negotiation of social relationships. This comprehensive perspective illuminates the crucial function of affects in linking our immediate physiological responses to the broader sociocultural processes, significantly influencing both our individual experiences and our collective interactions.

6.3 Schemata as Autopoietic Generators of Meaning

The concept of schemata is posited here as a holistic entity, integrating cognitive, affective, mental, and bodily components, which facilitates the autopoietic organization of the individual. This permits a sophisticated interpretation of the information and a corresponding responsive action. The concept of schemata as autopoietic systems challenges the traditional boundaries between the mental, physical, and social realms, acknowledging the interconnected nature of human experiences. This model portrays the dynamic interplay between physical, psychological, and social systems, reflecting their mutual influence and interdependence. Cognitive and emotional processes are in a state of constant dialogue, reciprocally shaping one another and influencing social interactions. This integrated perspective facilitates a more nuanced comprehension of intricate behavioral and social dynamics, whereby shifts in one domain can resonate across others. In the fields of cognitive psychol-

ogy and anthropology, schemata are of great importance for the efficient processing of complex social information. They fulfill the polyvalent role of filters and active constructors of reality. Schemata are defined as orientation frameworks for feeling, thinking, and behavior that are embedded in and correspond with complex social systems, manifesting themselves on different levels. The concept of such a unit at work in humans, or an incorporated structure that shapes social roles and identities, was initially contemplated by Aristotle and Thomas Aquinas (Schütz 1983). Since then, it has been repeatedly addressed in philosophical anthropology and sociology. In the 1960s and 1970s, the concept of an ingrained, generative grammar (Chomsky 1972) gained prominence and was further developed by Jean Piaget, as well as by Pierre Bourdieu in the context of his concept of habitus (Bourdieu 2016 (1972), 1992 (1979)). This describes a largely routinized pattern of action that operates in conjunction with the individual. Similarly, schemata are deeply embedded in individual and collective behavioral patterns, exerting an unconscious influence on our actions. Additionally, it is important to distinguish between schemata and other forms of social structure. Schemata are not merely reactive structures; they are autopoietic, self-organizing mechanisms that actively contribute to the constitution and transformation of social realities. In this regard, they are not merely a product of external forces; rather, they are a dynamic force in themselves. This will become evident as the chapter progresses. Schemata that contribute to forms and practices of differentiation, as conceptualized at the conclusion of this chapter, are reevaluated through the lens of cognition as embodied, embedded, extended, and enactive (Gallagher 2023). These four dimensions—*embodied, embedded, extended, and enactive*—establish a framework that situates the role of the body, the environment, and the interactions between organism and environment at the core of our understanding of schemata, thereby expanding our comprehension of differentiation schemata. The embedded and extended aspects of cognition highlight the importance of the social and material context, as well as the utilization of external artifacts in cognitive processes, which directly impact the social aspects of human differentiation. In contrast, the embodied and enactive aspects integrate the role of the body and its physical interactions with the environment, which impact the bodily level of differentiation. The schema approach places a priority on the individual's capacity to engage with complex social systems, with a particular emphasis on the interconnections between this approach and the evolutionary-anthropological adaptation systems that have been discussed in previous chapters. Of particular significance are the dual cognitive systems (see Chapter 3.5), designated as System 1 and System 2. System 1, which is characterized by automated, intuitive thinking, dominates behavior in routine and affect-driven situations. In contrast, System 2, which is more energetically demanding, conscious, and reflexive, is only activated when complex or new situations require deeper engagement. In general, schemata remain active and autonomous until such time as the cerebrum and conscious reflection (System 2) are engaged. This

evidence indicates that the individual is not merely a passive bearer of social structures; rather, they possess the capacity for active and flexible responses to changing environmental conditions. The capacity of schemata to self-organize enables individuals to actively shape their environment and to undertake transformative actions that contribute to the further development of the social system. As discussed in Chapter 6.4, the affective coding of meaning plays a pivotal role in this context. The schema approach offers a particularly fruitful avenue for examining the ways in which human differentiation is shaped by the intertwining of emotions and social structures. This establishes the way affectively anchored reactions can either stabilize or alter social differentiations. The schema approach broadens Bourdieu's concept of habitus and provides a transdisciplinary viewpoint on the dynamic transformation processes initiated by the interaction between social and mental systems. Furthermore, it incorporates decades of research on social cognition. When considered collectively, these perspectives offer profound insights into the intricate interplay among individual, social, and bodily factors that collectively shape the mosaic of human differentiation. By acknowledging the autonomy and interdependence of these levels, this approach allows for a more nuanced view of the multilayered processes contributing to the development of identity and difference, which in turn facilitates a richer understanding of the dynamics of human differentiation. This understanding considers not only the intrinsic characteristics of the individual but also their active role in shaping and negotiating their social reality. In the context of human differentiation practices, schemata function as indispensable tools of social cognition (see Chapter 6.1), playing a pivotal role in how social categories and group memberships are understood and processed. These processes are central to the perception and interpretation of differences between the self and others, and thus directly influence the dynamics of inclusion and exclusion within social groups. Schemata facilitate the processes of classification and stereotyping by automating the categorization of individuals based on characteristics relevant to the context, such as socio-economic status, skin color, gender, age, or physical ability. In discussions of human categorization and sorting processes, schemata are of particular significance, as they are integral to their functionality and implementation. These are formed and shaped through the internalization of normative specifications of values and attitudes, to which individuals conform in a process of subjectivation (see Chapter 8.3).

6.3.1 Cultural and Social Dimension

Schemas represent a comprehensive framework of world perception, deeply embedded in cultural practices. The formation and application of schemas are inextricably linked to the fabric of human cultures, reflecting the profound influence of cultural and social dynamics on cognitive processes. Schemas emerge from the collective,

bioculturally co-evolved experiences of a community (for further details, please see Chapter 3) and are transmitted through communication and social interaction. Consequently, they manifest not only as individual mental structures but also as collective knowledge and cultural practices (Strauss and Quinn 1997, 51). They encapsulate cultural values, beliefs, and norms, and decisively shape how individuals perceive and interpret their social and physical environments (D'Andrade and Strauss 1992). These schemas are the result of lengthy evolutionary processes in which the capacity to process complex social information efficiently has conferred a survival advantage. These schemas impact the manner in which individuals interact and establish relationships, influencing expectations and interpretations in social interactions. Consequently, they facilitate the formation and sustenance of social networks and conceptions of justice. Moreover, schemata impact the perception of groups, delineating those regarded as part of the “in-group” from those regarded as “out-group.” They actively contribute to and perpetuate this construction. However, this perception is not fixed or immutable. Rather, schemas are inherently adaptable and can be reshaped through conscious reflection and learning behavior, allowing for flexibility and change in response to new information or changing circumstances. In our context, it is particularly relevant to recognize that schemata are not only individual cognitive structures but also multidimensional and dynamic core elements that contribute to the construction and maintenance of social systems and power relations. The concept of situated and environmentally integrated cognition (embedded cognition) posits that the environment plays a pivotal role in the formation of differentiation schemata. These schemata are situated within the specific contexts in which we act and interact, at times in an active manner and at other times in a passive manner. This indicates that differentiation does not occur in isolation but is influenced and shaped by the environment in which it emerges (Gallagher 2023, 16). Consequently, our thinking, feeling, and acting are significantly shaped by the surrounding environment (Rupert 2004, 393; 2009, 131). Although the concept of “situated cognition” is sometimes employed in a broad sense to describe forms of cognition that are embedded in the environment, the term “embedded cognition” is specifically used to denote the critical role that the environment plays in shaping our cognitive processes (Gallagher 2023, 17). A fundamental concept within this theoretical framework is that of “epistemic acts” (Maglio, Wenger, and Copeland 2008; Kirsh and Maglio 1994), which encompass conscious efforts to alter our environment in order to facilitate cognitive processes or overcome cognitive challenges. An everyday example of this is the act of writing down a shopping list, which allows us to offload our working memory. Furthermore, our cultural and social environments can either constrain or enable certain schema-related processes. It is crucial to consider the context in which these processes occur, as the physical, social, and cultural conditions under which we operate can either foster or inhibit specific ways of thinking.

This demonstrates the deep intertwining of our cognitive and perceptual processes with the broader environmental matrix.

The *ecological approach*, particularly Gibson's concept of affordances (Gibson 1986), in conjunction with more advanced theoretical perspectives (Wagman and Blau 2020), offers profound insights into the cultural and social dimensions of schemas by demonstrating how they evolve through interactions with the environment. This is accomplished by exhibiting the way they evolve as a result of their interactions with the surrounding environment. The differentiation schemas are deeply rooted in the action possibilities that are made available by our social and physical environments. The potential actions afforded by our surroundings, or affordances, shape the available courses of action in specific situations and thus exert a direct influence on the development of our schemas. In turn, these schemas inform our expectations of others based on criteria such as age, gender, or social status (Gallagher 2023, 17). From the perspective of ecological psychology, schemas are not to be regarded as isolated mental constructs; rather, they are inextricably linked to the physical and social conditions of our environment. The structure of our living environments, encompassing social norms and physical settings, exerts a profound influence on our categorization and interaction with the world and its inhabitants. For example, the spatial segregation of certain neighborhoods can either facilitate or limit particular patterns of social interaction and the corresponding differentiation schemas (Pagano and Day 2020, 38). A central tenet of the ecological approach to perception is its emphasis on direct perception. This perspective suggests that, despite the complex translation of the three-dimensional world onto the two-dimensional retina, three-dimensional aspects of the world can be perceived directly, without the need for mental representations or inferential processing (*ibid.*).

The concepts of niche construction and environmental anthropology provide a profound perspective on the study of the environmentally embedded dimension of differentiation schemata. These concepts delineate the extent to which humans and other living beings actively shape and alter their environments, thereby creating new possibilities for action—termed affordances—or modifying existing ones (Wagman 2020, 136). The term “niche construction” is used to describe the process by which organisms actively modify their surrounding environment to create new living conditions for themselves and their offspring. This incorporates both physical and sociocultural changes (Rietveld and Kiverstein 2014, 329). Humans occupy a unique position in this process, exerting a profound influence on their surroundings through the construction of dwellings, the formation of social structures, and the creation of communication systems and artifacts (Heft 2017). Environmental anthropology builds upon existing knowledge by examining the interactions between human cultures and their environments in greater depth. It investigates the ways in which cultural practices and beliefs shape the perception and utilization of

natural resources (Lockyer and Veteto 2013; Singer 2016; Kopnina and Shoreman-Ouimet 2017; Bollig and Krause 2023). This field of study examines the role of cultural schemata in governing interactions with the environment. These schemata are integral to both the construction of niches and cultural engagement with the natural world. Schemata function as cognitive, affective, and bodily frameworks that inform our perception and interpretation of the world and its inhabitants. They exert influence over expectations and assumptions regarding the behavior of individuals and groups in specific environments, as well as the roles and functions attributed to them. The affordances that emerge through niche construction can exert direct and indirect influences on the formation and manifestation of differentiation schemata. This intricate feedback loop elucidates the dynamic interplay between an individual's or group's environment and their cognitive and social structures, thereby demonstrating the profound embeddedness of humans in the ecological and cultural matrices of their surroundings. The social, cultural, and physical contexts in which individuals operate significantly shape the opportunities available to them, profoundly influencing social hierarchies and individual identities. The environment, shaped by deeply entrenched social structures, often affords certain groups privileged access to resources and opportunities, while simultaneously denying these benefits to others. Schemata are of great consequence in establishing power dynamics and social inequalities, as well as the mechanisms of inclusion and exclusion. These schemata form intricate structures that influence individual perceptions and actions and shape collective norms and values, substantiating their role as multidimensional frameworks that significantly impact our perceptions of belonging, identity, and diversity. The internalization of cultural values and norms by individuals serves to establish group identities and delineate group boundaries, thereby providing a means of legitimizing authority. Such notions of legitimacy and justice are embedded and sustained, with specific social orders frequently presented as "natural" and inevitable. This book examines instances where these cultural codings are made manifest, with the practice of racial profiling serving as a case in point. Moreover, it investigates the influence of stereotypical perceptions and prejudices about diverse social groups on the perception and treatment of individuals based on their assumed group affiliations. These stereotypes help to uphold discrimination and inequality by ascribing inferiority or lesser capability to certain groups. Moreover, schemata prescribe specific roles and expectations for individuals within society, thereby reinforcing existing power structures and enabling societal control. The resulting structures define who gains access to essential resources, rights, and opportunities, thereby establishing membership and exclusion criteria. These dynamics are of great consequence in maintaining social order and the distribution of power and privilege, and thus significantly determine who is integrated into or isolated from the community.

6.3.2 Cognitive Dimension

Identification with one's own group is nourished by a complex web of individual experiences alongside collective and cultural influences, together forming multi-dimensional schemas. These schemas are both products and integral components of the emotional and motivational dynamics that intertwine individual and collective aims. Within the framework of the minimal group paradigm, these schemas can result in social rewards or punishments. Their complexity allows for the meanings—or more precisely, interpretations of these meanings—to be altered through conscious, self-reflective processes typically occurring in the cerebral cortex. The adaptability of schemas is evident in their capacity to evolve in response to new insights and perspectives. This dynamic interplay is a key driver in the transformation of socially constructed identities. Schemas thus act as crucial mediators between sensory perception and behavioral responses, underpinning human information processing across perception, categorization, memory, and decision-making (Casson 1983, 430). Schemas are not merely passive repositories of accumulated knowledge; rather, they function as dynamic systems that draw from past experiences while simultaneously influencing future actions and cognitions. These mental frameworks are constructed from both personal and collective experiences, thereby endowing us with the capacity to transform specific situations into actionable skills. From an anthropological perspective, a multitude of studies concentrate on the cognitive aspects of schemas, which are frequently encapsulated under the term “shared cognition.” This concept pertains to the collective cognitive processes that enable members within a group to share knowledge and beliefs, thereby facilitating coherent and effective interaction and communication (Shackelford and Weekes-Shackelford 2021, 5491). In this context, cultural schemas, which are conceptualized as mental frameworks or structures, play a pivotal role. They not only organize experiences but also operate as interpretative tools for understanding the world and managing social interactions. Schemata are embedded deeply within cultural practices and exert a profound influence on the manner in which information is received, processed, and conveyed. They encompass a broad array of phenomena, including language usage, symbolism, social norms, and values (Colombo 2014). Related anthropological theories such as *cultural consensus theory* and theories of collective representation analyze the extent and quality of shared knowledge within a community (Gatewood 2011). These frameworks suggest that each culture possesses a systematic set of knowledge, which, when commonly held by the majority, establishes a foundation for cultural consensus (Bennardo and Kronenfeld 2011). An investigation of this consensus enables researchers to evaluate the precision and distribution of cultural schemas and their influence on individual thoughts and actions. Schemas are inherently adaptive, undergoing evolution in response to new social influences or information. This dynamic is particularly evident in instances of cultural encounter,

whereby disparate schemas converge, frequently resulting in the formation of novel cognitive and cultural syntheses. The field of cultural psychology has demonstrated that individual behaviors are shaped by social norms, which themselves reflect the cultural consensus within a community (Zou et al. 2009; McGuire, Manstead, and Rutland 2017). This body of work provides a crucial interface for examining the interplay between collective intentionality (see Chapter 3.5) and collective representations, which are essential concepts for comprehending group dynamics within cultural contexts. For example, the findings of McGuire et al. illustrate that participants, particularly older children, adjusted their resource allocation in accordance with the perceived norms of their own group (ingroup) and the outgroup. This behavior reflects not only an adaptation to specific situational norms but also a pronounced collective intentionality, manifesting in the capacity to justify actions in accordance with an understood group consensus. Additionally, discussions often center on mental architectures, cognitive systems (Bennardo and Kronenfeld 2011), and representational modules (Jackendoff 2007, 2002), with the physiological or bodily level frequently being overlooked. However, physical aspects, especially unconscious ones, are considered in approaches such as embodied speech and speech as action (Austin 1972; Hindelang 2010). These approaches integrate the complex interconnectivity of language, cognition, and culture. In this regard, the Neo-Whorfian hypothesis of linguistic relativity considerably enhances our comprehension of the cognitive aspects inherent to schemata. This hypothesis proposes that the structure of a language has a significant impact on the thoughts and perceptions of its speakers, demonstrating the influence of linguistic features on cognitive patterns. This implies that language is not merely a conduit for communication; rather, it actively influences how we comprehend and interact with the world. To illustrate, languages that possess a rich vocabulary for different shades of green can foster more intricate color perception schemes among their speakers, thereby demonstrating the adaptive nature of schemas. These schemas are not only shaped by individual cognitive processes but are also molded through collective experiences. The concept of shared cognition elucidates the processes through which linguistically mediated schemas are shared, negotiated, and modified within cultural groups. The concept of shared cognition pertains to the collective nature of knowledge formation and application, with language serving as the primary medium through which cultural norms and values are disseminated and internalized within a community. This framework puts forward the idea that cognitive processes are deeply embedded in social interactions, both influencing and being influenced by the linguistic and cultural environment. Linguistic differences not only impact individual perceptions but also influence the way knowledge and beliefs are communicated and consensually validated within groups. Despite its far-reaching implications, the Neo-Whorfian hypothesis, in its original deterministic form, is largely regarded as outdated in contemporary research. Contemporary perspectives acknowledge the sig-

nificant influence of language on cognitive processes but reject the notion that these influences are deterministic. The role of language in shaping thought is becoming increasingly recognized as one among many factors, with language interacting in complex ways with other cultural and individual determinants. In subsequent sections, the cognitive dimension is augmented by other essential aspects to provide further evidence that even a comprehensive, multidimensional view of schemata is not exhaustive. It is recognized that psychological anthropological research is still in a process of development and continues to evolve. This moderated perspective recognizes the formative role of language in cognitive processes and asserts the interconnectedness of linguistic structures with other cultural and individual influences. It presents a more intricate and nuanced depiction of cognitive schemas that more accurately reflects the complexity of human thought processes and reaffirms the necessity to rigorously examine and refine our models on an ongoing basis. In this framework, schemas are conceptualized as being shaped by dynamic interactions of diverse factors within the social and cultural context, exemplifying the fundamental principle of shared cognition. The interplay between collective intentionality and collectively shared knowledge demonstrates how social norms—as fundamental elements of cultural consensus—ensure that individuals do not make decisions in isolation but always in relation to the dynamic and often implicit expectations of their social environment. By adapting to or challenging these norms, individuals engage in the active construction and transformation of cultural realities. This perspective broadens the understanding of culture as a dynamic process sustained by its members, in which collective intentionality and cultural consensus not only coexist but also reinforce each other. These factors are fundamental to social cohesion and the continuous evolution of culture. An examination of these interrelationships enables anthropologists to gain a more profound understanding of the ways in which cultural stability and change are shaped by the everyday decisions and interactions of community members. It becomes evident that emotions and behaviors engage in a complex interplay, directed by cultural prescriptions that relate to meanings, reproduce them autopoietically, and ensure their transmission (see Chapter 8.4).

Moreover, schemata facilitate the integration of information from the past and the present, thereby paving the way for future comprehension (D'Andrade 1995, 180). They are the basis for our situational comprehension and our competencies across a range of real-world domains. Schemas emerge from the interaction between intrapersonal mental structures and the structures of the external world, leading to recurrent and shared interpretations of experiences. Cognitive science posits that these schemas are learned or innate dynamic elements that facilitate our information processing. They function as both data structures and processors, informed by past experiences and influencing future knowledge. This interconnection between past, present, and future is fundamental to the ability of schemas to establish intricate networks of relationships and meanings, thereby affirming their

crucial function in influencing our perception of the world and our interactions within it (Strauss and Quinn 1997, 62). As organic wholes, schemas facilitate the integration of knowledge and action in an intuitive and adaptive manner, allowing for the seamless interweaving of cognitive and behavioral processes. The function of cultural schemas in the transmission and reproduction of diverse understandings within social groups is evident from their significance within cultural contexts. Furthermore, sociocultural influences exert a considerable influence on the formation of our cognitive structures. Schemas are patterns that guide the processing of experiences, the formation of knowledge, and the shaping of practices, though they do not always adhere to conventional pathways. In contrast with the assumption that schemas are fixed entities, research indicates that they are, in fact, highly flexible and adaptable. This adaptability allows them to respond to new information and shifts in the social environment. This dynamic nature enables them to evolve continuously, reflecting changes in both individual and collective understandings, thereby playing a crucial role in the ongoing development of cultural and social landscapes. The following section will expand upon this understanding to encompass a person's physical existence and environment. It is, however, important to note initially that these frameworks exert a significant influence on the way information is interpreted and on the emotional reactions displayed in specific contexts.

6.3.3 Bodily Dimension

The bodily dimension accentuates the pivotal function of physiological and physical processes in the formation of schemata. When this aspect is taken into account, it becomes imperative to investigate and illustrate the manner in which bodily states are intertwined with cognitive and affective functions. The embodied cognition approach significantly enhances our comprehension of schemata by broadening the scope beyond the conventional emphasis on neuronal processes. This approach sheds light on the part that schemata play in decision-making and motivational processes, particularly in how specific emotions linked to these processes can be seen as evolutionary mechanisms that guarantee survival. To illustrate, in situations of acute danger, schemata that have been refined over many years of individual and collective experience are activated and utilized. The concept of schemata, which prepares the body for rapid reactions that are essential for the fight-or-flight response, serves as an exemplar of embodied cognition. At the beginning of the 2000s, the acknowledgment of the embodiment of human sensations and social cognition patterns marked a revolutionary shift away from the prevailing mental reductionism. Previously, reductionist approaches had oversimplified thinking, feeling, and acting to mere neuronal circuits, disregarding the intricate interplay between the body and its environment. Therefore, it is evident that schemata are not merely mental constructs; they are also deeply rooted in physical and physiological

experiences. The development and adaptation of schemata are significantly influenced by these physical and sensory experiences, which assign a fundamental role to them within the framework of embodied cognition. Extensive empirical research (Bruyn 1989) demonstrates that changes in our body perception markedly influence our interpretation of the environment. For example, postural adjustments, such as those occurring after bariatric¹ surgery, can profoundly alter our perception of space, thereby exhibiting how physical changes can reshape our cognitive and perceptual frameworks. Consequently, cognitive processes are not isolated within the brain but are profoundly integrated with our bodily experiences, continually influencing and being influenced by them (Natvik et al. 2019, 101). In this context, *embodiment* signifies that the structural features of our body, beyond the nervous system, critically shape our cognitive experiences. An illustrative example is our binocular vision, facilitated by the specific arrangement of our eyes, which enables us to perceive depth in objects (Gallagher 2005). Similarly, the placement of our ears influences our ability to discern the direction of sounds (Gallagher 2023, 11). Thus, perceptual processes are not merely influenced by body structure—they inherently depend on and incorporate bodily structures (Shapiro 2004, 190).

These insights reveal that schemata are influenced not only by proprioceptive² or motor processes but also by deeper affective processes that encompass emotions, moods, and basic physical states such as hunger, fatigue, and pleasure. The intertwined nature of embodied experiences and schemata collectively constitutes the bedrock of our perception and understanding of the world. Hormonal fluctuations, alterations in body chemistry, and visceral and musculoskeletal processes have a considerable impact on our perception, memory, attention, and decision-making abilities. These bodily processes are integral components of the schemata that shape and guide our interactions with the environment and our processing and response to information (Gallagher 2023, 12). The routine evaluative processes we engage in

-
- 1 The term "bariatric" pertains to the medical field that addresses the prevention, diagnosis, and treatment of obesity. Bariatric surgeries are surgical procedures conducted on the gastrointestinal tract with the objective of facilitating weight loss, typically in individuals for whom conventional weight loss methods, such as dietary modifications and exercise, have proven ineffective. These surgeries may entail, for instance, the reduction of gastric volume or the alteration of intestinal transit to diminish food intake and/or absorption.
 - 2 Proprioception refers to the perception of the position and movement of one's own body in space as well as the feeling for the position, movement and strength of one's own limbs. It is a form of sensory perception that provides the brain with information about the condition of the muscles, tendons and joints. Proprioceptive signals play a central role in the coordination of movements, balance and posture. They enable the individual to know where different parts of the body are located and how they move, even without visual information. This sense is fundamental for everyday actions such as walking, grasping objects or performing fine motor tasks.

countless times daily are also crucial. These evaluations often occur within cultural and social contexts, for instance, concerning individuals of a different skin color or in regard to their behaviors, eating, drinking, and consumption habits. They are intrinsically linked to the maintenance of physical homeostasis³ (Damasio 2011, 59), which is closely connected to our needs—the regulation of our body, our consciousness, and ultimately our survival. Therefore, neurobiological and neurochemical explanations are indispensable for understanding the nuances of human differentiation.

Embodied cognitions within schemas manifest in a multitude of facets of our everyday lives, thereby providing clear evidence of the profound integration of embodiment into our cognitive frameworks. To illustrate, the acquisition and utilization of language are rooted in the profound intertwining of embodiment with our cognitive structures (Hampe 2017; Ervas, Gola, and Rossi 2017). A critical examination of communication processes leads to the conclusion that meaning is not conveyed through language alone but is augmented by a multitude of physical expressions. It is an inescapable fact that communication invariably occurs in conjunction with gestures, postures, and other physical manifestations that provide context and depth to verbal exchanges (Thiering 2018, 298). For example, the act of nodding or shaking the head not only indicates agreement or disagreement but also confirms or modifies the verbal message. Similarly, actions such as rolling the eyes, taking a deep breath, or raising the eyebrows can indicate irony or skepticism, providing additional layers of meaning beyond the mere words spoken. These physical actions are integral to the schemas that frame our understanding of and reactions to social interactions. These behaviors are deeply embedded in our cognitive schemas and significantly impact our information processing and response tendencies. The complementarity of verbal and non-verbal communication is exemplified by gestures such as raising the hands in surprise or leaning forward to show interest, which enhance or refine the meanings conveyed beyond the verbal content. These physical components of communication illustrate that cognitive schemas encompass both mental and bodily processes. They illustrate the complex interrelationship between physical and cognitive elements in the formation and interpretation of social reality. These insights enhance our comprehension of the ways in which individuals negotiate their social

3 Homeostasis is the process by which living organisms maintain the stability of their internal environment despite changes in their external environment or internal conditions. This process involves a variety of regulatory mechanisms that ensure that essential variables such as body temperature, pH, blood glucose levels and salt concentrations are kept within narrow limits. Homeostasis is fundamental to the health and survival of organisms as it creates a constant and optimal internal environment for the functioning of all body cells and systems. When homeostasis is disturbed, various diseases can occur as the body is no longer able to regulate its internal conditions within vital limits.

environments and express their communicative intentions through a dynamic interplay of verbal and nonverbal means. Linguistic schemas, which develop within cultural communities through social interactions, encapsulate not only cognitive processing but also the bodily experience of the world (Logan 2017). Metaphors provide a clear illustration of this phenomenon, employing bodily experiences such as the sensation of being “high” to denote a positive mood and the sensation of being “low” to denote a negative mood. This significantly shapes how we conceptualize and communicate emotions (Hampe 2017, 117). The role of embodied cognition is further illustrated by the processes of spatial perception and navigation. The human capacity to orient and navigate through space is contingent upon an intricate synergy between cognitive maps, sensory experiences, and bodily movement (O’Keefe and Nadel 1978; Redish 1999; Chrastil and Warren 2014). Similarly, dietary practices and preferences are firmly established within the context of embodied experiences and sociocultural schemas (Vogts and Costandius 2019; Morrison 2002; Rozin 2005). The notion of what is considered palatable or repulsive extends beyond mere personal preference. It is significantly influenced by cultural norms and practices that imbue bodily experiences with specific meanings. The preceding examples establish that embodied cognition has a profound impact on our perceptions, actions, and sensations. This occurs through dynamic interactions with both the physical and social environments, which shape our everyday experiences and the ways in which we engage with the world around us.

The neurochemical regulation by substances in the body provides a molecular-biological foundation for social categorization processes that frequently result in either reward or punishment (Sapolsky 2017, 594; Everett, Faber, and Crockett 2015). This dynamic is analogous to the previously discussed connection between the mesolimbic dopamine system and group identifications (see Chapter 5). Individuals are susceptible to the formation of biased attitudes pertaining to groups, based on arbitrary distinctions, which give rise to “us versus them” sentiments (Gorman and Gorman 2018, 68). The association between selected traits and specific values and beliefs is rapidly established, and this linkage is immediately reinforced by hormones and neurotransmitters that generate feelings of confidence and well-being. The routine evaluation processes exhibit similarities to patterns observed in addictive behavior, particularly with regard to the anticipation of the next reward. These evaluative mechanisms categorize experiences and decisions using a binary code of reward and punishment. This system, which is driven by the release of specific neurotransmitters such as dopamine, plays a pivotal role in our reward system. Furthermore, neuropeptides such as oxytocin and vasopressin facilitate social competence and interest, which in turn give rise to behaviors indicative of empathy, including prolonged eye contact and the recognition of others’ emotions (Fischer-Shofty, Levkovitz, and Shamay-Tsoory 2013; Donaldson and Young 2009). The propensity to fa-

vor one's own group (see Chapter 4), often at the expense of others, is a well-documented phenomenon (Yu et al. 2021; Katsumi and Dolcos 2018; Gorman and Gorman 2018; Rieicansky et al. 2015; Everett, Faber, and Crockett 2015). Furthermore, these evaluations are sometimes reinforced by subsequent rationalizations for negative judgments, illustrating how deeply entrenched and self-reinforcing these neurochemical and social dynamics can be (Haidt 2001, 814).

In the context of human differentiation, group-based identifications are of pivotal importance. It is crucial to acknowledge that the groups under examination are invariably constructed and never homogeneous or monolithic. These concepts were examined in Chapters 3 and 4 in the context of evolutionary and psychological foundations of group dynamics. This establishes the foundation for understanding the role of embodied schemas and their integration within social structural contexts. This form of prosociality, which is deeply embedded in our cognitive, emotional, and physical actions, is not predetermined. This is a crucial realization that is often overlooked in academic discourse. The processes of thinking, acting, and feeling are inextricably linked to affective-cognitive-bodily schemata, which exhibit a comparable structural organization. This observation indicates the presence of a universal foundation for human experience. The consistency of emotional expression is evident not only between individuals in general but also across individuals from diverse societies and sociocultural backgrounds, as previously discussed in this chapter. However, the interpretation of these emotional expressions varies significantly across different cultural contexts. This variability in meaning attribution suggests that cultural codings influence our perception and interpretation of affective states, thereby allowing universal schemata of thinking, acting, and feeling to be recontextualized within specific social and cultural frameworks. This interaction arises from the dynamic interplay between universal human capacities and the diversity of cultural expressions, with cultural encodings playing a pivotal role in shaping both individual and collective identities. As will be discussed in greater detail below, the understanding that schemas are not merely cognitive structures but are also deeply rooted in bodily and affective experiences elucidates that our evaluations of individuals, ideas, and perceptions identified as "other" extend beyond purely mental processes. This is particularly evident in the context of binary-coded meaning attribution processes. An alternative perspective is that they constitute components of a comprehensive system that reflects both internal states and environmental interactions. These evaluations, therefore, represent intricate intersections of personal, social, and evolutionary experiences, emphasizing the nuanced and layered nature of how we perceive and engage with the world. From a systemic-anthropological perspective, it is crucial to acknowledge the importance of embodied actions and feelings as essential components within social systems, particularly in the context of feedback loops. These actions and feelings are not isolated; rather, they are con-

tinuously impacting the system, influencing its structure and function. Such actions contribute to the maintenance or modification of system dynamics by conveying information through physical expressions, which are then interpreted and processed by other members of the system. These interactions facilitate the system's capacity to adapt to internal and external changes, thereby maintaining or realigning systemic homeostasis. These embodied processes either affirm or challenge social norms, thereby facilitating an ongoing recalibration of the system and supporting its development and adaptability. This perspective illuminates the pivotal role of embodied interactions in the dynamic and continuous shaping of social systems, emphasizing the integral function of physical and emotional expressions in the collective life of a community.

6.3.4 Extended Dimensions of Schemata

The “extended mind” theory, which is often referred to as an “extended” or “externalist” approach to cognition, broadens the concept of social cognition by extending it beyond the individual's body to include external factors. This perspective broadens traditional views by incorporating external elements, including tools and technologies, social interactions, and environmental factors, into the framework of cognitive functioning (Gallagher 2023, 19). Since its inception in the early 2010s, the externalist approach to cognition has diversified, significantly enriching our understanding of cognitive processes (Menary 2010; Rowlands 2010; Rupert 2009).

The research into the extended mind hypothesis is typically classified into three theoretical “waves” (Telakivi 2023, 20). The *initial wave*, established by Clark and Chalmers, is grounded in functionalism and concentrates on the function of external elements within the cognitive system. In this view, instruments and artifacts that we utilize are considered part of our cognitive system insofar as they enable us to perceive and categorize aspects of our environment that would otherwise be inaccessible. This is articulated through the parity principle, a fundamental tenet of extended cognition theory, which postulates that an external tool or source of information can be regarded as an integral component of an individual's cognitive system if it performs the same functional task as an internal element of the cognitive process (A.C. Clark 2012; A. Clark and Chalmers 1998). In accordance with the parity principle, if an external element is incorporated into the cognitive processing system in a manner that renders it functionally equivalent to an internal cognitive process and facilitates the resolution of a cognitive task, it should be accorded the same cognitive status as an internal process. This principle challenges the traditional boundaries between the mind and the external world, suggesting that cognitive activities are not confined to the brain but can extend into the environment, provided that external factors function equivalently to internal cognitive mechanisms. This expanded view of cognition posits that individuals

are inextricably linked with their material and social environments. The theory suggests that these external elements play a significant role in assisting individuals in overcoming cognitive challenges (A. Clark and Chalmers 1998). In the *second wave* of the extended mind theory, the parity principle established by the first wave is set aside in favor of concepts such as complementarity and integration (Telakivi 2023, 21). The second wave of the extended mind theory explores the intricate dynamics between external and internal cognitive functions, emphasizing complementarity over equivalence. This nuanced approach suggests that external tools or environments need not mirror the cognitive functions they support or extend. Rather, they can provide distinct, yet complementary, advantages that enhance overall cognitive ability. To illustrate, although a notebook may not process information in the same way as the brain, it serves as a dependable external memory repository, thereby liberating cognitive resources for other tasks. This distinction allows for a broader understanding of cognitive augmentation, whereby different types of cognitive processes—whether internal or external—can work together in a synergistic fashion, with each contributing unique strengths that are not necessarily interchangeable but are mutually beneficial. By moving beyond the search for functional equivalence, this wave introduces a more flexible understanding of how external elements can integrate into cognitive processes, facilitating a richer and more effective cognitive system. This approach permits a more expansive range of technologies and artifacts to be regarded as authentic extensions of the mind. It emphasizes the way these elements augment cognitive capabilities by functioning in conjunction with internal processes, as opposed to merely replicating them. The *third wave* of the extended mind theory represents a comprehensive synthesis that builds on the insights from the initial and second waves, integrating these perspectives into a more holistic understanding of cognition (Gallagher 2023, 25). This wave takes a broad and inclusive view, exploring a diverse range of connections that span from the biological—such as neurons—to technological and sociocultural elements—like smartphones and writing practices. In this way, the discussion addresses gaps that may have been overlooked in earlier analyses, providing a more comprehensive understanding of the interconnections between diverse tools and practices and the cognitive processes they influence. This latest wave challenges the conventional boundaries that have traditionally distinguished the internal from the external, as well as the natural from the artificial. The hypothesis put forth is that these divisions are not inherent or fixed but rather constructed through ongoing developmental and cultural processes. Accordingly, these boundaries are regarded as permeable and fluid, continuously shaped and reshaped by historical, societal, and technological forces. This perspective advocates for a dynamic view of cognition as a process that is perpetually evolving, shaped by a constant interplay between internal capabilities and external resources. The proposal suggests that cognitive frameworks are not only shaped by immediate physical and sensory stimuli but are also

significantly influenced by broader cultural and social constructs that evolve over time. In light of these considerations, the third wave encourages a reassessment of the conceptualization and comprehension of cognitive elements, advocating a perspective of cognition that is malleable, receptive to novel integrations, and responsive to cultural and technological advancements.

As we integrate increasingly intricate elements into our conceptualization of schemas, it becomes evident that the unpredictability and non-linearity of individual and collective actions concomitantly increase. This complexity presents a significant challenge to the prediction of behaviors based solely on schemas, given their function to simplify and categorize human experiences. As schemas encompass a wider range of influences, including biological, environmental, and complex social dynamics, they evolve from deterministic models to probabilistic ones. The interactions among these diverse variables, some of which may be unknown or only partially understood, contribute to the reduced predictability of actions. For example, the advent of new technology has the potential to alter social behaviors and cognitive processes in unforeseen ways, suggesting that influences on cognition may extend beyond immediate and apparent factors. This recognition of inherent unpredictability and non-linearity requires a cautious and nuanced approach to the study of human behavior. Consequently, the necessity of continuous research and adaptation in cognitive and social sciences is acknowledged, with the objective of refining theoretical models to more accurately reflect the dynamic nature of schemas and their extensive, interdependent influences.

6.3.5 Enactivist Dimensions of Schemata

The enactive approach offers a valuable contribution to the ongoing discussion on differentiation schemata. It focuses on the dynamic interactions between organisms and their environments as the foundational elements for differentiation processes. Within this framework, the comprehensive 4E approach to social cognition—embodied, embedded, extended, enactive—merges these elements, rendering the distinctions between them largely inconsequential. Of particular relevance to our investigation of differentiation and categorization practices, enactivism draws upon a range of theories that incorporate phenomenological and systems-theoretical analyses of empathy, thereby providing novel insights and perspectives into social cognition (Schlicht 2023, 107; Gallagher 2023, 30; Colombetti 2013; T. Fuchs 2018; Zahavi 2014; Telakivi 2023, 12). Francisco Varela, Evan Thompson, and Eleanor Rosch, the pioneers of enactivism, initially articulated the concept that the mind is best understood as a form of embodied action. They introduced the term ‘embodiment’ to describe the multiple sensorimotor capacities of an organism (F.J. Varela, Rosch, and Thompson 1991, 172). These capacities are not isolated phenomena; rather, they are deeply intertwined with a multitude of biological,

psychological, and cultural contexts. By emphasizing the pivotal interconnection between mental states and embodied and embedded action, enactivism aimed to offer a compelling alternative to conventional mental theories that accord primacy to representation as their central tenet (Hutto and Myin 2013, 4).

The enactivist approach presents a challenge to the tenets of established cognitive theories, including those positing the primacy of theory of mind, modularity, and simulation. These theories are primarily founded upon computational and representational paradigms. In contrast, enactivism provides a critique of the rigid cognitivism inherent in these approaches (Telakivi 2023, 13) and proposes an alternative understanding of mental states that integrates their embodied nature and their intrinsic connection to the body (Schlicht 2023, 108). This integrative perspective elucidates the pivotal function of action—or enaction—in molding and adapting cognitive structures to the environment. Consequently, cognition is conceptualized as a form of embodied action. In this view, cognitive processes emerge from the repetition of sensorimotor patterns of perception and action, with each interaction contributing to the formation of cognitive development. In alignment with the systems theory paradigm, enactivism depicts living entities as dynamic systems engaged in continuous interaction with their surrounding environment. These systems are responsive, adapting to changes and perpetually refining their engagement with the surrounding context. This approach emphasizes the operational coherence and critical integration of cognitive systems with their environment, illustrating the profound intertwining of cognitive processes with the external world. This interplay exerts an influence not only on immediate responses but also on the formation of long-term cognitive adaptations (Colombetti 2014, 115). This approach is predicated on the notion that cognition is to be understood as enactivist action, a concept that diverges from the previously discussed dimensions of schemata in its systemic interaction with the environment. The environment is not merely regarded as a passive context; rather, it is considered an active and integral part of the cognitive system. Accordingly, meanings are not merely perceived; they are actively created and transformed through the dynamic interaction of perception, action, and the environment. This conceptualization views cognitive processes not as isolated mental functions, but rather as profoundly integrated with physical interactions and environmental contexts. This relational field is not merely a backdrop for cognitive activities; rather, it is an active participant in the formation and function of cognitive processes, continuously shaped and reshaped by these interactions (Telakivi 2023, 13). In this context, the term “relational” is employed to delineate the dynamic interactions between cognitive processes and the environment. This perspective posits that the environment is not merely a passive backdrop, but rather, actively shapes cognitive processes. This concept acknowledges that the mind is engaged in a continuous dialogue with external entities, including people, objects, cultural norms, and physical spaces, which, in turn, exert influence on cognitive activities. This per-

spective challenges the notion of the mind as an isolated processing unit and instead acknowledges its intrinsic connection with the surrounding environment. It posits that the mind is continuously responding to and influencing the conditions under which it operates. The relational field challenges the traditional view of cognition as confined to the brain. In contrast, the relational field posits that cognitive processes are fundamentally situated and dependent on ongoing interactions. In this way, the environment is regarded as an active participant in cognitive processes, providing resources that extend capabilities and setting constraints that guide development. This transition from an internalist perspective to a more integrated model redefines cognition as both a product and a producer of the relational dynamics with which it engages. The concept of a relational field in cognitive processes enhances our comprehension of intersectionality by illustrating how individual experiences and cognitive structures are profoundly influenced by overlapping social categories, including race, gender, class, and sexuality. The relational field postulates that cognitive processes are subject to dynamic influence from interactions with the environment. This perspective is consistent with the tenets of intersectionality, which elucidate the manner in which the convergence of diverse social identities impacts individual experiences and perceptions. Furthermore, the influence of human differentiation on cognitive processes is evident, as societal categorizations based on these identities markedly impact the formation of both individual and collective cognitive frameworks. The concept of relationality not only elucidates the interconnectedness of social factors and cognitive processes but also emphasizes the profound impact of social structures on cognitive evolution. In accordance with the enactivist perspective, schemata do not merely process information and associated meanings in a simplified, computational manner. Instead, they actively generate meaningful patterns through interaction with the sensorimotor network, thereby establishing the crucial importance of direct, physical engagement with the world in cognitive processing. Consequently, this perspective represents a significant departure from traditional, representation-based theories of cognition, offering a more dynamic and interactive understanding of the subject matter (Overton 2008, 55). The brain and the entire nervous system are not simply hardware; rather, they constitute an autonomous, self-organizing, and self-reproducing—i.e., autopoietic—system. This system actively creates its own meaningful patterns in interaction with the sensorimotor network, a concept that displays the brain's role not as a passive recipient of information but as an active participant in its interpretation (Willans, Rivers, and Prasolova-Førland 2016, 195). Consequently, the environment in which a person operates cannot be viewed as a predetermined or statically defined space that is directly represented in the brain. Instead, it is conceptualized as a relational field, dynamically shaped by the continuous interaction between the individual and their environment (Overton 2008, 56). This approach recognizes experience not merely as an epiphenomenal by-product of cognitive processing, but as a central compo-

nent of the system-environment interaction. It points out the bidirectional influence between an individual and their surroundings, suggesting that our cognitive structures are both shaped by and instrumental in shaping our interactions with the world. This reciprocal relationship is fundamental to the development and adaptation of our cognitive schemata, reflecting a more integrated and dynamic view of cognition (F.J. Varela et al. 2017; F.J. Varela, Rosch, and Thompson 1991, 199). The interrelated disciplines of systems theory, phenomenology, and cognitive science, when considered together, offer insights into the complexity of human experience. Each of these disciplines contributes unique perspectives and methodologies to this integrative approach, which collectively explore the intricate dynamics of human experience. In the enactivist understanding of schemata, aspects of willpower and morality are integrated seamlessly into the context of action-oriented interactions. The exercise of willpower and the performance of moral actions are both subject to the influence of social interactions and cultural practices. The way individuals perceive and morally evaluate their options for action is influenced by their integration within specific social networks and cultural practices. Schemata of differentiation function as a meta-program within the human system, facilitating both self-preservation in the sense of autopoiesis (discussed in the following subchapter) and the regulation of relationships with external social systems. As previously stated, these schemata are deeply embedded in cognitive, emotional, and physical processes, exerting influence over the manner in which information is processed, decisions are made, and actions are executed. These form the fundamental structure through which both individual and collective identities are established and sustained. In enactivist theory, knowledge and meaning emerge through action and interaction with the environment. Schemata of differentiation form internal models that define and stabilize individual and social identities through automated processes, yet do not rigidly fix them. Schemata are dynamic and adaptable, thereby exemplifying their function in the self-preservation of the individual system. Concurrently, they facilitate flexible adaptation to evolving social contexts. A significant argument for the function of schemata of differentiation as meta-programs is their capacity to internalize social roles and expectations, thereby aligning individual actions with prevailing social norms and values. This concept is further elucidated in Section 8.3, which addresses the mechanisms of subjectivation and conditioning. These mechanisms facilitate an individual's comprehension of their role within a social system and enable them to engage in behaviors that are consistent with societal expectations. These schemas are instrumental in navigating the complexities of social environments, providing individuals with consistent behavioral and interactive patterns that are in harmony with established norms. The mutual influence exerted by individual schemas of differentiation and social structures is elucidated by the interplay between the two. Social systems, including families, educational institutions, workplaces, and cultural bodies, provide the external conditions that

foster the growth and alteration of these schemas. Consequently, these systems exert a significant influence on the reinforcement or diminution of schemas, thereby influencing the dominant behaviors and identity traits within a culture. The concept of prereflective consciousness, as put forth by Paul Ricoeur, lends further support to this argument by demonstrating how schemata of differentiation operate at a profound, frequently unconscious level (Ricoeur 1968; Hems and Ricoeur 1971, 250). According to Ricoeur, these schemas subtly guide our volitional actions and moral judgments, functioning without the necessity for conscious thought (Vinicio 2023). This prereflective guidance facilitates a fluid integration of individual behaviors with societal expectations, substantiating the role of schemas as internal frameworks that not only reflect but also sustain the social order. The internalization of social roles through the dual processes of subjectivation and conditioning, as discussed in Chapter 8.3, is a crucial aspect for individuals to effectively comprehend and navigate their positions within social systems. This enables them to respond adaptively to social cues and pressures. The reciprocal relationship between individual actions and societal structures, which is mediated through schemas, represents a dynamic process. In this process, social norms are both shaped by and in turn shape individual behaviors, creating a cycle of social influence and adaptation. Schemas facilitate the recognition of actions as “our own” while simultaneously enabling compliance with social norms. The capacity to make decisions is contingent upon the reliance on pre-structured, often unconscious schema patterns, which act as a framework delineating the space of potential decision-making. Schemas are not merely passive filters; rather, they are active shapers of our interactions with the world, helping us to reduce complexity and evaluate action options. These interactions are shaped by social and cultural schemas that affect behavior and decision-making processes. The enactivist perspective challenges the assumption that “selfhood” is a fixed and independent foundation for action. Instead, it proposes that the sense of selfhood is the result of ongoing, dynamic processes that are influenced by social and cultural factors. In this context, it becomes evident that schemas are not merely reactive adaptations but actively contribute to shaping and changing the social environment. Through continuous interaction and feedback between individuals and social systems, schemas of differentiation are both reinforced and transformed. This dynamic interplay shapes individual and collective identity, fostering social cohesion while also driving social change. Daniel Wegner posits that the belief in free will is an illusion created by social and cultural mechanisms (Wegner 2004, 653). Individuals in Western societies often attribute their actions to conscious decision-making, though these decisions are frequently influenced by unconscious processes and prevailing social norms. This perspective supports the contention that free will is an illusion, analogous to the historical geocentric view of the universe. Consequently, the concepts of selfhood and willpower emerge as constructive illusions, facilitating effective navigation within intricate social structures. In his dis-

course on Western societal norms, Wegner emphasizes the ideal of human agency (Wegner 2002), which he articulates through a tripartite ‘thought-will-action model’ (Preston and Wegner 2005, 106). This model delineates agency as ‘conscious, effortful, and intentional.’ Intention, typically perceived as a premeditative state, manifests in consciousness shortly before the execution of an action. In the context of enactivism, the anthropological model of volition (Murphy and Throop 2010) is expanded to emphasize the dynamic interplay between the individual and the environment. The enactive approach to cognition asserts that intentions and actions do not simply arise from discrete conscious processes at the level of social cognition. Instead, they are cultivated through ongoing interactions with the environment and social contexts. Consequently, intentions are not merely the result of internal cognitive processes; they also emerge from mutual adaptation to and resonance with the environment. In light of this framework, Wegner’s “thought-will-action model” is reinterpreted as a process whereby conscious intention is shaped and guided by a complex network of physical actions, sensory experiences, and social interactions. From a systemic anthropological perspective, the source of an intention—whether it arises from conscious awareness or is predetermined, as discussed in various academic contexts—is inconsequential. This approach posits that social systems function by generating and maintaining structures through recursive processes. Consequently, individual intentions and states of consciousness are profoundly enmeshed within the intricate social and cultural dynamics that shape them. In essence, this also renders the linear pursuit of the “origin” of an intention futile. These dynamics significantly influence behavior and decision-making processes within these systems. This is based on the understanding that individual agency and societal constructs are deeply interdependent. Accordingly, volitional and moral actions should not be considered in isolation, but rather as embedded within the recursive processes of social systems. These actions emerge from intricate interactions between individual intentions and the cultural and social dynamics that inform behavior. Consequently, an individual’s moral decisions and actions are shaped not only by personal convictions but also by the structural influences and normative expectations of the social system in which they operate. When viewed in this light, acts of will and moral judgments are less expressions of autonomous decision-making and more manifestations of the reciprocal influence between the individual and the social context. This indicates that an individual’s will and morality are shaped and directed by existing cultural schemas and social norms. Schemas, as meta-programs, provide preconscious structures that facilitate decision-making and moral actions. Furthermore, embodied actions illustrate this connection, demonstrating how cultural and social imprints are deeply integrated into daily behavior. For example, rituals and symbolic gestures manifest and reinforce cultural values and social structures, which in turn are shaped and reaffirmed by individual actions. It can therefore be argued that embodied actions are not merely expressions of internal states

but are in fact active engagements in and reproductions of social systems. The conscious experience of intention and moral choice is thus the result of an enactive process, wherein the individual engages in continual interaction with their environment. Schemata structure these interactions, enabling actions to be experienced as coherent and intentional, even when they are deeply rooted in unconscious and social contexts. From an enactive perspective, cognition and understanding emerge from action-oriented interactions with the environment. The evolution of schemata of differentiation enables individuals to construct meanings and learn by actively engaging with their surroundings. Schemata not only direct actions but also establish the foundation for subsequent learning and development, which is significantly influenced by the cultural and social environment. The enactivist approach brings to the fore the malleability and responsiveness of cognitive processes, thereby enhancing our comprehension of the interrelationship between individual actions, cognitive structures, and the socio-cultural milieu. This demonstrates how cognitive systems develop and function through a dynamic feedback loop comprising action, reflection, and adaptation. This establishes the fluid nature of cognition and its continuous evolution in response to environmental changes.

6.3.6 Autopoietic Dimension of Schemata

The concept of autopoiesis, developed in the 1980s (Maturana and Varela 1980) and subsequently applied to social systems as detailed in Chapter 2, describes how living systems autonomously produce and regenerate their structures and components through ongoing internal interactions and transformations (Luhmann 1996, 61). These autopoietic processes enable living systems to maintain their identities over time and to differentiate themselves from their environments. A fundamental characteristic of autopoietic systems is the establishment of a physical boundary that distinguishes them from their external environment, thereby enabling their existence as discrete entities within a given spatial context. In the field of cognitive science, the concept of autopoiesis has informed approaches that view cognition as an active, embodied, and environmentally integrated process, where perception and action are inextricably linked. Schemas, which are not static entities but rather dynamic and not solely anchored in cognitive, affective, or physical realms, should be regarded as living entities that continuously interact with the world and act as generators of meaning. They play a foundational role in the structuring and interpretation of experiences, undergoing constant evolution through the integration of new information and responses to environmental changes. This ongoing dynamic constitutes an integral part of the essence of autopoiesis, which is defined as the principle of self-organization and continuous renewal that is fundamental to living systems. Within the autopoiesis theory framework, schemas are regarded as exemplars of the self-organizing properties of living systems, which are pivotal

for comprehending their capacity to generate and evolve meaning. The autopoietic perspective on schemata, as explored in this book, provides a comprehensive understanding of the development and transformation of cognitive, affective, bodily, and social system structures through ongoing interactions between individuals and their environments. The principle of autopoiesis, which describes the self-organization of social groups and societies, elucidates the way these entities maintain and adapt their structures through internal processes, thereby preserving their identity and coherence. This self-organizational process is integral to understanding human differentiation, as it reveals how social and cultural identities are continually renegotiated and redefined through systemic interactions. Moreover, schemata are in a constant state of adaptation, assimilating new experiences and information, which can result in shifts in perceptions and evaluations of social groups. Similarly, an autopoietic system is capable of proactively adjusting to environmental changes in order to maintain its viability. This adaptability is of great consequence for the evolution of social norms and values and plays a foundational role in the emergence and transformation of differentiation processes. The theory of autopoiesis emphasizes the significance of recursive processes in the sustenance and evolution of systemic structures. This principle has significant implications for the understanding of cultural codes as mediators of structural coupling. The concept of recursion can be defined as a mechanism through which systems employ their own processes for the purposes of continuation and development. This process facilitates self-organization and self-regulation based on the continuous feedback between past and future states of the system. In the context of cognitive schemata, recursive mechanisms are demonstrated in the shaping of future perceptions and actions based on past experiences. This dynamic illustrates how cultural codes function as pivotal elements within the recursive cycle of experience, interpretation, and adaptation. New experiences are interpreted in light of existing schemas, with cultural codes both providing the framework for this interpretation and being modified by the ongoing integration of new perceptions into existing schemas. In this manner, they facilitate the system's ability to adapt to future situations and challenges. Furthermore, recursive processes and the role of cultural codes are of central importance with regard to human differentiation. They elucidate the way historical and cultural contexts shape contemporary social dynamics. Individual and collective identities and social structures are formed and reconfigured through the repeated application and modification of schemata in response to new experiences within given cultural frameworks. Cultural codes serve as mediators of structural coupling, facilitating and guiding the continuous interaction between the cognitive system and its socio-cultural environment. This demonstrates the transformative capacity of recursive processes and cultural codes in the ongoing evolution and differentiation of societies. They uphold or alter historically determined social patterns, thereby shedding light on the adaptive nature of cognitive and social systems. They facilitate a deeper

comprehension of the manner in which social categories and distinctions are not merely perceived but are actively generated and sustained. A detailed analysis of the interactions between schemata and autopoiesis in the context of human differentiation introduces new perspectives on the complexity and dynamics of social identities and differentiation patterns. Further, it reveals the transformative power of schemata as dynamic, autopoietic meaning generators. Schemata are not merely structures for organizing data; they are active agents in the process of meaning generation. They produce new interpretations and understandings continually through their interactions with the environment and with each other. This understanding is grounded in the significance of the human capacity to engage in conscious reflection and modification of schemata, which represents a pivotal step in transcending “schematically conditioned” responses and fostering more analytical and critical thinking. By questioning and adapting their schemata, individuals and groups actively contribute to the evolution of social structures and the reshaping of social identities. These processes of reflection and modification stress the crucial part played by both individual cognition and collective social practices in the dynamic processes of social categorization and identity construction. This is a continuous cycle of self-organization and adaptation that is deeply embedded in the autopoietic nature of schemata.

6.4 Binary-Coded Affective Meaning Attribution within Schemata (BCAS)

The following section presents a novel reconceptualization of an element of the schemata that has received minimal attention to date: the binary-coded and affective meaning attribution processes. This is achieved through the utilization of the aforementioned theories, in conjunction with Bateson's differentiation approach and the neurobiological findings pertaining to emotions. These processes, which are abbreviated as BCAS, describe the way emotional meanings are binary-coded and attributed. The model demonstrates that affective responses to stimuli are structured by fundamental dichotomous categories, such as pleasant/unpleasant or safe/unsafe. This enables the rapid and efficient processing of emotional information. This is of critical importance for real-time responses and provides the foundation for automated decision-making in cognitive systems. Furthermore, BCAS elucidates how an initial affective response undergoes a transformation through cognitive processing, resulting in a more differentiated and contextually adapted perception. This transformation is fundamental to comprehension and interaction with the environment and is instrumental in reducing and structuring complexity.

A crucial point of connection between cognition, affect, and physiology is the potential for automated schematizations to supersede or even supplant reflective

deliberation and analytical thinking (F.B. Simon 1993, 180). Analytical or logical-discursive thinking, which occurs in the cerebral cortex, necessitates conscious exertion and motivation to engage in reflection. In the absence of such effort, schemata are triggered as intrinsic parameters of self-organization and self-generation. Such automatisms frequently result in hasty judgments and decisions that are based on deeply entrenched but potentially insufficiently questioned premises. In the context of human differentiation, this indicates that behaviors of solidarity or non-solidarity are predominantly, if not exclusively, rooted in such schemata. In the absence of conscious reflection or questioning, the behavioral patterns resulting from these schemas tend to remain continuously activated. Schemata are based on group-based behaviors that are triggered neurochemically, for example by dopamine, and elicit either pleasant or unpleasant feelings. Consequently, it is, in fact, more favorable, in a literal sense, to adopt the perspective of one's own group in an uncritical manner. The role of hormones and neurochemical processes is largely automated, which often means that we are unaware of why an encounter with a person who is anchored in our mental schemata as "the other" triggers specific emotional reactions. This processual and dynamic nature of schemata is further reflected in their formation across affective, cognitive, and bodily levels. Notwithstanding the segregation of these domains in language, emotion, and cognition, which are situated in disparate regions of the brain, they constitute an integrated system in the context of the schemata conceptualized here. The inclination towards integration within human systems (see Chapters 3 and 4) frequently results in a convergence between cognitive and affective processes. In instances where this is not the case, efforts are made to instigate a state of harmony. On occasion, individuals embark on a frantic quest for justifications and evidence to substantiate the notion that "the others" should be regarded as "bad, evil, stupid, underdeveloped, or unemancipated." This dynamic interaction regulates specific coordinations of thinking and feeling, whereby the dichotomous logic of distinctions plays a pivotal role in affective meaning attribution processes. All schemata are founded upon a logic of differentiation that evokes a particular affective response. Many of these are linked to binary-coded dimensions of meaning that enable rapid action and represent a strategy for reducing complexity. The findings of cultural studies indicate that individuals from disparate cultural backgrounds encode emotional meanings in a comparable manner. No intermediate stages are observed in dichotomously coded schemas (Osgood, May, and Miron 1975; Osgood, Suci, and Tannenbaum 1967).

The capacity for more nuanced distinctions and abstract reflection, which is distinct from the binary thinking characteristic of the limbic system, emerges in the domain of logical-discursive thinking, which occurs within the cerebral cortex. The binary codes of affective meaning identified in the empirical studies—active vs. passive, strong vs. weak, good vs. bad—function as cognitive shortcuts, enabling rapid judgments and decisions. These binary-coded semantics, which can be identified in

over twenty different linguistic contexts, facilitate expeditious decision-making by merely ascribing meanings and provide a rudimentary orientation framework for individual and collective action. Abstract thinking is less dichotomous in nature, as it extends beyond the confines of simple either/or reasoning and facilitates a more profound and intricate examination of concepts and phenomena. While cultural studies analyses, such as those conducted by Osgood and colleagues, demonstrate that individuals from disparate cultural backgrounds encode emotional meanings in analogous ways, frequently exhibiting a proclivity towards dichotomous categorization. However, the limitations of this approach are revealed when attempting to encapsulate complex realities. The aforementioned cognitive shortcuts, which facilitate rapid decision-making and action, are inherently dichotomous in nature. This leaves little room for nuances and finer gradations, which are of paramount importance in human experience and perception. In contrast, logical-discursive thinking, which occurs in the cerebral cortex, enables us to move beyond binary categories and to discern and process nuances and the intricacies of situations and concepts. This allows for the comprehension of concepts not merely as antithetical entities, but as situated within a spectrum of possibilities, encompassing a multitude of positions. Osgood and colleagues employed the semantic differential technique to examine the emotional evaluation of terms and concepts across diverse cultural contexts. The semantic differential is a research tool that is employed to ascertain the connotations that individuals ascribe to different words and concepts. The findings of the investigation demonstrated that there are indeed patterns in the way emotional meanings are encoded across cultures. The binary opposites under examination are an integral part of a broader affective space, which can be divided into three main dimensions. These dimensions include evaluation (good vs. bad), potency (strong vs. weak), and activity (active vs. passive). These dimensions are of fundamental importance, as they reveal universal patterns of affective meaning attribution that are consistent across different languages and cultures. They facilitate a more profound comprehension of the manner in which affective meanings are organized, exerting a considerable impact on emotional reactions to both linguistic and non-linguistic stimuli. The introduction of binary-coded affective meaning attributions (BCAS) builds upon this approach by employing binary categories to facilitate rapid and efficient processing of emotional responses. This process employs straightforward yet significant dichotomies, such as pleasant/unpleasant or safe/unsafe, which facilitate the structured and expeditious processing of intricate emotional data. Such coding is particularly efficacious for real-time responses to emotional stimuli and is indispensable for supporting automated decision-making in cognitive systems and artificial intelligence. The BCAS model illuminates the profound integration of emotions into cognitive processes by focusing on the continuous interaction between affective reactions and cognitive evaluation mechanisms. Immediate emotional reactions are systematically modulated by cognitive structures in order to form ap-

propriate responses to environmental stimuli. The initial emotional reaction is then refined by the cerebral cortex, which generates a situation-appropriate and adapted response that integrates both cognitive and affective components. This integrative view provides an expanded framework for understanding the interaction between emotion and cognition and demonstrates how affective responses are modified and controlled by cognitive contexts.

The study by Osgood and colleagues represents a foundational contribution to the field of emotional universality research, with significant implications for advancing our understanding of human communication and interaction. The study demonstrates that, despite cultural variations, specific affective meanings are universally applicable. This suggests the existence of shared human experiences and a common psychological foundation. Additional cross-cultural studies targeting binary-coded semantics have provided further evidence to corroborate these findings. As evidenced by research in comparative psychology and anthropology, analogous emotional responses to specific situations and concepts are observed in individuals across diverse cultural contexts, substantiating the proposition that emotional meanings are universally applicable. Further comparative studies have yielded additional evidence that certain aspects of human behavior, particularly those pertaining to emotionality, are too universal to be fully explained by culture-specific factors alone (Ekman 2021; Tomasello 2022; Antweiler 2016).

The BCAS operate on a level of temporal immediacy, whereby the reactions and attributions are initially pre-reflexive. This immediacy ensures that the initial reactions and attributions are largely similar across cultures. However, as soon as conscious reflection commences in the cerebral cortex, which is markedly influenced by socio-cultural contexts, these universal principles lose their direct applicability. Reflection allows for the consideration of cultural nuances and individual experiences, thereby facilitating a highly differentiated interpretation that varies considerably from one individual to another and from one culture to another. Therefore, while the immediate, binary-coded processes are universally applicable, their meaning and interpretation can differ significantly due to socio-culturally shaped reflections. It is important to exercise caution to avoid reductionism regarding the principles of BCAS, as they are integral to understanding schemata as conceptualized in this book. The universal element in the meaning attribution processes discussed in this subsection is based on the view that schemata are multidimensional systems that mediate between subjective experience and the external world. Functioning as catalysts, they facilitate rapid reactions and automated action. Notwithstanding the introduction of a multitude of linguistic and cultural nuances, affective attributions frequently adhere to a remarkably straightforward, binary logic. This results in a dichotomy between opposing states, such as good and bad. This reductionism permits the effective communication and processing of complex affective meanings.

Moreover, there is the additional factor of complexity reduction in relation to orientation. As discussed in Chapter 2, the distinction between system and environment is useful in understanding how individuals reduce the complexity of their environment. In this context, systems, specifically schemata, utilize differentiation to process information and establish order within the perceived environment. BCAS play a crucial role in facilitating the rapid orientation process. They function as highly efficacious filters, simplifying the complexity of environmental information by categorizing it into emotionally charged, binary groups, such as pleasant/unpleasant or safe/unsafe. This mode of information processing enables individuals to react promptly to pertinent environmental stimuli and to develop adaptive behaviors that are vital for their well-being and survival. Binary coding not only permits the differentiation between pertinent and superfluous stimuli but also serves to safeguard the identity and integrity of the system by delineating clear boundaries between the system itself and its environment. This fundamental principle of differentiation is essential for individuals to effectively navigate and make decisions in a dynamic environment. This allows the system to circumvent threats and capitalize on opportunities. This establishes a direct correlation between perception, emotional evaluation, and action. The observation by Gregory Bateson that understanding and cognition originate from the transformation of a difference (Bateson 1991; 1999, 412) has significant implications for the functioning of human cognition and communication within the context of BCAS. In other words, information does not exist in and of itself; rather, it is a construct that emerges through the act of differentiating between two or more entities. This difference-guided cognitive program indicates that understanding is initially based on a binary logic that builds on the identification and processing of differences. It also suggests that meaning is generated in the course of this perception and not from “reality” *per se*. Binary coding, or the recognition of differences in the sense of “this, not that,” forms the foundation upon which information is generated and processed. Therefore, understanding and recognition are defined by a transformation of difference, indicating that cognitive processes are oriented towards identifying contrasts and changes (Dehaene, Sergent, and Changeux 2003; Dehaene 2011). The capacity to discern and respond to (typically structured dichotomously) differences is indispensable for adaptation and survival in a complex and constantly evolving environment. Binary coding represents an efficient means of extracting meaningful information from the infinite variety of environmental stimuli. The transformation of difference, particularly within BCAS, represents an irrefutable mechanism through which the perception of differentiation—the indispensable foundation for the genesis of information and meaning—is translated into conscious cognition. This irrefutable premise that comprehension and acknowledgment emerge from the alteration of a distinction unequivocally substantiates the assertion that information and meaning are not inherent entities. Rather, they emerge exclusively

through the conscious perception and interpretation of contrasts. A notable illustration of this phenomenon can be observed in the perception of color. While light waves exist objectively, it is the processing of these light waves by the human brain, specifically the differentiation between wavelengths, that enables the experience of color. The thesis that meaning is created through the transformation of differences is substantiated by the fact that color as such does not exist without cognitive processing. In the context of BCAS, it becomes evident that the original, immediate affective response, which is rooted in a binary difference model, is transformed into a more differentiated cognition through cognitive processing in the cerebral cortex. This pivotal transformation, which entails becoming aware of and reflecting upon the initial affective reaction, facilitates a more profound and sophisticated interpretation of perceived differences. The transformation of difference thus proves to be a fundamental component of human cognition and communication. It weaves a complex web of meanings and understandings from the simple identification of binary-coded differences. This mechanism acts as the foundation for the development of understanding and the interpretation of the environment. It enables us to transcend the limitations of direct, affective reactions and engage with the reality we experience in a conscious and reflective manner. In conclusion, the difference-based cognitive program represents an indispensable component of the human understanding process. The difference-based cognitive program implies that the recognition of differences occurs through the interplay of cognitive judgments, affective evaluations, and bodily sensations. In autopoietic systems, binary coding represents one aspect of a broader process of meaning attribution. Affective components, such as joy, fear, or sadness, which are triggered by specific stimuli and bodily sensations, such as hunger, pain, or relaxation, play a substantial role in the interpretation and evaluation of information. These processes are not merely reactive; they are also self-organizing and self-producing. This implies that schemata actively adapt and develop their structures on the basis of experiences and interactions with the environment. The interplay between bodily states and affective reactions is evident in the dimensions of evaluation, potency, and activity, which structure the previously mentioned affective space. Sensory experiences, such as the sensation of warmth from the sun or the feeling of coolness from water, influence the emotional valence (evaluation) of an event. These experiences have a significant impact on whether a moment is perceived as pleasant or unpleasant. The perception of a given moment is directly influenced by the affective evaluation of that moment. Moreover, physical sensations influence the perception of power or control within a given situation. A person's physical strength or exhaustion can alter their perceived potency (dominance or inferiority) when facing external challenges or during interactions. The level of physical activity, whether increased or decreased, has a direct impact on the arousal level associated with emotional states, ranging from high excitement and alertness to calmness and relaxation.

This, in turn, plays a crucial role in shaping responsiveness to environmental stimuli. BCAS represent an efficacious method of interacting with the environment, as they expedite the processing of information, facilitate adaptive behaviors, and are indispensable for maintaining system boundaries. These mechanisms play a pivotal role in the evolution and long-term stability of the system by establishing a connection between the internal and external environments.

Jaak Panksepp's research in affective neuroscience provides a fundamental neurobiological foundation for the BCAS model, as evidenced by his illustration of the binary-coded structures of emotional processing (Panksepp 1998). Panksepp identified neural circuits corresponding to basic emotional systems such as SEEKING (seeking behavior), FEAR (fear), RAGE (anger), and JOY (joy). These systems operate as binary functions within the brain, being either activated or deactivated in response to stimuli. This binary operation allows for a clear, direct response—either activating or remaining inactive depending on the stimulus. For instance, a threatening stimulus triggers the FEAR system, prompting immediate behaviors aimed at protection or escape, encapsulating a binary decision: respond or not. Similarly, the activation of the SEEKING system elicits either exploratory or goal-directed behaviors to pursue rewards or novel stimuli, showcasing a distinct binary choice between seeking and not seeking. This fundamental binary nature of emotional circuits enables rapid and decisive responses essential for survival, with each system's activation or deactivation leading to specific physiological and behavioral outcomes. Each system's activation or deactivation leads to specific physiological and behavioral outcomes. These outcomes are determined by a binary logic of triggering or inhibiting a response, which is both simple and critical. This binary logic demonstrates how affective processing in the brain is governed by binary operations and generates key behaviors that are necessary for adaptive responses to environmental challenges. Panksepp's findings also point to the role of specific neurotransmitters and hormones, particularly dopamine in the SEEKING system, in modulating these emotional circuits. This neurochemical modulation is pivotal in the binary processing of emotional responses, where dopamine significantly influences the dynamic balance between reward and punishment signals (see Chapter 5), thus modulating the strength of responses within this binary framework (Panksepp 1998, 148).

Furthermore, neurobiological studies confirm the pivotal role of the periaqueductal gray (PAG) as a neural locus for the binary coding of emotional reactions. In the PAG, decisions regarding various behaviors are made based on emotional input (Carrive and Morgan 2012, 2004; Buhle et al. 2013). The PAG activates specific neural pathways that trigger either flight, fight, or approach behaviors, thereby facilitating a direct and binary-coded response to emotional stimuli. These neurobiological decision-making processes exemplify the fundamental principles of the BCAS model, whereby simple, dichotomous categorizations are imbued with meaning through binary-coded affects.

In light of the aforementioned, the binary-coded neurobiological dynamics are analogous to the concept of Implicit Association Tests (IAT). IAT employ binary categorization to capture and analyze deeply rooted cognitive and affective reactions. The IAT is a method for measuring implicit attitudes or unconscious biases. It does so by assessing the speed with which individuals associate concepts (e.g., black or white people) with evaluations (e.g., good or bad). This measurement is conducted by rapidly categorizing stimuli into either consonant or dissonant pairings, which affects reaction times. Similarly, the BCAS model employs binary categories to assess and transform affective meaning attribution in a prompt manner following an event. In both methodologies, the rapidity of the attribution or response is a crucial indicator of the underlying affective states or cognitive evaluations. In the context of the BCAS framework, rapid categorization enables an expedient emotional response, which is operational in real time and aims to streamline the processing of environmental information. These processes are not merely reactive; rather, they reflect the deeply ingrained affective structures and preferences that are embedded within human cognition. In the context of the “other-race effect” (ORE) phenomenon (Fioravanti-Bastos, Seidl-de-Moura, and Landeira-Fernandez 2014), and “Other-Race Advantage” (ORA) (Kubota, Banaji, and Phelps 2012; Kurdi, Carroll, and Banaji 2021) the BCAS also exemplify how automated cognitive and affective processes influence our perceptions and evaluations of individuals belonging to other ethnic groups. The ORE makes it evident that schemas facilitate the recognition of faces belonging to one’s own ethnic group, thereby contributing to the cohesion of the group. Conversely, they can also promote the exclusion of individuals who do not belong to the same ethnic group. In contrast, the ORA employs schemata to expedite the categorization of faces perceived as “different,” thereby facilitating efficient processing but potentially resulting in a superficial evaluation that fosters prejudice and stereotyping. In both instances, the fundamental element of human cognition that employs simplistic, binary coding—that is, the dichotomy of good versus bad, and self versus other—has a profound impact on social differentiation and categorization processes. The challenge is to engage in conscious reflection on these schemata and to modify them where necessary in order to promote a more comprehensive and differentiated understanding of, and a more open attitude towards, the diversity of human experiences and identities. It is imperative to acknowledge that the condensation of intricate social phenomena into binary schemata represents a simplistic reduction that inadequately reflects the intricacies of human cognition and social interaction. It is important to note that this framework should be viewed as an analytical tool that focuses on specific aspects of BCAS, rather than as a comprehensive depiction of social and cognitive processes. It is essential to consider the temporal dimension of assessment processes, which frequently occur within milliseconds before reflective thinking is initiated. This allows for the initial evaluation to be sit-

uated within a broader context and for it to be re-evaluated based on the knowledge acquired by the individual.

In the humanities, particularly in the fields of social and cultural anthropology, the concept of an affective construction of orientation schemata that is universally applicable often presents a challenge. This is due to the fact that research and teaching in this field are strongly influenced by the axiom that all phenomena are socially constructed. The emphasis on social constructionism is in seeming contradiction to the assumption of universal affective patterns, which gives rise to extensive discussions and debates within these disciplines. From an epistemological standpoint, however, the acknowledgment of universal affective patterns does not negate the specific, culturally constructed character of social phenomena and the assumption of associated, culturally established emotions. Rather, these phenomena are viewed in a broader context that incorporates both cultural variability and the potential for universal foundations of emotional experience. The majority of contemporary theories of emotion concur that cognitive, physiological, neurobiological, and cultural elements interact within an integrative system. Emotions are regarded as multidimensional phenomena, and thus, cannot be reduced to a single aspect. From the outset, this view understands schemata not exclusively as cognitive, affective, or physiological-bodily, but rather in a holistic logic as an affective-cognitive-bodily system that emerges from complex self-organization and continuous self-creation (autopoiesis). Once these schemata are activated, they invariably deliver empirically verifiable affective judgments of meaning in binary coded form (e.g., good vs. bad, strong vs. weak, etc.).