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New Developments in Enactive Social Cognition

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New Developments in Enactive Social Cognition

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This was our paradox: no course of action could be determined by a rule, because any course of action can be made out to accord with the rule.

— Ludwig Wittgenstein

In actual experience, there is never any such isolated singular object or event; an object or event is always a special part, phase, or aspect, of an environing experienced world—a situation.

— John Dewey

Abstract

The long standing and still highly influential mindreading framework claims that social cognition is best understood as an ability to predict and explain others' behavior in terms of their mental states. This ability is explained by appealing to mental representations and inferential reasoning via rule-based knowledge. However, recent enactive work on social cognition questions most, if not all, of the main assumptions on which mindreading is founded. Enactivism's emphasis on the structural coupling of the brain-body-world constitutes the foundation of the framework, which rejects the representational and inferential reasoning claims of the mindreading framework. For enactivists, social cognition is best explained in terms of the direct embodied and embedded interactions an agent has with her socio-material world. In continuing this work, the thesis provides new developments of the enactive project for investigating and explaining social cognition. The thesis utilizes two approaches to achieve this goal. First, it dialectally defends enactivism vis-a-vis the mindreading framework. It does this by both securing established enactive claims from criticism, and by developing new objections against the mindreading framework. Secondly, the thesis offers new enactive interpretations of empirical developmental data, and presents new ways of investigating three central areas of debate within the field of social cognition: the metaphysical basis of social cognitive processes, the false-belief test literature, and the concept of empathy in relation to therapeutic practices and autism.

The thesis is composed of five different, but thematically intertwined papers. The first paper targets the constitutive basis of social cognition by attempting to dissolve the causal-constitutive fallacy through appealing to a diachronic conception of constitution. This move both secures established enactive claims and develops a more thorough account of what is meant by enactive constitutive claims. The second paper then examines infant social cognitive capacities, arguing cognitivist explanations of these capacities rely on fallacious assumptions regarding the nature of perception. The paper then offers an alternative enactive and ecological account of these capacities. The third paper argues both innate and constructivist mindreading accounts of the folk psychological know-how required to reliably succeed on false-belief tests fall prey to an infinite regress problem. The paper ends by briefly presenting an alternative enactive, narrative explanation of the empirical data. The fourth paper then shifts focus to examine the concept empathy and practice of empathizing. It argues there are advantages to conceiving of empathy as enactive and exploratory, in the sense that when we empathize with others we understand them in a deeper and richer way, through

exploring their self-authored narratives. Finally, the fifth paper re-examines our understanding of autism by integrating the enactive framework with a neurodiversity approach to cognition. It argues this integration can help us better understand how neurotypical social practices and institutions effect the development, and well-being, of autistic individuals. Through these substantial expansions of established enactivist accounts, and by offering new objections to the mindreading framework, the thesis provides reasons to prefer an enactivist framework in exploring human abilities for social cognition.

Acknowledgments

I want to begin by dedicating this work to my mother, Patti Lardinois. She always encouraged me to find and follow my own path in life, and supported me every step of the way. I also want to dedicate this work in part to the memory of my father, David Jurgens. I know that he too would be proud of this accomplishment were he with us today. I also thank my sister, Laura Ingwell, for not just her love and support, but also for inspiring me in watching her attain her PhD and secure a tenure track job. The dream is still alive.

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Certification

I, Alan Walter Jurgens, declare that this thesis submitted in fulfilment of the requirements for the conferral of the degree Doctor of Philosophy (Ph.D.) from the University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. This document has not been submitted for qualifications at any other academic institution.

This thesis has been prepared in journal article compilation style format, according to the official guidelines approved by the University of Wollongong. Some of the chapters included in this thesis are reproductions of co-authored articles. These chapters are preceded by a signed certification that details the contributions of each author.

Alan Walter Jurgens
26th August 2020

List of Names or Abbreviations

4E	Enactive, Embodied, Embedded, and Extended
CC-Fallacy	Causal-Constitutive Fallacy
DBT	Diverse-Belief Test
ER-FBT	Explicit-Response False-Belief Test
FBT	False-Belief Test
FP	Folk Psychology
KAT	Knowledge-Access Test
PDA	Pragmatic Development Account
SR-FBT	Spontaneous-Response False-Belief Test
SR-IT	Spontaneous-Response Ignorance Test
ST	Simulation Theory
TT	Theory Theory

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Chapter 1

General introduction

1.1 Preparatory remarks

As we spend most of our lives interacting with others, the question of how we are able to understand each other, in terms of our intentions, behaviors, and mental processes, is essential for understanding human cognition. In this regard, the central inquiry of this thesis is: How should we best investigate and explain social cognition? The thesis answers this question by developing and defending an enactivist account of social cognition. Importantly, enactivists reject the dominant mindreading view of social cognition as internal, computational, and representational. Instead, enactivists opt to examine social cognition as an active process constituted in the interactive relationships between agents and their socio-material environments. While mindreading approaches remain committed to brain-bound mechanistic explanations of social cognition, enactive accounts rethink the boundaries between the brain, the body, and the socio-material world. In this sense, enactivists claim that social cognitive processes are constitutively embodied and embedded. For this reason, enactivists focus their investigations on interaction, intersubjectivity, and the second-person perspective in order to understand and explain social cognition.

The thesis provides new developments of the enactive project for investigating and explaining social cognition through a compilation of five independently published chapters that address key areas of the central debates within social cognition theory. These chapters achieve this goal by utilizing two approaches. First, the thesis dialectally defends Enactivism vis-a-vis the mindreading framework. It both secures established enactive claims from criticism, and it develops new objections against the mindreading framework. These objections provide substantial reasons to doubt that the mindreading framework is the best framework for investigating and explaining social cognition. Second, the thesis offers new enactive interpretations of empirical developmental data, and presents new ways of investigating some of the central areas of debate within the field of enactivist social cognition. It does this by examining three central areas of debate within social cognition theory. These are: the metaphysical basis of social cognitive processes (chapter 2), the false-belief test literature (chapters

3 and 4), and the concept of empathy in relation to therapeutic practices and autism (chapters 5 and 6).

The thesis approaches these issues by examining how social cognitive capacities are shaped by embodied interactions embedded within a socio-material environment that is structured and permeated by social normative practices and institutions. In this way, the thesis expands upon the enactive framework's approach to questions regarding social cognition by exploring the role that normativity plays in structuring and facilitating social interactions, where it is argued that social cognitive capacities develop. Examining the role that social interactions play in the development of social cognitive capacities requires integrating conceptual and empirical research through utilizing the theoretical methodology of philosophy to examine developmental psychology. In investigating these three areas, the thesis also expands on established enactive accounts by connecting it with a number of related theoretical developments. This is done by: (i) elaborating on the concept of diachronic constitution, (ii) incorporating enactivism with insights from ecological psychology and the neurodiversity paradigm, and (iii) by examining the narrative aspects of social cognition.[1] These expanded explanations not only account for the empirical data better than mindreading accounts, but also further develop enactivism by pushing the framework in new directions.

In the following three sections, I present a broad picture of the central differences between the mindreading and enactivist frameworks by identifying the issues in social cognition theory that are at the heart of the debate between these two camps. In section 1.2, I contextualize the thesis and the ontological basis of social cognitive processes by presenting a brief summary of the mindreading framework and enactivism, and the metaphysical assumptions of these frameworks in approaching social cognition. I explain how chapter 2 attempts to resolve the causal-constitutive dispute between mindreading and enactivism. Section 1.3 then shifts to surmising the role the false-belief literature has played in the debates within social cognition theory. Here, I explain how chapters 3 and 4 utilize this literature in order to present new objections against mindreading accounts, and how these chapters offer new enactive explanations of this empirical data. Finally, section 1.4 provides an overview of the last chapters of the thesis, and how these chapters further develop the enactive project

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[1] The neurodiversity paradigm offers a new distinct way of examining autism and other human neurocognitive variations by framing cognitive diversity as similar to gender or ethnic diversity. Significantly, this involves critiquing the dominant view of autism as defined by deficits. In this way, the paradigm moves away from viewing autism as a pathology, and claims there is no scientific basis for labelling autism as a disorder (Fenton and Krahn, 2007).

by expanding on enactive accounts of empathy (chapter 5) and autism (chapter 6). The section ends by briefly outlining the final part of the thesis, the concluding remarks.

1.2 The metaphysical basis of social cognition

In recent years there has been a call for a paradigm shift in the study of social cognition. The proponents of this shift, embracing an enactive view of cognition, argue that a greater emphasis needs to be placed on investigating social interaction as fundamental to social cognition, where interactions constitute social cognition, but not all instances of social cognition are interactive (De Jaegher et al., 2010; Froese and Gallagher, 2012; Fuchs and De Jaegher, 2009). In this sense, enactivists advocate for a second-personal turn in social cognition. In particular, they claim that perception in general, and social perception in particular, i.e. the perception of other people mental states, should be understood within the context of interaction (De Jaegher et al., 2010; Fuchs and De Jaegher, 2009; Gallagher, 2001). This shift towards taking a second-person interactive approach where social cognition is understood as partly constituted via the embodied, embedded, and interactive features of interactions is not only foundational for enactivism, but it is also a central difference between enactivism and the mindreading framework.

In this regard, the thesis begins in chapter 2, 'Enactive Social Cognition: Diachronic Constitution & Coupled Anticipation', by tackling the broad metaphysical issue of the constitutive basis of social cognition. It does this by responding to the causal-constitutive fallacy objection that threatens the enactive project. Essentially, the objection targets the feasibility of the constitutive embodied and embedded claims put forth by enactivists that are central to their explanatory accounts. The chapter argues that the fallacy can be dissolve through developing the concept of diachronic constitution. This establishes not only the feasibility of the constitutive claims that are then utilized in the following chapters to explain various particular forms of social cognition, but it also demonstrates how enactivism is a proper rival framework to mindreading.

The mindreading framework is formed around the idea that we are at a remove from the mental state of the other in social interactions. Additionally, most mindreading accounts embrace the cognitivism assumption that only internal brain-bound mechanisms constitute social cognitive processes. In this sense, the body and the external world, including other agents, only play a casual role in providing inputs for an internally realized mechanism, a

theory of mind.[2] In order to then explain how we come to understand the mental states of others, mindreading proponents typically take one of two approaches. One approach is Simulation Theory (Goldman, 2006; Gordon, 1996; Heal, 1996; Steuber 2006), which claims that we use mental simulation to 'put ourselves in the other's shoes' in order to determine what the other might be thinking or feeling. The other approach, Theory Theory (Carruthers 2015; Fenici 2017; Onishi and Baillargeon, 2005), claims that we have a dedicated theory of mind mechanism that utilizes rule-based inferential reasoning to attribute to others particular mental states, in order to explain and/or predict their behavior.[3]

Regardless of which kind of approach one takes, within the mindreading framework most accounts rule out the embodied and embedded elements of intersubjective engagement from playing anything but a basic causal role in their account of social cognition. For this reason, most philosophers and psychologists operating within the mindreading framework investigate social cognition primarily by examining social interactions from a third-person perspective. This is done in the sense that social cognitive processes are assumed to function by regarding others as objects for detached observation and analysis (see Butterfill and Apperly, 2009; Carruthers, 2015; Goldman, 2006; Gopnik and Meltzoff, 1996; Heyes and Frith, 2014; Jacob, 2019; Leslie, 1994; Schönherr and Westra, 2017; Scott and Baillargeon, 2009; Stueber, 2006; Wellman, 2014; Wimmer and Perner, 1983).

The interactive approach adopted by enactivists instead focuses on the second-person perspective (Thompson, 2007). Here, investigations examine how the interactive processes involved in engaged social interactions facilitate and constitute each interactors' social cognitive processes. On this alternative approach, there is a stronger emphasis on the role that the embodied and embedded elements of interactions serve, in particular in how they structure and constrain the individual cognitive processes of the interactors. To capture how features of the interaction itself, and the other interactor, can constitutively structure and constrain one's social cognitive processes, enactivists focus on the reciprocal coupling between an individual and their social environment, which often includes the other agents with whom the indidividual is interacting.

By moving away from the causal input-model of perception, enactivist claims regarding perception are built upon the idea that perceptual and cognitive processes are

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[2] Though most mindreading accounts remain thoroughly internalist, an extended, embodied or embedded mindreading explanation of social cognition is possible. Thus, the mindreading framework does not necessitate internalism.

[3] As the thesis primarily engages with Theory Theory accounts, the use of the term 'theory of mind' throughout the thesis denotes a Theory Theory formulation as opposed to a Simulation Theory formulation. It is made explicitly clear when the thesis is instead engaging with Simulation Theory.

fundamentally embodied and action-oriented. Enactivists utilize the term sensorimotor to denote how the sensory and motor systems are reciprocally coupled and integrated for action-orientated cognition. As such, according to enactivists, when we perceive others we simply see their affective states and goal-oriented actions as such, without any need for internal mental representation, inferential reasoning, or simulation. In this sense, enactivism offers an alternative framework that places a constitutive structural coupling emphasis on the roles that an agent's particular body and socio-material environment play in facilitating and shaping the agent's cognitive processes.

While internal brain-bound processes still play a constitutive role in social cognitive processes; on the enactive framework, an agent's body and the socio-material world within which she is embedded also partially constitute her social cognitive processes as well (Di Paolo and De Jaegher, 2017; Gallagher, 2015; Hutto, 2017; Krueger, 2010; Maiese, 2018). In particular, the embodiment claim holds that many aspects of cognition are constitutively embodied, such that not only does an agent's particular kind of embodiment determine how she can interact with the world, but it also determines how she perceives the world. Similarly, the embedded claim states the agent's environment plays a constitutive role in the agent's perceptual and cognitive processes such that cognition is not only deeply dependent upon the social and material characteristics of the environment in which an agent is situated, but it is actually constituted by such environments. Yet these constitutive embodied and embedded claims about social cognition remain contestable on the grounds that they rely on claims about reciprocal causal coupling that unjustifiably infer facts about constitution from facts about causation. As enactivists have not yet developed a sufficient account of a notion of constitution that can be utilized in regard to these embodied and embedded claims in order to overcome this issue, this remains a significant concern for the feasibility of enactivist accounts.

In order to secure these kinds of embodied and embedded constitutive claims, chapter 2 examines this metaphysical issue by first advancing and articulating a diachronic constitutive account for how embodied engagement can play a constitutive role in social cognition. Then the chapter tackles the causal-constitutive fallacy (Adams and Aizawa, 2001; 2008; Block, 2005) objection against enactive social cognition. By attempting to diffuse this objection, the chapter tries to secure the both the feasibility of these constitutive claims, and demonstrate that enactivism itself is a proper rival to mindreading. The chapter tries to deflate this objection by establishing that the distinction between constitution and causation is not co-extensive with the distinction between internal constitutive elements and external

causal elements, which the causal-constitutive fallacy is argued to fallaciously assume.

Then, a second objection against enactive social cognition is considered, the 'poverty of the interactional stimulus argument', which the chapter argues turns on the role and characteristics of anticipation. This objection argues that anticipatory processes need to be mediated by an internally realized model or tacit theory (Carruthers, 2015; Seth, 2015). The final part of this chapter dissolves this objection by arguing that it is possible to cast anticipatory processes as orchestrated, as well as maintained by, sensorimotor couplings between individuals in face-to-face interaction. By articulating an account of diachronic constitution and the role and characteristics of anticipation, the chapter expands upon some of the most foundational, but still underdeveloped, claims of enactivism. Importantly, this not only serves to develop the enactive project, but it also secures many of the central claims that are further defended and developed in the following chapters of the thesis.

1.3 The false-belief test literature

The thesis then shifts focus to arguing why we should prefer enactivist over mindreading accounts of developmentally early social cognitive capacities in chapters 3 and 4. Both of these chapters engage with debates between enactivism and mindreading proponents within the false-belief test literature. In addition to defending established enactive claims from objections and presenting new criticism against mindreading explanations, these chapters also provide expanded enactive accounts of this empirical data. The false-belief literature is a central area of inquiry into social cognition, as the development of the mindreading framework went hand in hand with the development of false-belief tests, and the empirical data that arose from this work (Gopnik and Wellman, 1992; Leslie, 1994; Wimmer and Perner, 1983)

Chapters 3 and 4 discuss the details of the false belief test experiments in depth. What is important here, is that according to the mindreading framework, the false-belief literature shows that the capacity to represent and attribute false beliefs to other agents is present in 4 to 6 year-olds, but this capacity is absent in 3 year-olds. Not only did the false-belief test literature give rise to the mindreading framework, but in addressing the empirical results Theory Theory explanatory accounts generally split into two broad camps: nativist and constructivist accounts.

According to nativist proponents (Carruthers, 2015; Onishi and Baillargeon, 2005; Westra and Carruthers, 2017), basic social cognitive capacities are innately endowed via an

innate theory of mind mechanism that utilizes a genuinely meta-representational concept of belief and representations of the rules that govern belief driven behavior. In order to account for the false-belief test data that indicates most children do not succeed on the test until 4.5 years of age, nativists claim that this appearance of development actually reflects failures of performance of younger children. In this sense, nativists claim that while the domain-specific cognitive system for social cognition, a theory of mind, is innately endowed and does not change, what explains a child's success or failure on a false-belief test is whether the child's other domain-general cognitive systems, such as executive, attentional, and planning systems, have sufficiently developed (Carruthers, 2013).

In contrast, constructivists proponents (Gopnick and Wellman, 1992; Heyes, 2014a, 2014b; Fenici, 2017, Forthcoming) claim that children slowly develop (or construct) through social interactions a theory of mind. They explain this shift in performance in passing a false-belief test as signaling that a child has full developed her theory of mind, and acquired a meta-representational understanding of the concept of belief. In order to account for the social cognitive capacities of children before 4.5 years of age, constructivist accounts appeal to a variety of solutions from proposing an early, more basic, theory of mind (Butterfill and Apperly, 2009); to claiming that these basic capacities rely on domain-general cognitive processes without reliance on any specific theory of mind capacities (Heyes, 2014a, 2014; Fenici, 2017, Forthcoming). While the constructivist position is shown to be closer in alignment with enactive accounts compared to the nativist views, the thesis argues that constructivists problematically remain committed to the same faulty cognitivist assumptions as nativists.

Using the false-belief literature, chapters 3 and 4 examine recent developments in nativist and constructivist Theory Theory accounts. In discussing this empirical data, both chapters present objections against the cognitivist commitments of both versions of Theory Theory, and offer new developments for enactive accounts of this data. In regard to the central debates between enactivists and mindreading proponents, chapter 3 continues the examination of the nature of perception and anticipation begun in chapter 2. While chapter 2 only briefly addresses the poverty of the stimulus assumption central to the mindreading framework, chapter 3 delves deeper into this issue within the context of spontaneous-response false-belief tests (SR-FBTs). This version of the false-belief test is designed to examine whether non-verbal infants (18 month-olds) could succeed on a modified test. Through examining recent developments in this literature, this chapter attempts to show in

detail why the poverty of the stimulus assumption is problematic for the mindreading framework, and unnecessary for enactivism. Additionally, the chapter aims to offer a more detailed explanation of the empirical data by appealing to the developments of chapter 2 and the role normativity plays in structuring and constraining social cognition.

Chapter 3, 'Re-Conceptualizing the Role of Stimuli: An Enactive, Ecological Explanation of Spontaneous-Response Tests', attempts to achieve these goals by addressing Carruthers' (2013; 2015) claim that only by appealing to a theory of mind it is possible to explain infant responses in SR-FBTs, when there are no one-to-one correspondences between observable behavior and mental states. Essentially, the objection argues that since discrete, moment-by-moment, perceptual stimuli are informationally impoverished, even an infant's social cognitive processes must rely on utilizing some kind of tacit theory, like a theory of mind, to conceptually enrich the stimuli. This is claimed to be a necessary feature of explanations of social cognition as without conceptual enrichment, its not possible to explain why when one views the same action by the same agent in different contexts, they can correctly anticipate the agent's next actions, even though these subsequent actions may be radically different. Thus, the objection claims that any explanation of any form of social cognition, including the kind examined in SR-FBTs, that does not appeal to a theory of mind cannot be sound.

The chapter then explores non-mindreading explanations of this empirical data. In particular, the chapter examines Heyes' (2014a; 2014b) solution, that has received a lot of attention in recent literature as an alternative to the nativist account. I show how Heyes responds to this challenge by arguing discrete stimuli are informationally wealthy, such that there is sufficient information in environmental stimuli to support social cognitive capacities without conceptual enrichment via a theory of mind. Through presenting Heyes' account of the SR-FBT data, I demonstrate her solution to this objection. However, though Heyes' account seems to solve Carruthers' objection, the chapter then presents Scott and Baillargeon (2009; 2014) response to Heyes' explanation of the SR-FBT data. Scott and Baillargeon object that her account cannot also adequately explain spontaneous-response ignorance tests (SR-ITs).

Taking Scott and Baillargeon's objection as a challenge to all non-mindreading explanations of this empirical data, the chapter then presents an enactive, ecological goal-tracking explanation of the data. In presenting this alternative, the chapter examines the nature of our perceptual processes by recasting perception and anticipation in enactive and ecological terms. This includes appealing to the central role social normativity plays in constraining

social perceptual and cognitive processes. Finally, the chapter argues the cognitivist framework that both Heyes and nativist mindreading proponents appeal to, begs the question in favor of the indispensability of mental representations for explaining perception and anticipation. This is an assumption that permeates their interpretations of the SR-FBT and SR-IT empirical data.

While staying within the false-belief test literature, chapter 4, 'Folk Psychological Know-How' then attempts to determine the epistemological status of social cognitive understanding, i.e. how we know how to interact with others and learn to be better social cognizers. Following Ryle (1946, 1949), this chapter argues the folk psychological know-how required for success on a false-belief test cannot be reduced to rule-based propositional knowledge as this would lead to an infinite regress where in order to apply one's knowledge of a rule specifying folk psychological connections between behavior and mental states, one would be required to think of another rule about how to apply the first rule, and so on ad infinitum. In order to show this objection in action, the chapter examines Westra and Carruthers (2017) and Fenici's (2017, Forthcoming) Theory Theory accounts of cross-cultural false-belief test data (Shahaeian et al., 2011) that attempt to explain folk psychological know-how. Then, by drawing on Fridland's (2012) argument against Intellectualist explanations of know-how, it is argued that neither of these mindreading accounts can adequately explain gradable folk psychological know-how and escape Ryle's infinite regress objection.

After establishing this objection, the chapter then briefly outlines an alternative enactive, narrative account of folk psychological know-how that avoids Ryle's regress. Importantly, I develop here an account of intermediate social cognitive capacities that are more complex than basic capacities, but not quite as sophisticated as our most advanced capacities. These intermediate capacities are the ones required for responding skillfully to the narrative and normative structures of the social interactions at play in false-belief tests. This is a novel development of the thesis, which adds to the literature and expands enactivist explanations of social cognition. In this way, chapters 3 and 4 challenge the dominant mindreading explanations of the false-belief test data. Additionally, they attempt to provide expanded accounts of enactive explanations of this data, and the social cognitive capacities these tests aim to examine.

1.4 Empathy and practical applications

Turning away from the false-belief literature, chapters 5 and 6 focus on the more practical

applications of enactive social cognition. In particular, chapter 5 engages with the concept and practice of empathy that has been at the center of debates in social cognition theory. While one everyday usage of the term 'empathy' refers to a way of understanding another by sharing in her perspective on the world, which aligns with a Simulation Theory conceptualization (Stueber, 2006), phenomenologists use the term to simply denote the variety of ways in which we understand others (Ratcliffe, 2017; Zahavi, 2017). In this second sense, 'empathy' is synonymous with the term social cognition[4]. As opposed to trying to determine how to define the term 'empathy', chapter 5 instead examines what is required to fully understand others, in the sense of not just being able to recognize and respond to them, but to come to know their experiences and perspectives on the world and themselves. As the term 'empathy' is used in chapter 5, it denotes these kinds of more sophisticated, mature social cognitive capacities. Examining these kinds of more sophisticated social cognitive capacities, the chapter has a practical focus as it investigates the capacity to empathize with others both in terms of how we can, and should, go about understanding others more deeply as well as investigating how empathy works in therapeutic contexts. Finally, the chapter defends this enactive account of empathy against Simulation Theory (Stueber, 2012a; 2012b) arguments for thinking that in its most sophisticated forms empathy must incorporate the mental simulation of others' minds.

While still engaging with the debates around empathy, Chapter 6 takes a different approach from chapter 5, as here empathy is simply used as synonymous with social cognition, and the chapter primarily engages with a case study, that of autism. Furthermore, the chapter seeks to integrate enactivism with the neurodiversity paradigm, which frames cognitive diversity as similar to gender or ethnic diversity, and in doing so argues that autism should not be viewed as a pathology. This integration with neurodiversity assists with examining how neurotypical social practices and institutions affect the social cognitive development and well-being of autistic individuals. Though the chapter has a practical focus of determining how to best improve the social cognitive capacities and well-being of autistic individuals, it does not primarily and directly engage with the mindreading framework. In this way, the chapter differs from the other chapters of the thesis. Instead, the chapter offers a brief critique of established enactive explanations of autism in order to push enactivists to adopt the neurodiversity paradigm. In this way, and more so than the other chapters of the thesis, chapter 6 seeks to expand the horizons of enactivism through presenting an entirely

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[4] Though arguably these terms still differ in emphasis, with the latter emphasizing the cognitive aspects of these abilities, and the former the philosophical/phenomenological debates that turn around the nature of our understanding of others (see Gallagher 2012).

new way of investigating and explaining neurodiversity that has yet to be considered by other enactivists.

In engaging with the debate surrounding the concept of empathy, chapter 5, 'Exploring Enactive Empathy: Actively Responding to and Understanding Others', endeavors to provide a detailed explanation of how narrative practices are used to deepen our understanding of others. While this chapter is focused on more sophisticated capacities than those required for success on a false-belief test, such as the social cognitive practices utilized in therapeutic settings, it nevertheless provides an expanded explanation of the roles that narrative practices have in facilitating our social cognitive capacities in general. It argues that we should consider the concept of empathy, and the practice of empathizing, as variegated, occurring in different forms, and attempts to clarify some of the characteristic features of different forms of empathy. The chapter highlights the advantages of thinking of empathy as enactive and exploratory by drawing on phenomenological analyses of empathy (Ratcliffe, 2017; Zahavi, 2017), and by examining different kinds social cognitive practices for understanding others that have been labeled as empathizing.

The chapter then clarifies and defends the claim that when we try to understand others on a deeper and more detailed level, we do so by exploring their narratives. The chapter defends this claim by defusing an objection from Stueber's (2012a, 2012b) Simulation Theory account of empathy, which denies such a claim by arguing that simulative process are really doing the work. This involves showing how a narrative understanding of others does not require mentally simulating the other's situation or experience. In particular, the chapter argues that it is possible to account for the imaginative resistance and co-cognizing that may occur during our attempts to understand others without appealing to the idea that we mentally simulate other minds. In this way, the chapter defends the view that empathy, in any of its forms, when considered from an enactive perspective, does not reduce to, or depend on, any kind of theory of mind.

These two chapters connect thematically not only in that they are more practically focused, but also in the fact that claims regarding empathy, understood in chapter 5 as simply synonymous with any kind of social cognitive capacity, have also played a central role in one of the most prominent mindreading explanations of autism. A longstanding prominent mindreading explanation of the social cognitive differences of autistic individuals has been the claim that they lack empathy in comparison to neurotypical individuals (Baron-Cohen and Wheelwright, 2004). Although chapter 6 does not attempt to directly refute this claim, it nevertheless engages with the underlying theme of the claim by arguing that these differences

in part stem from a 'double empathy' problem (Milton, 2012). Milton claims that since autistic and non-autistic individuals have "different dispositional outlooks and personal conceptual understandings", when interacting with one another, both groups are more susceptible to frequently misunderstanding one another (p. 884). It's a 'double problem' as the difficulty in understanding one another is bi-directional, arising from differences between the neurotypical individual and the autistic individual.

Although Milton's hypothesis helps to explain social cognitive differences between neurotypicals and autistic individuals, I also appeal to the monotropism theory of autism in my investigation (Murray, Lesser, and Lawson, 2005). Monotropism claims "atypical patterns of attention" are a core inherent feature of autism from which many of the notable social differences arise (Murray, Lesser, and Lawson, 2005, p. 139). According to this account, there is a difference between the monotropic attention patterns of autistic individuals that involves having few, but intensely focused, attentional interests, and polytropic attention patterns of neurotypical individuals that involves having many, but less focused, attention patterns (p. 140). Monotropism claims these differences in attention patterns can explain many of the other cognitive and behavioral differences documented between autistic individuals and neurotypical individuals. By integrating enactivism with the neurodiversity paradigm, the double empathy hypothesis (Milton, 2012) and the monotropism theory of autism (Murray, Lesser, and Lawson, 2005), the chapter indirectly challenges the mindreading explanation of autism. It does this by offering an alternative account of the social cognitive differences between neurotypical and autistic individuals.

Essentially, by drawing on the developments of the previous chapters, Chapter 6, 'Neurodiversity in a Neurotypical World: An Enactive Framework for Investigating Autism and Social Institutions', presents a new proposal for investigating and explaining the observable social cognitive differences between neurotypicals and autistic individuals. The chapter begins by criticizing recent enactive explanations of autism, and instead argues for the integration of enactivism with the neurodiversity paradigm. It does this by approaching the topics of social cognition and the well-being of autistic individuals through considerations of their relationships to neurotypical social practices and institutions. Examples of these kinds of institutions can range from the concept, and practices of, families to institutions that rely on a multitude of other institutions, such as international law that requires multiple other intersecting institutions like justice systems, governments, boarders, etc. What's important is that since we live in predominantly neurotypical societies, our social institutions are structured in neurotypical-friendly ways that enhance specific patterns of thought, feelings, and behaviors

through normative frameworks that reward, reinforce or discourage particular kinds of ways of thinking and behaving. As these normative frameworks are structured primarily for neurotypicals, it is often more difficult for the neurodiverse to conform to the neurotypical normative practices found within neurotypical institutions.

Through integrating enactivism with the social model approach utilized by the neurodiversity paradigm, the chapter attempts to examine the relationship autistic individuals have with the neurotypical institutions and social practices. In this way, the thesis not only pushes back against the mindreading framework, but also challenges other enactivist accounts of autism, and cognition in general, to reconsider some of their own unexamined assumptions regarding their investigations and explanations of neurodiversity. The chapter concludes by discussing two further research paths based on the preceding analysis for the development of interventions for autistic individuals. The first research path focuses on the potential of enactivism for accounting for, and further developing, the field of animal assisted therapy. The second path raises the question of what an enactive neurodiversity paradigm in education would look like. Though these research paths are only briefly outlined in the chapter, I expand upon their potential in the final part of the thesis, the concluding remarks.

In the concluding remarks, I briefly reflect on the outcomes of the individual chapters and the thesis as a whole. Additionally, I also outline proposals for future research that naturally follow from the developments made in the thesis and that have a strong potential for future research. In this way, I show not only how the thesis has already advanced enactive social cognition, but also how it leads the way towards future developments in enactivism.

Chapter 2

Enactive social cognition: Diachronic constitution & coupled anticipation

This chapter targets the constitutive basis of social cognition. It begins by describing the traditional and still dominant cognitivist view. Cognitivism assumes internalism about the realizers of social cognition; thus, the embodied and embedded elements of intersubjective engagement are ruled out from playing anything but a basic causal role in an account of social cognition. It then goes on to advance and clarify an alternative to the cognitivist view; namely, an enactive account of social cognition. It does so first by articulating a diachronic constitutive account for how embodied engagement can play a constitutive role in social cognition. It then proceeds to consider an objection; the causal-constitutive fallacy (Adams and Aizawa, 2001, 2008; Block, 2005) against enactive social cognition. The chapter proceeds to deflate this objection by establishing that the distinction between constitution and causation is not co-extensive with the distinction between internal constitutive elements and external causal elements. It is then shown that there is a different reason for thinking that an enactive account of social cognition is problematic. This objection is labeled the 'poverty of the interactional stimulus argument', and it turns on the role and characteristics of anticipation in enactive social cognition. It argues that anticipatory processes are mediated by an internally realized model or tacit theory (Carruthers, 2015; Seth, 2015). The final part of this chapter dissolves this objection by arguing that it is possible to cast anticipatory processes as orchestrated as well as maintained by sensorimotor couplings between individuals in face-to-face interaction.

Certification

This chapter is based on a paper co-authored by Alan Walter Jurgens and Dr. Michael Kirchhoff entitled "Enactive social cognition: Diachronic constitution & coupled anticipation" published in *Consciousness and Cognition*. The chapter presented here is a slightly modified version of the original paper. Mr. Jurgens first conceptualized the paper based on work Dr. Kirchhoff had previously published. Mr. Jurgens planned the structure of the manuscript and both authors wrote sections of the first draft. After the first draft was completed, both authors contributed evenly to polish it before sending it to the journal. Dr. Kirchhoff authorizes Jurgens to include this material in his dissertation.

Dr. Michael Kirchhoff
August 26th, 2020

Alan Walter Jurgens
August 26th, 2020

Chapter 2

Enactive social cognition: Diachronic constitution & coupled anticipation

2.1 Introduction

There is still substantial dispute about the boundaries of social cognition, and what determines drawing the boundaries in one way as opposed to a different way. Is social cognition wholly and exhaustively constituted by elements in the brain or is it, rather, constituted in ongoing dynamic and interactive engagement between agents?

Social cognition has often been, and still is, presented as the inevitable result of the following key cognitivist assumptions: (i) *realizer* internalism, which states that cognition, and by extension social cognition, is realized by processes in the head of individuals; and (ii) *methodological* internalism, which states that the proper unit of social cognitive analysis should be the individual agent (Carruthers, 2015; Herschbach, 2012; Schönherr and Westra, 2017). The second assumption is a commitment to the idea that perception, even if embedded in and scaffolded by sociocultural practices, needs to be informed by conceptual knowledge (Carruthers, 2015; Schönherr, 2016; Schönherr and Westra, 2017). What fuels this assumption is the observation that there is no one-to-one mapping between mental states and behavior for "actions and facial expressions that manifest any given mental state are always context-sensitive, and vary depending on the agent's other mental states and circumstances" (Carruthers, 2015, p. 499). Cognitivism thus posits the existence of an inner model or tacit theory, comprised of rules and representations, to explain the nature of social cognition.[5]

In this chapter, we aim to both clarify and further develop an *enactivist* alternative to cognitivist social cognition. Enactivism, especially in its radical formulation (Hutto and

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[5] We do not consider simulation theory in this paper, but focus our attention on the dominant framework of theory theory. It is worth noting however that even simulationist accounts of social cognition such as Gallese's (2014) embodied simulation account is open to the same theory theory objections considered here because these accounts could be argued to only get a grip on social cognition in virtue of being informed by a tacit theory.

Myin, 2013), casts the vast majority of cognitive activity as constituted in embodied and situated activity. Applying the enactivist framework to social cognition thus frontloads the central importance of embodied and social interaction in explaining the vast sea of social cognition.[6]

Defenders of cognitivist social cognition can, and do, acknowledge that embodied activity and social interaction play a role in social cognition. Thus, simply touching on interaction as contributing to social cognition is uncontroversial.[7] However, advocates of enactivism claim that those in the grip of cognitivism only pay lip service to interaction in social cognition. In this chapter we shall defend the enactive view that social cognition is constituted in interaction, thus alleviating the need, always and necessarily, to appeal to social cognition as mediated and grounded in the dynamics of internal, brain-based models.

We start by articulating the enactivist position that interpersonal interaction is constitutive of social cognition. We do this by offering a diachronic characterization of the notion of constitution as it underlies enactivist views of social cognition (Kirchhoff, 2015; cf. Gallagher, 2018). Crucially, we show that: (i) both the explanandum and explanans of social cognition are processes, and thus ineliminably temporal; (ii) the relation between microscale (local) and macroscale (global) processes cannot hold wholly and exclusively at a synchronic instant t; (iii) the local and global processes stand in a relation of circular causation, as per the slaving principle in physics; and (iv) that social cognition is a novel, macroscale process that cannot be reductively explained by reference to processes residing and operating at the microscale *simpliciter*. This lends further support to enactivist proposals about the diachronic nature of social cognition (De Jaegher et al., 2010; Froese and Gallagher,

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[6] The enactive framework we propose does not rule out that some non-interactive, offline forms of social cognition might involve neurally realized representations or conceptual knowledge. For example, when thinking about having a difficult conversation with a partner one might rehearse the beginning of the conversation in one's head to anticipate the possible reactions of one's partner, which might involve representations and conceptual knowledge. Moreover, we see no reason to deny that social cognition is multi-dimensional and can be cast on a continuum. For instance, we will argue that infant-caretaker dyads illustrate cases of extended emotion regulation. This does not hold in all cases of social cognition. For example, one might only be able to manifest certain states of euphoria when participating in certain kinds of crowd behavior - this would be an example of Wilson's (2004) social manifestation thesis. Yet granting the latter does not rule out cases such as the former.

[7] Overgaard and Michael (2015) raise a two-horned dilemma for enactive social cognition on this precise point. Either "social cognition, quite generally, is wholly a matter of processes outside the individual" (2015, p. 175). Or, social cognition must not be reduced solely to what is going on inside an individual as action and interaction play important, even if only, causal roles. This induced dilemma leads Overgaard and Michael to conclude that the enactive position is either implausible (first horn) or trivial (second horn). Enactivists however accept that internal brain processes play a constitutive role in facilitating social cognition. So the first horn is not a plausible argument against enactive social cognition. Yet enactivists also go further by embedding neural dynamics in an extended and constitutive nexus comprising embodied and situated dynamics in accounting for social cognition. So the second horn is not plausible, if cast as an argument against enactive social cognition. Enactive social cognition lies between these strong and weak versions that Overgaard and Michael (2015) attribute to it.

2012; Gallagher, 2018).

We then turn to consider an objection to our account of diachronic constitution; namely, the causal-constitutive fallacy (Adams and Aizawa, 2001, 2006, 2008; Aizawa, 2010; Block, 2005; Carruthers, 2015; Herschbach, 2012). The fallacy states that any claim about the extended nature of cognition that starts from observations about causal coupling unjustifiably infers facts about constitution from facts about causation. Hence, our diachronic account of constitution allegedly falls prey to this kind of worry. Following Hurley (2010) we show that this objection can be questioned, for it helps itself to the question-begging assumption that the distinction between constitution and causation is co-extensive with a distinction between internal constitutive elements and external causal elements. We argue, with Hurley, that without further evidence, the causal-constitutive fallacy is itself a fallacy (for additional discussion, see also Abramova and Slors, 2018; Kirchhoff, 2015, 2017).

Even if we can diffuse the causal-constitutive fallacy, there is a different reason for being skeptical about enactive social cognition. We call this the 'poverty of the interactional stimulus' argument (Carruthers, 2015). It turns on the role and characteristics of anticipation in social cognition. It can be put as follows: there is a substantial problem with the claim that social cognition is constituted in interaction, for moment-by-moment interactional stimuli are too informationally impoverished to allow any individual to make sense of the richness and variety of behaviors that another agent might perform at any given moment. It is not possible to anticipate why some agent does this or that without presupposing that agents possess some kind of tacit theory of social cognition. Thus, Carruthers (2015, p. 499) claims that "enactivism cannot obviate the need for tacit theory" in its explanation of social cognition. Our response to this objection builds on the distinction between anticipation and situated interaction. The poverty of the interactional stimulus argument turns on the assumption that knowledge of social cognition underlies, and therefore enables, the ability to engage in multi-agent interaction. We flip this picture on its head by showing that anticipatory processes can, when in the right kind of circumstances, be partially constituted by online interaction between agents. This allows us to purge the enactivist appeal to counterfactual anticipation of sensorimotor dependencies from any unnecessary association with cognitivism (i.e., the appeal to tacit theory and representation as the basis of social cognition), on the one hand, and internalism, on the other. We argue that the enactive appeal to anticipatory processes that target sensorimotor dependencies may, in the right circumstances, be constituted in the dynamic coupling between individuals in situated action. We conclude that even if social cognition rests on agentive abilities to

anticipate counterfactual relations between perception and action (cf. Di Paolo et al., 2017; Noë, 2004, 2009; Seth, 2015), these abilities are grounded in situated, ongoing engagement with other agents, over multiple spatial and temporal scales.[8]

2.2 Enactive social cognition

In this section our agenda is to establish the constitutive claim of enactive social cognition. We start, section 2.2.1, with a neutral description of a paradigmatic example of face-to-face social cognition; namely, emotion regulation in infant/caretaker dyads. We then turn to address, section 2.2.2, the enactive claim that the interactions themselves are at least partly constitutive of social cognition. We show that to make sense of this enactive claim one must turn away from the standard synchronic conception of constitution and adopt a notion of constitution that is dynamic and diachronic. However, the state of the art in enactive social cognition bifurcates when addressing how best to understand the notion of diachronic constitution. Some argue that this is best explained through the lens of the new mechanist framework (Abramova and Slors, 2018; Gallagher, 2018). Others pursue an explanation in non-mechanistic terms, cast via the framework of dynamical systems theory (Di Paolo and De Jaegher, 2017; De Jaegher, 2018). We propose to chart a course between the options of new mechanism, on the one hand, and non-mechanism, on the other. Rather than defending one or the other, our articulation of diachronic constitution is applicable to both friend and foe of the mechanistic framework.[9]

2.2.1 Case study: Infant-caretaker interaction

We take it to be nearly if not entirely uncontroversial to say that the basic form of human social cognition takes place in face-to-face interaction with others (Krueger, 2010). One of the earliest examples of such interaction is the infant/caretaker dyad, where body posture,

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[8] This is not meant to remove the importance of internal processes. Our point is rather that anticipation can sometimes be realized or constituted by the dynamics of entire extended systems, including brains, eyes, hands, and so on, such that what enables anticipation in the first place has to do with situated and ongoing activity, given that it is the latter coupling agent to environment (or another agent) via perception and action (see also Gallagher, 2017).

[9] We take this to be a virtue of our proposal, for it avoids getting stuck in the long-grass having to defend either mechanistic or non-mechanistic schemes or some hybrid of both to articulate the constitution claim of enactive social cognition. Moreover, our proposal not only applies to enactive social cognition but more generally to any view of cognition that posits the relata of the constitution relation as being dynamic and processual. This is a real explanatory virtue of our constitutive proposal. Nevertheless, we cannot hope to address this in more detail in this chapter - this will be a task for another occasion.

expressive gesture, vocalization, gaze following, and so on, all play a role in the ongoing and recurrent engagement between infant and caretaker. The bedrock for this kind of face-to-face interaction can even be traced to shortly after birth, where infants have been shown to have a preference for engaging with faces of others, lending credibility to the view that the ability to engage in social forms of cognition is present very early in ontogeny.[10] In infant/caretaker dyads, the infant recognizes when she is being addressed by the caretaker and responds accordingly to the caretaker's playful or more serious emotions, conditioned on the caretaker's facial and vocal postures and gestures. The core features of this example are the infant recognizing, attending to, and responding to the caretaker's interaction with the infant, and the reciprocal behavior of the caretaker in recognizing, attending to, and responding to the infant's behavior and interaction with herself.[11]

The so-called 'still face' experiment brings to light the importance of ongoing and synchronous engagement, and what happens when the generalized synchrony of nonverbal behaviors of the infant and caretaker breaks down (Varga, 2015). In still face experiments, the infant is first engaged by her mother in a normal face-to-face interaction. This is followed by a period where the mother assumes a neutral facial expression, remaining motionless with a 'still face', which is then followed by the mother re-engaging the infant in normal face-to-face interaction (Gopnik and Meltzoff, 1996, p. 131). In these experiments, it has been shown that infants between 3 and 6 months become noticeably discouraged and upset during the second neutral face period, where synchronous, mutual interaction has broken down (Tronick et. al., 1978; Nagy et al., 2017). During this period the "infants withdraw from the interaction, avert their gaze, display negative affect, become increasingly distressed, start crying, and smile less" than during the normal engaged behavior prior (Nagy et al., 2017, p. 2). Additionally, there is a noticeable spill-over effect after the mother re-engages with the infant. In this re-engagement phase, the infant will continue to avert its gaze from the mother, displays distress and in general, it will not re-engage with its mother to the same level as before the still phase (Nagy et al., 2017, p. 2).

We intend this example to highlight the variables that one can observe, or at least reasonably approximate, given the occurrent behavior. Cognitivists and enactivist are divided in how to explain what does the constitutive, as opposed to merely causal, work in cases

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[10] How to understand and explain this preference for faces is still under debate - see Barrett (2011, p. 28-32) for discussion.

[11] We do not claim that this example speaks to sophisticated forms of social understanding. Still, we do not think this should count against it qualifying as a case of social cognition. Furthermore, even though the case we consider involves emotion regulation, this does speak against it being a form of social cognition, as there are strong reasons suggesting that affect and cognition are intimately linked and integrated (Colombetti and Krueger, 2015).

such as infant/caretaker engagements. Enactive accounts stress that social cognition is constituted in a non-trivial extended process such that social cognitive processes are instantiated not in a single individual but in the coupling between individuals (Varga, 2015).[12] Coupling relations like these are known as generalized synchrony - the process whereby multiple systems or agents are driven to assemble into a single coherent ensemble. The cognitivist framework that we target states that even if individual agents showcase dynamic coupling in face-to-face interaction, such coupling is meaningless unless supplemented by an implicit grip of a folk psychological theory (Carruthers, 2015). In the next section we will unpack how to think about the notion of constitution, when applied to enactive social cognition.

2.2.2 Enactive social cognition and diachronic constitution

Consider the following: you can leave your record player in the garage, return many years after and start using it again. But "if you accidentally leave your hamster in the loft, you will not have a hamster for very long." (Dupre and Nicholson, 2018, p. 15) This is obvious enough. Yet it speaks to a key theme of enactive social cognition; namely, action. Individual agents are always in need of acting in their environment to continue to exist. Such is their existential predicament. Action is at the root of what it is to be alive (Di Paolo, 2009; Friston, 2013). In social cognition, it is *inter*action that is at the foundation (De Jaegher et al., 2010).

The example above highlights a division between material objects (e.g., record players) and processes (e.g., remaining alive). Interaction is processual, through and through. Crucially, the distinction between material objects and processes maps onto two different conceptions of the constitution relation: synchronic and diachronic constitution. Only diachronic constitution is applicable to enactive social cognition (Gallagher, 2018; Kirchhoff,

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[12] We're working with the notion of extended in the *active externalism* sense of Clark and Chalmers (1998/2010), as opposed to the passive externalism of Putnam (1975) and Burge (1979). As in the classic Otto example by Clark and Chalmers (1998/2010), what is claimed to be extended is the cognitive process, not the subjects. In the Otto example, it is his process of remembering that is extended through the use of the notebook, not Otto himself nor his notebook. If the notebook is removed, this would cause a corresponding drop in Otto's behavioural competence in the same way that removing certain internal parts of the brain would (Clark and Chalmers, 1998/2010, p. 29). Similarly, in the infant/caretaker dyad it is the infant and the caretaker's social cognitive processes that are claimed to be extended, not the subjects themselves. See also Kirchhoff (2015) for a similar example of transactive memory where the process of remembering is extended between two agents working together to recall a specific experience.

2015).[13]

Synchronic constitution is the standard conception of how to think of constitution. In metaphysics, synchronic constitution is usually referred to as material constitution. However, the specification of constitution as a synchronic relation is also associated with related dependence relations such as realization, composition and supervenience (Bennett, 2011). The synchronic constitution relation can be framed in terms of how to fill out the following schema: a piece of marble, *Piece*, constitutes a specific statue, *David*, at a synchronic instant *t* if and only if _____? (Wasserman, 2004, p. 694). It is widely agreed that a necessary condition for *Piece* to constitute *David* is that the constitution relation that holds between *Piece* and *David* involves two coincidence conditions. First, constitution requires spatial coincidence: *Piece* constitutes *David* at a synchronic instant *t* only if *Piece* and *David* have the same spatial location at t. Second, constitution requires material coincidence: *Piece* constitutes *David* at a synchronic instant *t* only if *Piece* and *David* share all the same material parts at t (Wilson, 2007, p. 5). Constitution is also understood to be asymmetric and a relation of relative fundamentality. Asymmetry means that if *Piece* constitutes *David*, then *David* does not, at the same time, constitute *Piece*. Relative fundamentality refers to the view that *Piece* is in some sense more ontologically significant than *David* - viz., the parts are at a more fundamental ontological level than the whole.

By comparison, consider the Mexican wave as an example of social engagement. A Mexican wave is a common phenomenon in sports and occurs when individuals stand up slightly after the person next to them does, and so on, resulting in what appears to be a wave running or rolling through the crowd. There are several things to note about this example, all of which speak to adopting a notion of constitution cast in diachronic terms (see table 1 for an overview of the properties of synchronic and diachronic constitution).

First, a Mexican wave is an ontologically nested and multilayered process, as it is organized hierarchically into microscale (local) and macroscale (global) dynamics. Crucially, these differences in scale corresponds to a difference in the timescale over which local and global dynamics unfold - macroscale processes (i.e., the wave as it unfolds over space and time) exist over a longer timescale than microscale events or processes (i.e., individual agents standing up and down). Specifically, the Mexican wave loses and gains constituents at each moment of its existence and over its career. This observation sits in stark contrast with synchronic constitution, given the commitment of synchronic constitution to both

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[13] We take our conception of diachronic constitution to be a species of causation, i.e., constitutive causation, where constitutive causation is unidirectional. We capture this unidirectional feature in the terminology of continuous reciprocal causation. For further details on this issue, see Kirchhoff (2017).

spatial and material coincidence.

Second, in contrast to David/Piece, where the constitution relation holds between X and Y at an instant *t*, the relation between local and global dynamics in the Mexican wave cannot hold exclusively at such a snapshot moment in time. On the one hand, *coordination* is required for this phenomenon to arise. This means that there must be a systematic or non-accidental correlation in the activity of the individual constituents, which, over multiple temporal and spatial scales make up the Mexican wave. On the other hand, the relation between the microscale and macroscale dynamics is *time-dependent*, in the specific sense that the dynamics at *t1* are partly constitutive of the configuration of the wave at *t2*. So, temporally prior microscale dynamics feed into the configuration of the microscale and macroscale dynamics at temporally later stages.

Third, the formation of microscale dynamics, i.e., people standing up and sitting down, give rise to a macroscale and relatively stable pattern, which 'enslaves' the behavior of individual agents by instantiating a normative standard for behavior. On the one hand, this highlights that *engagement* is a necessary component in the constitution of the Mexican wave. Following De Jaegher et al. (2010), we take engagement to specify a specific social interaction starting to acquire a momentum of its own, as the ongoing roll through the crowd sweeps up others as it moves along. So the Mexican wave is a case of complex social engagement that involves a raft of different participants, imposing temporal demands on one another. On the other hand, once established, the claim that the wave 'sweeps up others as it moves along' highlights that the activity of standing up and sitting down at the local scale is driven and shaped by the Mexican wave in virtue of it being a shared practice. This means that the cultural practice of engaging in a Mexican wave, at the global scale, combined with the dynamics of the individuals at the microscale "can be seen as elements of a single adaptive dynamical system" (Hutchins, 2011, p. 440).[14] This allows us to cast the relation between local and global dynamics in terms of *co-constitution* - i.e., local and global dynamics jointly constitute one another. The notion of co-constitution is associated with the concept of reciprocal causation - a concept that lies at the heart of theorems in the

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[14] One might wonder about the following: even if one were to grant that the macroscale process is extended over spatial and temporal scales, does it follow that the dynamics of the component parts are also extended? To properly address this question we distinguish between two senses of 'extended'. First, if 'extended' means extended over spatial and temporal scales, then we can answer the question affirmatively. For example, in the Mexican wave, even the activities of the individual parts unfold over temporal and spatial scales; yet the temporal scales over which the parts unfold are much faster than the temporal scales over which the whole unfolds. Second, if we take 'extended' to imply an extended social-cognitive process, then the Mexican wave is best understood as a social-cognitive extended process comprised by dynamics at the scale of the individual.

physical sciences such as the slaving principle in physics (Haken, 1983).

Table 1: Properties of synchronic and diachronic constitution

Michelangelo's David	Mexican Wave
- Synchronicity	- Diachronicity
- Asymmetry	- Co-constitutive
- Non-causal	- Reciprocal causation
- Object-based	- Process-based

We now apply the constitutive properties of the Mexican wave to the infant/caretaker dyad, and show that the properties of the former map onto the properties of the latter. First, infant/caretaker interactions are inherently *diachronic*. Generally speaking, when two or more people interact, they tend to, on average and over time, modify their individual behavior to those of others (Bernieri and Rosenthal, 1991). This not only impacts on social cognition but also facilitates social coordination (Barsalou et al., 2003). This ongoing attempt to modify or align behavior is known as synchrony. Technically, synchrony is known as generalized synchrony, and refers to the matching of rhythmic behavior in chaotic dynamics, commonly in skew-product (i.e., master-slave) systems.

In the case of infant/caretaker dyads, generalized synchrony is applied to reciprocally coupled dynamical systems. Generalized synchrony has been extensively documented, most famously by Huygens (1673) and his work on pendulum clocks - matching their rhythms via the motions of the beam from which they were suspended (Friston and Frith, 2005). In infant/caretaker dyads, synchrony should not be associated with the synchronization of two pendulums, as synchronous behavior in the infant/caretaker case involves much more than mere 'rhythmic copying'. As Varga explains: "Synchrony, rather, refers to the co-creation of patterns that involve not mere copying, but also the temporally and dynamically variable completion of each other's vocalizations and gestures" (2015, p. 6). In this sense, the synchronous activity of non-verbal behaviors of the infant and the caretaker involves a degree of temporal coordination. It is for this reason that Varga (2015) says that the emotion regulation in infant/caretaker dyads is not an ability of a single individual but a socially

extended process comprising both infant and caretaker. Against this claim, one might worry that reciprocal causation need not always imply co-constitution. For instance, you might think that the movements of two individuals are tightly or reciprocally coupled during dancing, and yet still hold that the individuals in question remain ontologically distinct. We would not want to say that the ontology of the individuals is in question; rather, the point is that the activity of the two agents co-constitute one another in the sense of reciprocally causing the ongoing and temporally extended act of dancing. The same point, we submit, holds in the infant/caretaker example.[15]

Second, emotion regulation in infant-caretaker dyads exhibits the hallmark of jointly coupled dynamical systems; namely, self-organization. This means that dyadic emotion regulation self-assembles not from a predetermined intention but spontaneously. Crucially, self-organized ensemble behavior can be shown to have top-down effects on the individual constituents of the joint system. This follows from the slaving principle, which we described above. In this sense the macroscale process constrains - also known as enslaves - the activity of behavior at the microscale. At the same time, of course, microscale behavior generates the macroscale process of emotion regulation. The influence between these different scales of dynamics is mutual - there is not such a thing as a privileged - or relatively fundamental - scale of dynamics. This point is nicely expressed by Thompson, as he says: "At this dynamic [scale], the distinction between pre-existing parts and supervening whole has no clear application. One might as well say that the components ... emerge from the whole as much as the whole ... emerges from the components" (2007, p. 423). Hence, on the enactive account of social cognition, it makes no sense to privilege the parts (i.e., microscale processes) over the whole (i.e., ensemble behavior). On this view, parts and whole co-constitute each other.[16]

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[15] A different worry might be the following: even if there is a tightly coupled system, it could quite easily be the case that there is an asymmetry in the level of understanding relative to the comprising members of the system. No doubt there is something to this thought - as there might be some people that simply react to the Mexican wave as it is unfolding across the stadium, while other participants have a much greater grasp of the history and connotations of the event. The same can be said about the infant/caretaker dyad. Even so, we do not think this is a sufficient condition for rejecting our claim, as we are not saying that extended social cognitive processes can be extended if and only if there is symmetry in the level of understanding between the participants. In the infant/caretaker case we are rather focusing on the orchestrated and ongoing dynamics of emotion regulation.

[16] One worry might be that it is unclear how to settle the issue of what comprises the constitutive relation. In the context of this paper, especially the discussion over the extent of minds, it is not uncommon to invoke conditions such as non-derived content (Adams and Aizawa, 2001) or functional profile (Rupert, 2009). There is however well-known problems with both conditions. For example, there is still no naturalized account of non-derived content, making it close to or identical with mere philosophical intuition. Although we do not explicitly address this issue here, our own bet on how to determine what makes up the constitutive relation is by appeal to either interventionism (Kirchhoff and Meyer, 2017; Meyer, 2018) or mutual manipulation (Kaplan, 2012; Kirchhoff, 2017). The benefit of going down this manipulation route is that it does not

Table 2: Properties of synchronic and diachronic constitution, extended

Michelangelo's David	Mexican Wave	Infant-caretaker dyad
- Synchronicity	- Diachronicity	- Diachronicity
- Asymmetry	- Co-constitutive	- Co-constitutive
- Non-causal	- Reciprocal causation	- Reciprocal causation
- Object-based	- Process-based	- Process-based

This concludes our conceptualization of diachronic constitution in the context of social cognition. To paraphrase van Gelder and Port (1995), "imposing the [properties of synchronic constitution] onto the [case of dyadic emotion regulation] is like wearing shoes on your hands. You can do it but gloves fit a whole lot better." (1995, p. 2)

2.3 The causal-constitutive fallacy (fallacy)

One immediate and difficult question that arises in response to the diachronic constitution claim concerns the widely acknowledged view that facts about causation do not entail any facts about constitution, given that these relations of dependence are considered to be metaphysically distinct (Bennett, 2011). For instance, Carruthers (2015), following Block's (2005) review of Noë's (2004) enactivist account of perception, argues that enactivist explanations of social cognition "persistently conflate cause and constitution", and that at best enactive explanations establish that social "perceptual contents both give rise to, and are influenced by, sensorimotor knowledge" (Carruthers, 2015, p. 499). For this reason, Carruthers maintains that enactive explanations do not "establish that [perceptual contents] are constituted by such [sensorimotor] knowledge" (p. 499). While Block and Carruthers specifically target enactivist claims regarding sensorimotor dependencies, the objection is a version of the coupling-constitutive fallacy (CC- fallacy) (Adams and Aizawa, 2001, 2006, 2008). We consider the CC-fallacy, for if it holds the enactive framework will not get off the ground.

Targeting Noë's (2004) sensorimotor theory of perception, Block (2005) argues that

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rest on specific philosophical intuitions but on scientific practice.

Noë only shows "sensorimotor contingencies have an *effect* on experience, not that experience is even partially *constituted* by - or supervenes, constitutively on - bodily activity." (2005, pp. 4-5). Block's objection comes from what he describes as the orthodox view that presents the issue of the constitutive supervenience base for perception as what is minimally "a metaphysically necessary part of a metaphysically sufficient condition of perceptual experience" (2005, p. 5). Thus, according to the orthodox view, in order to determine what factors play a constitutive role in perceptual experience, we should determine what factors satisfy a minimal metaphysical sufficient condition for perceptual experience to occur.

In order to do this, Block claims that one needs to determine "the minimal supervenience base for an experience that occurs at time t" as it will be "an instantiation of a physical property at t—according to the orthodox view" (2005, p. 6). By taking this synchronic approach to analyzing the metaphysics of perception, Block argues that nothing outside of the brain is part of the minimal supervenience base for perceptual experience. This means that according to the orthodox view, only internal neural brain processes can satisfy the constitutive condition for perceptual experience. From this, Block (2005) emphatically concludes:

> there is often a process of perception that *involves* bodily activity—one moves closer to get a better look—but that should not be conflated with the very different idea that perceiving *is* an activity or, worse, that perceptual experience is an activity. And even if perceptual experience *depends* causally or counterfactually on movement or another form of activity, it does not follow that perceptual experience *constitutively* involves movement (2005, p. 6).

The orthodox view arrives at this conclusion because all that matters to determine the content of the perceptual experience at time t is the brain-bound neurological processes at time t. Hence, Block claims that even if we hold environmental variables as fixed, "only the features of the brain *now* are needed to determine the phenomenal character of experience *now*" (2005, p. 6). Thus, Block argues that Noë's claim that sensorimotor dependencies, which are the embodied and embedded dynamical relationships between the organism and its environment, constitute perceptual experience is fallacious, as the claim conflates causation and constitution.

Ascribing to the same orthodox view, Adams and Aizawa (2001, 2008) argue that causation and constitution are metaphysically distinct because the relation between cause and effect is temporal - causes precede their effects - whereas the constitution relation between parts and whole is cast as atemporal. Following on this, their version of the CC-fallacy argues that mere causal coupling of some internal process with a broader environment does

not necessarily extend that process into the broader environment and conflates causation with constitution (Adams and Aizawa, 2001, p. 56). The claim is: "a process P may actively interact with its environment, but this does not mean that P extends into its environment" (2001, p. 56). They argue that we cannot simply assume that causally coupling a process X to a cognitive process Y will be sufficient to make X a constitutive component of the Y cognitive process (2001, p. 93).

Adams and Aizawa anticipate an appeal to notions such as generalized synchrony and the dynamics of coupling or circular causation that we have presented. In order to show that the fallacy still applies to such a move, they (2008) examine the classic coupled pendulums example. They argue that even in cases of generalized synchrony, "the motions of the first pendulum are still motions of the first pendulum. The motions do not extend form the first pendulum into either the spring or the second pendulum" (p. 109). Just because the two pendulums are reciprocally coupled, they argue that this does not give us reason "to think that there is no such thing as the motions of the first pendulum" (p. 109). Their argument is that just because the first pendulum is coupled to the second and its behavior is modified by the second pendulum's behavior, this does not demonstrate that the motion of the first pendulum extends into the spring and into the second pendulum. Thus, Adams and Aizawa ask why we should then think that a comparable modification of a cognitive process by being coupled to another external process should convince us that the external coupled process constitutes the cognitive process (p. 110). For this reason, the fallacy allegedly still applies to our diachronic account of constitution.

There is good reason to resist the feasibility of the CC-fallacy; namely Hurley's (2010) causal-constitutive error error argument. The argument claims that "explanations tend to be treated as causal or constitutive with no independent justification, in accord with prior assumptions or intuitions about boundaries, which often themselves have no clear basis and do not illuminate the distinction" (2010, p. 106). For example, Block's objection to Noë is that only brain-bound processes will fulfill the minimal supervenience base. But why think so? Adams and Aizawa state that only content instantiated in the head of individuals can serve as a mark of the mental, for only such content is in need of no further grounding in, say, social norms and cultural practices. There is however no agreed upon theory of non-derived content. So this is at best a bet on a future theory of non-derived content or a non-sequitur. Indeed, as Hurley (2010) observes, whether one determines enactivist constitutive claims to be fallacious or not, is going to turn "on some theoretical account of content, or phenomenal quality, or their enabling processes--but this is just what is at issue

between internalism and externalism" (Hurley, 2010, p. 106).[17]

2.4 Beyond the poverty of the interactional stimulus argument

No doubt there is something correct about Hurley's (2010) observation that the distinction between constitution and causation need not be co-extensive with any internal-constitutive and external-causal divide. Even so, it is still possible to argue that deflating the CC-fallacy is not a sufficient condition for thinking that enactive social cognition is correct. In this final section we consider a reason for thinking that enactive social cognition still comes up short. We do this by focusing on the role and characteristics of anticipation in cognition in general and in social cognition specifically.

Stepp and Turvey (2010) point out that anticipation is an essential component to cognition in general - and by extension, in accounts of social cognition (see also Bickhard, 2016). This is the case both for cognitivist and non-cognitivist views of cognition, as anticipation is cast as constitutively involved in enabling an agent to respond flexibly to its dynamic and non-linear environment. Thus, answering the question of how to understand anticipatory behavior will impact non-trivially on the discussion between cognitivism and enactivism.

The ability to anticipate the changing world seems to require rather sophisticated cognitive capacities, such as the ability to apply knowledge (and/or theorizing) to sensory observations in order to arrive at a situationally appropriate response. The reason for this is that there is no one-to-one mapping between an agent's mental states and her observable behavior because the same behavior might be manifested by different mental states (Carruthers 2015). Once one acknowledges that such knowledge is both neurally instantiated and is what grounds flexible patterns of behavior, it is but a short step to acknowledging cognitivism. According to Stepp and Turvey (2010), for "those inclined to the traditional

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[17] As the determining factors regarding constitutive claims is just the issue at debate between cognitivists and enactivists, Hurley argues that the CC-fallacy is question begging, as it turns on the assumption, without any independent argument or empirical support, that the distinction between constitution and causation is such that only constitutive factors are internal to an organism and causal factors are external to organism (2010, p. 106). In order to avoid committing this error, Hurley recommends that we do not operate with prior assumptions regarding the causal-constitutive boundary (2010, p. 106). Hence, without an additional argument or further evidence to secure that the distinction between constitution and causation maps onto internal states being constitutive, while external states merely play a causal role in the instantiation of some specific phenomenon, the coupling-constitution fallacy cannot establish its conclusion without begging the question in its favor.

view of mediation of behavior by representations, anticipation would seem to be an especially 'representation- hungry' problem … that is, one that cannot possibly be manifest without special internal states." (2010, p. 148). On this cognitivist view, anticipation involves a system encoding or instantiating a model of itself and its local environment, enabling it to predict the causes of its sensory observations - at least approximately.

The cognitive neuroscientist Anil Seth frames anticipation along such cognitivist lines in understanding the architecture of cognition in general. He argues that enactive accounts of anticipation should be understood in terms of internal (i.e., brain-bound) hierarchical models of sensorimotor dependencies - viz., "counterfactual knowledge of relations between particular actions and the resulting sensations" (2015, p. 16). In this fashion, face-to-face social cognition would be a matter of each individual trying to predict or anticipate the relevant mental states, including emotional states, of the other conditioned on a model. Hence, all the 'real' cognitive work is realized in a brain-bound and neurally instantiated model of the other, where 'the other' takes the form of the environment or external states - the target of the predictions.

Carruthers' account of social cognition, framed in terms of Theory Theory, similarly holds that anticipatory processes should be understood as constitutively brain-bound. He argues that "even enactivism cannot obviate the need for tacit theory" (2015, p. 499). This is the 'poverty of the interactional stimulus' argument against enactive social cognition. Carruthers claims that even if we grant that sensorimotor knowledge facilitates social cognition in interactions, as enactive accounts claim, we would still need to explain how any particular sensorimotor expectancy, or anticipation, can be generated by just the bare behavior of the other (p. 499). Pointing to Gallagher's (2001) claim that emotions and goals are directly expressed in bodily actions, and so can be directly perceived without tacit theory, Carruthers (2015, p. 499) argues that Gallagher's claim is implausible.

Enactivists (Froese and Gallagher, 2012; Fuchs and De Jaegher, 2009) typically claim that a core assumption of cognitivism is the unobservability of mental states. But this need not follow. Indeed, Carruthers (2015, p. 499) may be correct to point out that this assumption is unnecessary. Rather, cognitivist explanations may simply assume that "mental properties cannot be simply seen … independently of concepts and acquired knowledge of the world" (p. 499). Hence, there is for Carruthers a need for conceptual knowledge to inform bare perception of behavior.

Carruthers argues that since "there are no one-to-one correspondences between mental states and behavior", enactive accounts "need to explain why someone will, in one

context, anticipate one action, yet in a subtly different context, or with subtle differences in the other's behavior, will anticipate something else" (2015, pp. 499-500). Carruthers' argument is that enactive accounts need to explain contextually sensitive behavioral tendencies. However, according to Carruthers, explaining contextually sensitive behavioral tendencies necessarily requires a tacit theory of such contextually sensitive responses. Therefore, enactive explanations cannot avoid having to appeal to an underlying tacit theory in order to account for anticipatory processes in social cognition. Formulated this way, the poverty of the interactional stimulus problem allegedly shows that without appealing to tacit theory in their explanation of social cognition, proponents of enactive social cognition cannot give a satisfactory explanation.

It is however possible to resist these cognitivist depictions of anticipation and thereby defuse the poverty of the interactional stimulus objection. For it is possible to provide an explanation of anticipation in social cognition without appeal to an underlying tacit theory or knowledge-based model. By embracing a radical enactive alternative that casts perception as an exploratory activity, which extends over time, "there is no need to introduce 'knowledge' as a kind of bond that holds together various percepts in order to *explain*" anticipation of contextually sensitive behavioral tendencies (Hutto, 2005, pp. 399-400). By casting perception this way, the simplified claim is that the sensorimotor dependencies of the various sensory modalities can account for the anticipation of the subtle differences in the other's behavior in subtly different contexts. Sensorimotor dependencies, in conjunction with the particular features of the other as encountered in a situated physical and social context, account for both the perception and anticipation of the qualitative differences of the other's behavior tendencies (Hutto, 2005, p. 400).

Enactive accounts that reject an appeal to behavior mediated by representational models conceive of anticipation as instantiated in ongoing sensorimotor couplings between an agent and its milieu, which includes, from time to time, engagement with other agents (De Jaegher et al., 2010). To see this, consider that any attempt to weaken or destroy the coupling relation effectively disrupts or terminates the anticipatory process. This much is evident from the still-face experiment discussed above. In the initial case, the infant and caretaker mutually create a coordinated state, in which their affective states are shared directly in their embodied and embedded behavior (Fuchs and De Jaegher, 2009, p. 479). This is what we referred to as generalized synchrony. General synchrony allows us to associate the process of emotion regulation as a process of the ensemble, inducing an overall

state of stability and coordination. The still-face intervention, however, breaks the coordinated macroscale scale process, and what we see is a reduction in synchrony and thus of the ability to anticipate future states conditioned on action.

There is an important temporal aspect to anticipation that is analogous to the processual temporal dynamics we discussed in the Mexican wave example, and one we can exemplify by returning to the still-face experiment. The ongoing and synchronous engagement between the infant and caretaker constitutes and explains what happens when the generalized synchrony of nonverbal behaviors of the infant and caretaker break down (Varga, 2015). The spillover effect of the infant continuing to avert its gaze and display distress is a product of the infant now anticipating another future breakdown in the engagement.

Close inspection reveals that the infant and caretaker are unlikely to exhibit a special form of synchrony; namely, identical synchrony, where there is a one-to-one mapping between the states of the two agents - a case of what we might call 'perfect anticipation'. The infant and caretaker dyad is not always in perfect synchronization, as they typically only have matching affects 30% of the time (Fuchs and De Jaegher, 2009, p. 479). This speaks to the pair having to continuously negotiate and renegotiate their interaction with one another. Indeed, it is the temporally unfolding process of maintaining affective coordination through synchronization, desynchronization and resynchronization that drives the interaction forward. Hence, on this enactive construal of anticipation, it is through the embodied and dynamic process of mutual affective resonance that the infant and caretaker are able to get a dynamic grip on the affectivity of the other, and anticipate and respond accordingly to the perceived affectivity of the other, in the process of the interaction (Fuchs and De Jaegher, 2009, p. 479).

Emotion regulation in the infant/caretaker dyad is an example of a situated action. There is more to say about what orchestrates and constrains anticipation than just sensorimotor coupling - there is also a sociocultural dimension to anticipation. To unpack this we follow Hutchins (2011) in thinking of situated actions as cultural practices. Cultural practices are "the things that people do in interaction with one another" (p. 440). This means that the emotion regulation in the infant/caretaker dyad is itself a cultural practice. As Hutchins puts it:

> Cultural practices include particular ways of seeing (or hearing, or feeling, or smelling, or tasting) the world. [They] are not cultural models traditionally construed as disembodied mental representations of knowledge. Rather, they are fully embodied skills. Cultural practices organize the action in situated action (p. 441).

The nice thing about considering anticipation in social cognition in relation to cultural practices is that it avoids biasing the notion of anticipation toward internal, brain-based models and foregrounds the idea that sensorimotor couplings are embedded within particular sociocultural setting, which constrains how individuals act and perceive their world.

This brings out a deep reason for why it is a mistake to think of anticipation in terms of strict cognitivism. The cognitivist grounds social cognition in anticipation and conceives of ongoing and recurrent interaction as merely causally influencing the brain-based anticipatory machinery. On our enactivist account however, anticipatory processes do not underlie the capacity for social cognition in interaction; instead, they are realized and grounded in recurrent interaction between individuals. In other words, anticipatory processes are constituted in the interactional dynamics between the interactors and their relationships to their shared world. The ability of the interactor to attend to, recognize and respond to the others' emotions and intentional behavior rests on counterfactual relations between perception and action, but this ability is grounded in situated, ongoing engagement with other agents, over multiple spatial and temporal scales.

Another significant departure of our enactive view of social cognition to cognitivism is the following: the cognitivist focus on model mediated behavior gives pride of place to dynamics at the microscale at any given moment in time. Our diachronic account of constitution however not only casts social cognitive processes extended temporal processes, it also implies that the temporally unfolding patterns of engagement over time is explanatorily prior to what is the case at any given moment in time. Hence, in the infant/caretaker dyad, mutual affective resonance is constituted by in a reciprocally coupled two-body system, which is informed by a history of engagement (see also Di Paolo et al., 2017; Fuchs and De Jaegher, 2009). One cannot therefore explain social cognitive activity without such an explanation presupposing a wholly dynamic and diachronic view of the metaphysics of social cognition.

2.5 Conclusion

In this chapter, we focused on clarifying and extending an enactive alternative to the dominant cognitivist account of social cognition. We did this by first articulating and describing a diachronic notion constitution using the examples of the Mexican wave and infant/caretaker dyads. Our analysis of these examples showed that embodied engagement can play a constitutive, rather than just a causal, role in social cognition. This provides one substantial

reason for considering enactive social cognition as a *bona fide* alternative and rival to the cognitivist framework.

We then considered two versions of the C-C fallacy (Adams and Aizawa, 2001, 2008; Block, 2005) that has been put forth against enactive accounts of cognition. We deflated this objection by establishing that the fallacy assumes problematically that the distinction between constitution and causation is co-extensive with casting internal elements as constitutive and external elements as causal. Following Hurley (2010), we argued that this assumption begs the question against exactly what is being debated between traditional cognitivism and enactivism. Thus, the CC fallacy fails to block our enactive diachronic constitution claims.

Having argued that embodied and embedded elements of intersubjective engagements can play a constitutive role in social cognition; we turned to address Carruthers' (2015) poverty of the interactional stimulus objection. This objection argued that the anticipatory processes that facilitate social cognition in interactions need to be mediated by internally realized models, i.e., a tacit theory of mind. In the final part of the chapter, we dissolved this objection in the context of the infant/caretaker dyad by arguing that it is possible and proper to cast anticipatory processes as orchestrated and maintained by the sensorimotor couplings between individuals in face-to-face interactions. This demonstrates that our enactive account of social cognition is an alternative, rival account to the dominant cognitivist approach to social cognition.

Chapter 3

Re-conceptualizing the role of stimuli:
An enactive, ecological explanation of spontaneous-response tests

This chapter addresses a challenge proposed against non-mindreading explanations of infant spontaneous-response test data. The challenge is a foundational assumption of mindreading explanations best summed up by Carruthers' (2013; 2015) claim that only by appealing to a theory of mind is it possible to explain infant responses in spontaneous-response false-belief tests when there are no one-to-one correspondences between observable behavior and mental states. Heyes (2014a; 2014b) responds to this challenge arguing discrete stimuli is informationally wealthy, and interprets the spontaneous-response results in terms of low-level perceptual novelty. However, Scott and Baillargeon (2009; 2014) challenge Heyes' explanation on the grounds that her account of spontaneous-response false-belief tests cannot also explain spontaneous-response ignorance tests. In response to this, an enactive, ecological goal-tracking explanation of spontaneous-response tests is presented, and argued to be superior to both mindreading explanations and Heyes' account. This is done by recasting perception and anticipation and appealing to the central role social normativity plays in constraining social cognition. Finally, it is argued the cognitivist framework that both Heyes and mindreading proponents appeal to, begs the question in favor of the indispensability of mental representations for explaining perception and anticipation.

Chapter 3

Re-conceptualizing the role of stimuli:
An enactive, ecological explanation of spontaneous-response tests

3.1 Introduction

This chapter addresses a challenge proposed against non-mindreading explanations of spontaneous-response test data. The challenge is a foundational assumption of mindreading explanations best summed up by Carruthers' (2013; 2015) claim that only by appealing to a theory of mind (ToM) is it possible to explain infant responses in spontaneous-response false-belief tests when there are no one-to-one correspondences between observable behavior and mental states. On this approach, a ToM is conceptualized as an internal cognitive system utilizing a set of theoretical knowledge regarding the causal relationship between observable behavior and unobservable mental states to represent and attribute mental states to others. The task taken up here is to show how an enactive, ecological psychology account of perception can explain infants' social cognitive capacity to anticipate others' behavior in false-belief tests without appealing to a ToM.

Mindreading proponents Wimmer and Perner (1983) developed the elicited-response false-belief test (ER-FBT), which they claim demonstrates beginning at the ages of 4-5 years old children are able to recognize when another agent has a false-belief regarding an object's location. In the study, children were shown the story of Maxi, who hides chocolate in a cupboard and then leaves the room. While Maxi is gone, his mother moves the chocolate from where Maxi left it into another cupboard. Maxi then returns to the scene and the child is asked to indicate which cupboard Maxi will search for the chocolate. Children succeed on the test when they correctly identify that Maxi will search the original hiding location for the chocolate. According to Wimmer and Perner (1983), the empirical results demonstrate children are able to attribute to Maxi the false-belief that the chocolate is in the original location.

More recently Onishi and Baillargeon's (2005) spontaneous-response false-belief test (SR-FBT) study provides a new set of empirical data that investigates the false-belief capacities of infants (under two years of age). Their SR-FBT was structurally similar to

Wimmer and Perner's (1983) ER-FBT with one exception. Instead of verbally eliciting the subject to point to a location, the infants' eye movements were tracked in order to utilize a surprise-looking methodology to measure their responses to the target agent's actions. Onishi and Baillargeon (2005) claim these results demonstrate even infants are capable of attributing false-beliefs to others. Like Wimmer and Perner, Onishi and Baillargeon (2005) claim infants' ToMs (1) represent the target agent's beliefs, (2) infer the agent has a false-belief of where the target object is located, (3) attribute this false-belief to the agent, and (4) predicts the agent's future action motivated by the agent's ascribed false-belief.

I propose an alternative non-mindreading account of this empirical data via the lenses of the enactive and ecological psychology frameworks in the philosophy of cognitive science. This account rejects the assumption that independent stimuli are the focal points of perceptual and cognitive processes, and as such there is no need to assume discrete stimuli to be either informationally impoverished or wealthy. Instead, on this account discrete stimuli are always perceived within an interconnected field of affordances, where different possibilities for action are perceived. In this sense, it makes no sense to talk about discrete stimuli as either impoverished or wealthy, but rather, perceived discrete stimuli are always perceived situated within particular temporal and environmental settings that provide an additional wealth of information. In order to explain the spontaneous-response test data, the account appeals to the claim that the cognitive processes of infants are guided by normative practices, and that infants are able to recognize, track, and anticipate the goal-directed behavior of other agents.

In the following sections I begin by laying out in detail Carruthers' (2015) challenge against non-mindreading accounts of SR-FBTs, the poverty of the stimulus objection. After presenting this challenge, I show how Heyes' (2014a; 2014b) non-mindreading account attempts to overcome this objection by appealing to the claim that discrete stimulus is informationally wealthy, and her low-level novelty explanation of the SR-FBT data. Although Heyes' account shares some similarity to the enactive, ecological account defended here, Scott and Baillargeon (2014) offer a convincing argument against her explanation of the SR-FBT data by showing that she cannot offer a similar consistent explanation of spontaneous-response ignorance test (SR-IT) data. I then show how Jacob (2019) extends Scott and Baillargeon's argument to other kinds of non-mindreading explanations of spontaneous-responses tests, including enactive and ecological explanations. Finally, I argue that by adopting an enactive, ecological psychology framework it is possible to both overcome the poverty of the stimulus objection and explain the empirical data in a way that is superior to

the other explanations on offer.

3.2 A mindreading challenge

This section explores cognitivist explanations of the SR-FBT data by looking at two different approaches and the challenges these views put forth. I begin by outlining a mindreading explanation of the SR-FBT data and presenting Carruthers' (2013; 2015) poverty of the stimulus objection to non-mindreading explanations. Section 3.2.1 then introduces Heyes' (2014a; 2014b) non-mindreading explanation of the SR-FBT data, and how her response is based on the claim that discrete stimulus is informationally wealthy. Section 3.2.2 shows that Scott and Baillargeon's (2009, 2014) SR-IT data builds a good case against Heyes' account of the SR-FBT data. The section ends with Jacob's (2019) extension of this challenge to all other non-mindreading explanations of spontaneous-response tests.

Although there is variation between different versions of mindreading explanations of SR-FBTs, Scott and Baillargeon's (2009; 2014) framework shares many explanatory claims with Carruthers' (2013; 2015) and Jacob's (2019) accounts. Mindreading proponents claim social cognition requires a ToM in order to attribute beliefs to others and predict their behavior. As Carruthers (2015, p. 499) states, a ToM is the only resource to adequately explain "why someone will, in one context, anticipate one action, yet in a subtly different context…anticipate something else." Importantly, here Carruthers is making clear a core assumption motivating mindreading ToM explanations. Specifically, Carruthers is arguing that by committing to innate ToM abilities it is possible not only to provide an explanation of infants' social cognition capacities, but moreover that in this way one can solve the problem of explaining how informationally impoverished discrete stimuli can be utilized to determine and anticipate others' mental states.

Carruthers' argument unfolds as follows: First, Carruthers claims that environmental discrete stimuli, including others' perceivable behavior, are informationally impoverished in the sense that there "are no one-to-one correspondences between mental states and behavior" (2015, p. 499). For Carruthers, this means that perceivable actions and facial expressions, which physically manifest any given mental state, can vary depending on the individual's other mental states, and are always context-sensitive. For this reason, he claims that even non-mindreading accounts:

> cannot obviate the need for tacit theory [a ToM]…to explain why someone
> will, in one context, anticipate one action, yet in a subtly different context, or
> with subtle differences in the other's behavior, will anticipate something else

Carruthers argues that only by appealing to the existence of a ToM, which through inferential reasoning theoretically enriches the impoverished information that is perceived via discrete environment stimuli, is it possible to explain social cognition. Thus, Carruthers claims any explanation of any form of social cognition, including the kind of social cognition examined in spontaneous-response tests, that does not appeal to a ToM cannot be sound.

The same motivating assumption can be seen in Scott and Baillargeon's explanation of the empirical results of their (2009) spontaneous-response experiments. In this study, the experiments began with familiarization trails where the infants watched the agent interact with the two toy penguins, a 2-piece penguin and a 1-piece penguin. Then, the agent watched as the experimenter placed the penguins on separate platforms. Finally, the agent placed a metal key in the bottom piece of the 2-piece penguin and stacked the top piece on the bottom piece, making the two penguins indistinguishable. According to the authors of the study, the infants learn that:

> (1) the 1- and 2-piece penguins were present in each trial; (2) the 1-piece penguin did not come apart (as demonstrated by the fact that it remained in one piece when the experimenter lifted it by the top of its head); (3) the 2-piece penguin was disassembled at the start of each trial; (4) the two penguins could appear in different locations (left or right) and arrangements (on platforms or inside shallow containers); (5) the agent had the goal of hiding her key; and finally (6) the agent consistently sought the 2-piece as opposed to the (otherwise identical) 1-piece penguin because only the 2-piece penguin provided a hiding location for her key (Scott and Baillargeon, 2009, p. 10).

In the two false-belief test trials of Experiment 1 and Experiment 2, the agent was hidden behind a closed window at the start of the trail. A gloved hand then assembled the 2-peice penguin, with the key hidden in the bottom, and placed a transparent cover over this penguin and an opaque cover over the 1-peice penguin. The agent then opened the window and reached either for the transparent cover (transparent-cover event) or the opaque cover (opaque-cover event), and paused until the trial was over. In the true-belief test trials the sequences of events of both trials (transparent-cover event an opaque-cover event) were exactly the same with the only exception that the agent was present throughout the trials.

In the true-belief trials the infants reliably looked longer during the opaque-cover event, suggesting that they were surprised by the agent's action of reaching for the penguin that the agent knew did not contain the key. These results are explained as the infants:

> (1) attributed to the agent, during the familiarization trials, the goal of hiding her key in the 2-piece penguin; (2) expected this goal to be maintained during

the test trials and to lead the agent to again seek the 2-piece penguin; and hence (3) expected the agent to reach for the transparent cover, where she had seen the 2-piece penguin being placed, and were surprised when she reached for the opaque cover instead (Scott and Baillargeon, 2009, p. 16).

The false-belief tests produced similar results congruent with other SR-FBT empirical data (Onishi and Baillargeon, 2005) in that the infants looked reliably longer in the transparent-cover event. According to the SR-FBT methodology this shows the infants were surprised by the agent's action. Scott and Baillargeon claim this demonstrates the infants utilize a ToM to attribute to agents a complex interlocking set of internal states in that they:

> (1) attributed to the agent, during the familiarization trials, the goal of hiding her key in the 2-piece penguin; (2) expected this goal to be maintained in the test trials and to lead the agent to again seek the 2-piece penguin; (3) understood that the agent would correctly infer, based on the familiarization trials, that the 1-and 2-piece penguins were both present in the apparatus; (4) realized that the agent would falsely expect, based on the familiarization trials, that the 2-piece penguin was disassembled; (5) reasoned that this expectation would lead the agent to form the false belief that the penguin under the transparent cover was the 1-piece penguin; (6) further reasoned that the agent's false belief about the identity of the penguin under the transparent cover would lead her to falsely believe that the disassembled 2-piece penguin was under the opaque cover; and (7) expected the agent to reach for the opaque cover and were surprised when she reached for the transparent cover instead (Scott and Baillargeon, 2009, p. 16).

Based on this empirical data, Scott and Baillargeon make the further claim that the infants in the false-belief trials were capable of attributing two different false-beliefs to the agent. First, that the agent had the false-belief that the penguin visible under the transparent cover was the 1-piece penguin. Second, that the agent had the false-belief that the 2-peice penguin was located under the opaque cover. Thus, Scott and Baillargeon claim infants are capable of attributing false-beliefs to an agent regarding an agent's knowledge of both an object's identity and its location.

In line with Carruthers' claim, Scott and Baillargeon's (2009) explanation relies on the assumption that infants need to mentally represent and theoretically enrich informationally poor discrete environmental and behavioral stimuli via a ToM. This can be seen in their explanation appealing to the infants represent the agent's goals and beliefs, and in inferentially reasoning from step (1) to step (7) to form the anticipation that the agent would reach towards a specific location, which is then violated in the transparent-event. According to these kinds of mindreading explanations, the best explanation of the SR-FBT data is to attribute ToM abilities to infants, as this is the best explanation of how infants form anticipations of what the agent will do next as the environmental and behavioral discrete

stimuli are informationally impoverished. Thus, based on the assumption of the poverty of the stimulus, mindreading ToM explanations of the SR-FBT empirical data claim appealing to a ToM is the best explanatory approach.

3.2.1 Submentalizing and low-level novelty

Heyes' (2014a; 2014b) alternative non-mindreading account of the SR-FBT data challenges the poverty of the stimulus assumption of mindreading accounts. Heyes argues for a "wealth of the stimulus", which is the claim that "there is sufficient information in the individual's environment, and particularly in their social interactions" to support social cognitive capacities without conceptual enrichment via a ToM (Ray and Heyes, 2011, p. 93). She claims imitative processes develop social cognitive capacities that are established prior to the development and implementation of a ToM. According to Heyes, imitative learning is able to explain how infants are capable of social interaction without having to appeal to a ToM. Heyes' claim is that domain-general cognitive processes are capable of developing flexible responses in infants and adults such that they are able to accurately predict and respond to others' observable behavior without a ToM theoretically enriching discrete environmental and behavioral stimuli.

According to Heyes (2014a), any kind of behavior that appears as if it is controlled by reasoning about others' mental states, but is actually controlled by domain-general cognitive processes should be labelled submentalizing. The submentalizing account (Heyes and Frith, 2014) cites studies showing that even from birth infants attend to face-like stimuli, and within a year of their birth are capable of recognizing the identity of specific individuals, basic emotions, the direction of others' gaze (Frank, Vul, and Johnson, 2009), preference for observing moving limbs (Troje and Westhoft, 2006), and predictive eye movements when observing others' actions (Falck-Ytter, Gredebäck, and Hofsten, 2006). Interpreting this empirical data on early infant capacities, Heyes claims that infants can anticipate, based on the beginning of another's bodily movement, how the movement will end; and that they can attend to their own movements creating a link between observed action and action production (Heyes and Frith, 2014).

In this way, Heyes argues imitation teaches infants through experiences of seeing and doing the same action of another by establishing a "matching vertical association; a bidirectional excitatory link between sensory (typically visual) representation of x and a motor representation of x" (Ray and Heyes, 2011, p. 97). Once established, this learned link

makes it possible for the infant to recognize the mentalistic significance of others' actions simply through observing their actions. Heyes (2014a) claims domain-general attentional processes encode object and agent locations and events, which bring the mental states of an infant into alignment with the agent when both are attending to the same objects and events. These attentional processes achieve this by working in conjunction with the domain-general processes of perception, motivation, learning and memory, and "are solely responsible for encoding the events that infants witness in [SR-FBT] experiments and for modulating the infant's looking behavior" (Heyes, 2014b, p. 648). These basic capacities are considered domain-general cognitive capacities because they help the infant navigate both the social and non-social environment, and as such they are not considered to be any kind of ToM (Heyes, 2014a).

Even though Heyes (2014a) claims that infants are able to learn to recognize, and respond to, the mentalistic significance of others' actions, Heyes' low-level novelty explanation of SR-FBT data claims infants only mentally represent and respond to the relatively low-level features of discrete action stimuli, such as color, shape, and movement. According to Heyes, what best explains longer looking times in Scott and Baillargeon's (2009) SR-FBT study is the degree to which the "expected (imaginal novelty) low-level properties of the test stimuli", such as colors, shapes and movements, "are novel with respect to events encoded by the infants earlier in the experiment" (Heyes, 2014b, p. 647). In her explanation of Scott and Baillargeon's (2009) SR-FBT data, Heyes (2014b) claims imaginal novelty causes retroactive interference, which is when a distracting event disrupts memory leading to an A not B error, where the infants forget which penguin is which.[18]

Specifically, Heyes (2014b) claims the reappearance of the agent in the test trials causes the infants to be less able to remember that the penguin in the transparent cover was, until recently, the 2-piece penguin. This is because in the familiarization trials for both the true- and false-belief tests, the agent always reached towards the dissembled 2-piece penguin and away from the whole 1-piece penguin, and placed a key in the bottom part of the 2-piece penguin before assembling the penguin. This means the infants in the false-belief trials, as opposed to infants in the true-belief trials, will be more surprised that the agent reached towards the whole penguin, rather than away from the whole penguin as was done in the familiarization trials. Importantly, this low-level account claims the novelty generating surprise occurs at a lower representational level than actions on objects by agents.

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[18] Heyes (2014b) claims infants are less able to resist retroactive interference—the maintenance of an active representation of X in spite of distraction by Y—as their prefrontal cortices are less developed (Olesen, Macoveanu, Tegnér, and Klingberg, 2007).

Instead, it occurs "at a level where the events witnessed by the infants are represented as colours, shapes, and movements" (Heyes, 2014b, p. 648). This means that the infants' reactions are best explained by how the infants represent these low-level events, which in turn, "depends on a combination of incoming stimulation and past experience" (p. 652).

According to this account, the data can be explained by the format of the familiarization and test phases, and by the retroactive interference that arises from the unexpected appearance of the agent. Essentially, a process of retroactive interference is produced from the similar circumstances between the familiarization and false-belief test trials having only the significant differences of the appearance of the agent and just the whole penguin being visually present. This then produces the surprise looking behavior. Essentially, these low-level features bias the infant's attention and looking behavior such that it *appears* as though the infant is reasoning about, and attributing, a false-belief to the agent. Though Heyes takes a novel approach in appealing to a wealth of the stimulus claim, as we will see, her low-level novelty account is not consistent across the SR-FBT and SR-IT data.

3.2.2 SR-ignorance tests: Specifying the challenge for non-mindreading accounts

Scott and Baillargeon (2014) acknowledge that Heyes' account might prima facie be considered a rival to mindreading explanations of SR-FBTs, yet they argue that Heyes' account cannot explain another related set of experimental tasks in which infants are tested on their responses to an agent's ignorance. As opposed to Heyes' low-level explanation of the SR-FBT data, they claim the results of their SR-IT data shows infants are in fact responding to the agent's mental states. In this ignorance test, the conditions of the trials were identical to the false-belief test—including the familiarization trials—with the single exception that the agent had no key to hide. The goal of the SR-IT was to "underscore the importance of the agent's goal in the false-belief conditions", and to rule out low-level explanations of infant behavior in spontaneous-response tests (Scott and Baillargeon, 2014, p. 17). Scott and Baillargeon (2009) reasoned that if the infants in the true- and false-belief tests attributed to the agent a simple preference for the 2-piece penguin, then this ignorance test should produce similar empirical results. However, if the infants in the true- and false-belief tests attributed the goal of hiding the key to the agent, then in the no key ignorance test the infants should not be surprised when the agent reached for either cover.

Scott and Baillargeon's (2009) prediction was supported by the results of the test, as

the infants looked equally long in both the transparent- and opaque-cover events. Scott and Baillargeon (2014) claim these results support their explanations of the true-belief and false-belief tests in that the infants must have attributed to the agent the goal of hiding her key in the divisible penguin. Scott and Baillargeon (2014, p. 661) argue against Heyes, claiming that the SR-IT results "provide overwhelming evidence that infants are not merely responding to the perceptual novelty of colours, shapes, and movements". This is because Heyes' low-level novelty explanation of SR-FBTs when applied to SR-ITs should predict that the infants would look longer when the agent reaches for the transparent cover, as the process of retroactive interference should still be relevant.

However, applying her low-level novelty explanation to the SR-IT, Heyes (2014b) maintains that without the key present in the familiarization trials, the infants' attention was not drawn to the fact that the agent reached for the 2-piece penguin and away from the 1-piece penguin. Heyes claims that without the key, the infants in this version of the test had a weak or absent memory of the familiarization trials when they were engaged in the test trials. This resulted in the infants' looking responses in the test trials being about the same regardless of where the agent reached.

Scott and Baillargeon (2014, p. 662) reply that Heyes' low-level novelty explanation that the infants could not discriminate between the two penguins in the familiarization events without the key present, is not only unlike, but also "contradicts Heyes' assumption that infants are attending to low-level perceptual features such as shapes". Not only is the 1-piece penguin a distinct shape in comparison to the disassembled 2-piece penguin, but similar to the familiarization trials of SR-FBT version, the 2-piece penguin is only assembled in the last step of the trial after the agent reaches for it. It's not clear on Heyes' account why the key plays such a vital role in both drawing the infants' attention to the agent's reaching and improving their ability to remember the events of the familiarization trials in the test trials if all the other low-level features of the SR-FBT and SR-IT tests remain the same. For this reason, Scott and Baillargeon argue that Heyes' low-level novelty explanation does not remain consistent across the different tests, as the SR-IT explanation is incongruent with the SR-FBT explanation regarding the memory capacities of the infants. Thus, Scott and Baillargeon claim the empirical results of the SR-IT show that infants are in fact responding in the various tests to the agent's beliefs as opposed to just low-level features of the agent and the environment.

Along similar, yet somewhat different lines, other non-mindreading accounts claim that the infants are capable of tracking the agent's intentions or goal-directed behavior

(Fenici, 2014; Gallagher and Povinelli, 2012), which avoids the particular formulation of Scott and Baillargeon's (2014) objection against Heyes' low-level account. This is because even though these kinds of non-mindreading accounts do not claim that the infants represent, reason about, and attribute mental states to the agent, these accounts do claim that infants are able to track the agent's intentions or goal-directed behavior that is co-extensive with the agent's mental states. The central claim shared by these accounts is that it is possible to explain the infant behavior in spontaneous-response tests without assuming that the infants attribute enduring belief states to other agents and inferentially reason about these states in anticipating others' future behaviors. Instead, these accounts claim that through previous social experiences, infants have developed sensitivity to others' intentional or goal-directed behavior. This sensitivity leads infants to continuously form and revise their anticipations of what others will do as the social interaction or scene unfolds before them.

Nevertheless, Jacob (2019) reformulates the ignorance objection against these kinds of non-mindreading accounts along the lines of the poverty of the stimulus problem. Jacob claims the different test conditions warrant different behavioral predictions. While ascribing ignorance warrants the prediction the agent will reach to either location, ascribing false-belief warrants a specific prediction of where the agent will reach. The challenge for non-mindreading accounts is that without appealing to the claim that infants attribute enduring mental states to others and predict their behavior via inferential reasoning, they cannot explain the infants' capacity to distinguish between false-belief and ignorance in the nuanced and context-sensitive responses of the observed agent's actions.

This is because in both test conditions of SR-FBTs and SR-ITs, the observed agent is not present to sense or tack the changes to the target objects. However, according to intentional or goal-tracking explanations, the infants' responses are congruent to recognizing and responding to this epistemic fact, but if the agent is not present when the changes to the objects are made, how are the infants tracking the agent's intentional or goal-directed behavior? Jacob (2019) argues that only by appealing to a ToM, and the capacity to attribute and reason about enduring mental states, is it possible to explain the infants' responses across all the spontaneous-response tests. Thus, the issue of the poverty of the stimulus is a core motivating factor in both the construction of mindreading explanations of social cognition and objections to non-mindreading accounts of social cognition.

3.3 An enactive, ecological account

This section addresses this poverty of the stimulus issue directly by raising two problematic assumptions of cognitivist accounts of perception, and by presenting an alternative enactive, ecological conception of perception and anticipation (Jurgens and Kirchhoff, 2019; Stepp and Turvey, 2015).[19] Although Heyes proposes a non-mindreading account of spontaneous-response tests and appeals to a wealth of the stimulus claim, her framework remains committed to many of the same cognitivist conceptions of perception and anticipation as mindreading proponents. In regard to these cognitivist commitments, Stepp and Turvey (2015) claim the cognitivist conception of discrete stimuli and the role stimuli play in perceptual processes rely on two unwarranted assumptions. They argue these two assumptions that cognitivists presuppose in their frameworks for explaining perception are fallacies. They label these fallacies as: (1) the fallacy of assigning perception to the present and anticipation to the future and (2) the fallacy of sensation-based perception.

Stepp and Turvey (2015) argue that it is a fallacy to assign perception to the present and anticipation to the future because perception is inherently an activity that has duration. The fact that "duration is not well bounded suggests that the distinction between perception and anticipation may not be a proper distinction to make" (Stepp and Turvey, 2015, p. 109). They claim that since we cannot easily delineate the boundary between present and future, we should not use the concepts of the present and the future to then delineate a boundary between perception and anticipation. To use the present and future distinction to delineate the boundary between perception and anticipation in this way would be begging the question in favor of the cognitivist claim that discrete stimuli represented internally and inferentially processed constitutes perception. This assumed distinction can be seen in Scott and Baillargeon's (2009) explanation of the SR-FBT data in that they describe the infants' cognitive processes as occurring via sequential inferential processes.

The second fallacy focuses on the question that mindreading ToM proponents assume need to be answered, which is "If perception is based on sensations, then how can one perceive something that is not present, that is, not emitting sensation-causing stimuli?" (Stepp and Turvey, 2015, p. 110). This second fallacy is especially important as this assumption motivates the poverty of the stimulus assumption, which mindreading accounts solve by appealing to a ToM. The question itself necessarily leads to an answer that only internal,

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[19] Many recent accounts of perception (Bruineberg et al., 2018; Clark, 2016; Gallagher, 2017; Hohwy, 2013) now build in a notion of anticipation, where perceptual processes are inherently anticipatory processes as well. The disagreement between these accounts lies in which framework—cognitivism, enactivism, and/or ecological psychology—is best suited for explaining the relationship between perception and anticipation.

predicting models could explain perception and anticipation, such as a ToM. This is because only a model can provide something to the cognitive system that is not currently present in the perceptual system. Essentially, the internal model is able to make up for what is currently absent in the perceptual field, namely others' mental states. However, in assuming that this question is something in need of being answered, cognitivists beg the question regarding the form and function of perceptual and anticipatory cognitive systems. In this way, this assumption begs the question in favor of this particular kind of cognitivist explanation of perception.

Since the poverty of the stimulus assumption is reliant on these fallacious cognitivist assumptions that discrete stimuli are the basis for perception, we should additionally reject the poverty of the stimulus assumption (Segundo-Ortin, Heras-Escribano, and Raja, 2019). Without additional arguments or further evidence to secure these assumptions that lead to the poverty of the stimulus, the poverty of the stimulus cannot be established without begging the question in favor of the claim. For this reason, we have grounds to question not only the previously established mindreading objections to non-mindreading accounts of the spontaneous-response test data, but also mindreading explanations of this data.

In order to avoid of these question-begging assumptions, Stepp and Turvey (2015) argue that accounts of perception and anticipation should have the goal of explaining how organisms directly respond to, and navigate, the world as opposed to trying to understand how organisms construct perceptual and anticipatory models of the world. Both the enactive and ecological psychology frameworks argue that although perception involves the physical stimulation of sensory organs by discrete stimuli, moment-by-moment physical stimulation alone cannot suffice for perception even if it is internally represented and inferentially processed. Ecological psychology argues perception simply requires the perceptual system be able to detect and respond to both the persistence and change of objects and organisms in the environment, which is termed 'ecological information' (Gibson, 1979/2015).

As opposed to the cognitivists' snapshot theory of discrete stimuli informing perception, where there is an assumption that the only way to apprehend changes in the environment "is to compare what-it-is-now with what-it-was-then and judge different", ecological psychologists claim the "apprehension of persistence [or change] is a simple act of invariance detection" (Gibson, 1979/2015, p. 236). Invariance detection occurs when an organism perceives structured changes in its environment. Ecological psychologists argue that though the moment-by-moment (synchronic) stimuli are informationally impoverished

for perception and action, the structured changes that occur in the environment are infor-mationally wealthy because they occur within a hierarchy of sequences (Segundo-Ortin, Heras-Escribano, and Raja, 2019). As opposed to the common cognitivist assumption that it is just the discrete stimuli that carries the relevant information for perception, anticipa-tion, and action, on this framework additional information is contained within the lawful changes to objects and features of the environment in the diachronic structure of ongoing events.

On the framework defended here, over time an organism comes to recognize how particular changes in its environment unfold in lawful patterns that are constrained by both natural physical laws and social normative practices. For example, by learning to recognize and participate in social practices, such as games, which delineate particular goals others may have and what are acceptable ways of acting to achieve those goals, individuals learn to perceive and anticipate different kinds of behavior (Jurgens, 2020; Maise, 2018; Satne and Segundo-Ortin, 2020). As behavioral patterns are both normatively constrained and situ-ated within particular socio-material environments, these behavioral patterns are co-extensive with particular mental and emotional states. In learning to perceive these behav-ioral patterns, an individual also learns to recognize the most likely corresponding mental and emotional states. Thus, it is the ecological information available to an organism, its re-lationship to, and history of experiences of, its environment that is sufficient for perception and to guide behavior (Segundo-Ortin, Heras-Escribano, and Raja, 2019). As we will see in the next section, this is what explains how the cognitive capacities of the infants on the goal-tracking explanation of the spontaneous-response test data can operate without theo-retical enrichment.

3.3.1 Re-examining spontaneous-response tests

This section presents a non-mindreading enactive, ecological explanation of Scott and Bail-largeon's (2009) spontaneous-response test data to meet the challenge set forth above by mindreading proponents. This account recasts the explanandum of spontaneous-response tests as examining a social cognitive capacity to perceive and anticipate others' goal-directed behavior, as opposed to ascribing mental states. Though this account draws on the estab-lished work of other non-mindreading accounts (Fenici, 2014; Fenici and Zawidzki, 2016; Gallagher and Povinelli, 2012), what sets this account apart is how it explains goal-tracking in regards to the poverty of the stimulus objection. Following on from Stepp and Turvey's

objections, this framework rejects the cognitivist model assumed both by Heyes and by mindreading proponents that perceptual processes function by representing synchronic discrete stimuli in favor of casting perception as an inherently diachronic process that detects and responds to the persistence and change of objects and organisms in the environment.

The account proposed here casts social perception, anticipation, and cognition as world- and other-involving, such that the cognitive processes of interacting individuals are constitutively coupled via an extended dynamic system that can transform their internal organizations (Jurgens and Kirchhoff, 2019). By casting perception as an exploratory activity that is extended both diachronically and through the sensorimotor dynamics of interaction, it is possible to account for the anticipation of the subtle differences in others' behavior in subtly different contexts. Lawful patterns of sensorimotor dependencies in combination with the particular features of socio-material environment can explain perceptual and anticipatory processes without appealing to either theoretical enrichment or inferential reasoning (Hutto, 2005; Jurgens and Kirchhoff, 2019).

In line with Fenici and Zawidzki (2016), I argue that we can interpret the infants' experience of spontaneous-response tests as engaging in a kind of game. On this interpretation, familiarization trials provide information to the infants in the sense that they establish the rules of the game, as opposed to teaching infants that agents can have enduring mental states. To explain infant performance on SR-FBTs, Fenici and Zawidzki (2016, p. 241) argue infants interpret "observable bouts of behavior and their spatiotemporally limited contexts into obvious goals, rational means to those goals, and available information" in order to predict the other's behavior "based on these attributed relational properties". However, their description of the infant as an interpreter utilizing goal concepts and rational means to achieving those goals is open to a mindreading and representationalist interpretation.

Alternatively, the account presented here takes up the enactive, ecological view of goal-directedness that rejects conceiving of goal-tracking capacities in conceptual or representational terms. My alternative claim is the process of perceiving and anticipating goal-directed behavior occurs within the diachronic playing out of specific social practices, such as games, where norms encourage specific ways of achieving goals. On this account, social normativity plays an even more pivotal role than in Fenici and Zawidzki's (2016) account, as it explains how social norms constrain infant cognition via the infants' previous interactions with others in social practices.

Social practices as used here are understood as essentially normative cultural practices for particular ways of interacting with the world. As such, they are not necessarily best construed as disembodied mental representations of knowledge (Hutchins, 2011). Instead, social practices are normatively constrained embodied ways of skillfully perceiving, and interacting in, the world. As many of our patterns of behavior are social practices learned through enculturation via normatively constrained coordinated activities, these social practices provide a shared context for recognizing the meaning in others' bodily activities. It is through the shared social context, and a history of engaging in different activities in these contexts, that makes it possible for one to recognize others as having particular goals, which may even differ from one's own goals.

In this regard, enactivism emphasizes how social practices encourage specific patterns of thought, feeling, and behavior through a normative framework that "rewards, reinforces, or discourages particular kinds of ways of thinking and behaving" (Maise, 2018, p. 12). Importantly, recognizing social norms and regulating one's behavior according to norms does not necessarily require explicitly representing the norms one follows (Satne, 2016). Rather, one is simply explicitly encouraged to act in acceptable ways and discouraged from acting in unacceptable ways (Mcgeer, 2007; Castro and Heras-Escribano, 2019). Social cognition conceived of in this way just means that infants have the capacity to perceptually attune to the subtle changes of both objects and agents in their situated socio-material environments. In other words, tracking and anticipating others' goal-directed behavior is just attending to the action-relevant properties of the specific situation and the sensorimotor dependencies interactors are sensitive to in the situated socio-material environment as they unfold. It is in this way basic perceptual and anticipatory social cognitive processes are diachronically constituted in embodied and embedded dynamic relations of interaction. And, it is in this sense that perception and anticipation are conceived of as being diachronically constituted in the coupling relationship between the infant, the agent, and their shared socio-material environment in spontaneous-response tests.

Drawing from above, in order to explain Scott and Baillargeon's (2009) SR-FBT data we have to first turn to the familiarization trials. The true- and false-belief familiarization trials serve as a learning lesson for the infant. The agent's actions and the changes to the objects in the scenario establish the goal of the game as retrieving the key. This is done through the diachronic process of the agent first holding up the key, then hiding it in the 2-piece penguin, and finally retrieving the key by reaching for the correct penguin. The infants learn that the goal of the game is retrieving the key, and that when the game is played,

infants are then able to recognize the agent has the goal of retrieving the key. This lesson is learned by the infants through perceiving the unfolding of the event, as opposed to being inferentially pieced together by a ToM from internal mental representations of discrete stimuli.

As Fenici (2014) notes, numerous studies have demonstrated the goal-tracking capacities of infants. Woodward (1998; 2003) has shown infants starting at five to six months can track the motor goal of others' actions, and around age one infants show sensitivity to nested goals (Biro et al., 2011; Sommerville and Woodward, 2005; Woodward and Sommerville, 2000). Yet, infant goal-tracking capacities for anticipating agents' actions do not necessarily require mentally representing others' beliefs. Instead, these capacities could be tracking simpler properties or features of action that are co-extensive with belief (Hutto, 2017) and function only in limited contexts where certain forms of behavior are constrained by particular norms.[20] As Heyes argued, infants learn about the relevance of action for agents through sensorimotor imitation of their actions in particular socio-material situations (Iacoboni, 2003; Wilson and Knoblich, 2005), and this imitative learning process can progressively attune them to others' goals and particular ways of acting without mentally representing others' beliefs (Cooper, Cook, Dickinson, and Heyes, 2013; Hutto, 2017). However, unlike on Heyes' account where domain-general cognitive systems still internally represent informationally wealthy discrete stimuli in order to anticipate others' actions, on this account an infant's perceptual and cognitive systems do not need to internally represent any information as the information is available in the situated socio-material environment.

Once the infants learn the goal of the game through the familiarization trials, they then show what they've learned in the test trials. As stated previously, in the opaque cover true-belief test trial where the agent never leaves the room and reaches for the location where the key is not located, the infants look longer as they are surprised by the agent's action. On this interpretation, the infants are surprised because the infants see that the agent sees the goal, but the agent violates the goal of the game by reaching for the wrong location. Importantly, what creates a violation of expectation and longer looking times does not necessarily require belief attribution. Rather, it simply requires the infant to perceive the agent's actions in relation to the established goal of the game, retrieving the key in the bottom of the 2-piece penguin. Neither the goal of the game nor the agent's mental states need

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[20] As an example of tracking properties without having conceptual knowledge, it is possible to track the property of toxicity in the world by the smell that toxic materials give off, without utilizing the concept of toxins itself (Butterfill and Apperly, 2013; Hutto, 2017).

to be represented in order to produce the infants' expectant looking behavior. The goal of the game is co-extensive with the previous actions of the agent in the familiarization trials. Similarly, the agent's mental states in the test trials are co-extensive with the unfolding of the agent's actions in relation to the changes in her situated environment, and what the infants saw previously in the familiarization trials.

In the false-belief test trial, the infants again perceive the agent's actions as establishing the goal of having an interest in the key, which is first held up, then hidden in the 2-piece penguin. However, the agent then disappears and while gone the 2-piece penguin is assembled and covers are put over both penguins. The infants perceive the assembled 2-piece penguin having the transparent cover put over it and the 1-piece penguin having the opaque cover put over it, and that the agent is not present to see these changes made. However, as opposed to the mindreading ToM explanation, the infants do not need to attribute a false-belief nor the enduring goal of retrieving the key to the agent. This is because when the agent re-enters the room, the infants recognize the agent is there to play the game, and thus has the goal of retrieving the key. Infants do not even need to necessarily recognize the agent as the same agent who left. The agent entering the scenario mid-game is enough for the infants to recognize the agent is there to play the game (Kampis et al., 2013).

When the agent enters the scene, the infants recognize the agent's presence in the situated environment as being there to engage in the game, which involves having the goal of retrieving the key. At this point, neither the infant nor the agent can perceive where the disassembled 2-piece penguin containing the key is. The result is the infants anticipating the agent will search the opaque cover as neither the agent nor the infants are able to perceive that disassembled 2-piece penguin is the penguin in the transparent container. When the agent instead reaches for the transparent cover, the infant is not surprised by the success of the agent, but rather as in the true-belief test trials, the infant is surprised that the agent is violating the established goal of the game of searching for the disassembled 2-piece penguin containing the key.

What explains this is the infants' previous history of interaction with others within particular cultural environments structured via social practices that have primed the infants to attune to the sensorimotor dynamics of agent in relation to the shared environment. While the infant's previous history of interaction only serves as an ultimate cause of its attuning to others' goal-directed behavior, the proximate cause in a certain case is the way the current particularities of the infant's embodiment and embeddedness in the socio-material

environment affords the recognition of a specific pattern, i.e. in SR-FBTs the agent's goal of attaining the key in the bottom of the 2-piece penguin.

This explanation does not need to rely on ascribing to the infants a complex meta-representational and inferential capacity to attribute enduring mental states to others, nor remembering where which penguin is located. Instead, all the required information to produce the recorded looking times is available to the infant in the normative practices of the task, and the diachronic unfolding of the test event.[21] All the infant needs to do is track the agent's actions in relation to the state of the objects in the environment and the goal of the game, as perceiving the diachronic unfolding of these events in the situated normative environment lead the infants to forming anticipations of what the agent will do next. As long as the agent abides by the established rules of the game, perceiving and anticipating the agent's actions is co-extensive with inferring and attributing a false-belief to the agent.

As for the SR-IT, though Scott and Baillargeon (2009; 2014) describe this test as examining infants' responses to an agent's ignorance, another interpretation is possible. Rather than examining ignorance, this test is examining infant responses to an agent's actions when neither the agent's behavior nor the situation establishes a clear goal for the agent. The empirical results of both test trial versions of the task do not show the infants looking longer in either trial. The simplest explanation of this data is that in the familiarization trials, and in the test trials, the events that play out (i.e. the agent's actions in relation to the objects in the environment) do not display any particular goal-directed behavior. As opposed to the agent's actions displaying her ignorance, her behavior and the setup of the trials simply do not establish that she has a specific goal she's trying to achieve. Without establishing a clear goal in the familiarization trials, there are no normative constraints in perceiving the events of the test trials. Thus, the infants cannot detect any specific goal-directed behavior by the agent in the test trials, which prevents the infants from forming anticipations of how the agent will act. As there is no game that is established in the familiarization trials, no normative pattern to recognize, the infants do not look longer upon perceiving the agent's actions in either test trial.

As opposed to the claims of Scott and Baillargeon (2014) or Jacob (2019), this account does not have to demonstrate that the infants can account for the distinction between two separate ways of responding to the same relevant piece of information. Unlike

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[21] The normative practices of the task involve the agent acting in a similar fashion in the test trials as the agent acted in the familiarization trials, which established acceptable acts as reaching acts towards one of two objects. Hypothetically, if the agent instead threw another object at either cover, the infants would likely display surprise looking behaviour as this act would be violated the established normative practices.

Heyes' explanation that only appeals to perceptual and imaginal novelty and low-level features of the environment, the account defended here claims infants' social cognitive processes are facilitated by the normative constraints embedded within the task, which the infants learn via the familiarization trials. In regard to SR-ITs, on this enactive, ecological account the infants are not required to distinguish between two separate ways of responding to the same stimuli because in the familiarization trials of the SR-IT the situation and the agent's behavior do not establish any specific goal, game, or normative constraints for the infants to recognize in the test trials. In other words, the infants in the SR-FBTs and SR-ITs are not responding to the same relevant piece of information. Instead, they are responding to two distinct sets of information in distinctly different ways.

In regards to the poverty of the stimulus challenge put forth against non-mindreading explanations to account for the SR-FBT and SR-IT data, the goal tracking interpretation and explanation of these tests reveal that the agents' behavior in the different tasks is much different than mindreading proponents assume. The enactive, ecological solution to the poverty of the stimulus objection is not to reconceptualize discrete stimuli as informationally wealthy as opposed to impoverished, but to point to the tasks' normative constraints and the diachronic nature of the tests. In this sense, perceptual systems do not focus on discrete stimuli, but rather, they focus on the environment itself, specifically the relationships agents and objects have with one another and how these relationships change through the diachronic unfolding of events. For this reason, the question should not be whether discrete stimuli is informationally impoverished or wealthy, but instead, how do embodied and embedded agents perceive and interact with their situated socio-material environments. Mindreading explanations underestimate both how social cognition is constituted and constrained by normative social practices, and the information that is perceived in the relationships between objects and agents that transforms over time through the unfolding of events.

The point is that the enactive, ecological account does not claim, as Heyes does, that appealing to informationally wealthy discrete stimuli can resolve the explanatory problems associated with the SR-FBT data that were raised by mindreading proponents. Rather, the enactive, ecological account proposed here claims the normative constraints and the diachronic nature of the tasks facilitate the infants' responses. On this account, even if the interaction is at a very low-level as it is in most passive spontaneous-response tests, it is still the perceptual interaction between both agents in the shared environment that imbues the coupling relation with reciprocal, forward-oriented or protentional structure (Gallagher,

2018) that exploits the lawful relations between agents and their environments. In addition to this, the normative aspects of social practices shared by the agents in a particular situation structure and constrain both agents' perceptions, anticipations, and actions.

While TT proponents sympathetic to the poverty of the stimulus problem may object that this solution does not explain how an infant internalizes the rules of the game without employing some sort of (tacit) theory, the key point of reconceptualizing perception along enactive and ecological lines is that then the infant does not need to internalize these rules. Instead, the child's history of experiences with the world shapes her perceptual systems such that they attune to recognizing and responding to these kinds of normative structures without having a conceptual understanding of the normative structures, i.e. the 'rules'.[22] For these relations to be exploited by the organism's perceptual system it requires that the organism and its environment be taken together as a single system (Stepp and Turvey, 2015). This tight coupling between organism and environment means that "one perceives the extent of persistence and change as an event" without having to internally mentally represent the environment or changes that occur within it (Stepp and Turvey, 2015, p. 122).

By both avoiding the cognitivist fallacies put forth by Stepp and Turvey and by incorporating these overlooked aspects of the tasks into the explanation of the empirical data, we have reason to prefer this enactive, ecological account over not only mindreading explanations, but also Heyes' non-mindreading account. By utilizing an enactive, ecological framework, it is possible to explain the infant's anticipations based on the events that occur within the shared situated environment. There is no need to posit a capacity to attribute enduring mental states (beliefs or desires) in order to explain the infants' looking behavior. Fenici (2014), who emphasizes the role of goal tracking and anticipation in explaining early false-belief tests, remains neutral to whether these anticipatory capacities can be explained in minimal representational terms of the action oriented representations framework (Wheeler, 2008). The account presented here instead posits that infants' basic social cognitive capacities are best understood as "concrete spatio-temporally extended patterns of dynamic interaction between organisms and their environments" (Hutto and Myin, 2012, p. 31). By framing perception and anticipation in enactive and ecological psychology terms,

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[22] While a full defence of this claim cannot be made here, see Satne (2020) and Castro and Heras-Escribano (2019) for enactive and ecological psychology explanations of how infants learn to recognize and respond to normative features of the environment without conceptually understanding these normative features in rule-based terms.

there is no need to appeal to internally represented mapping or modeling of the environment.

3.4 Conclusion

This chapter proposed an explanation of the empirical data of two kinds of spontaneous-response tests based on enactive, ecological approaches to cognitive science. The account assumes that our cognitive capacities arise through our embodiment and embeddedness in the world. By focusing on the inherently diachronic aspect of perception and anticipation processes between the agent, their world, and others, enactive, ecological accounts shift the explanatory focus away from information-processing and representational mechanisms. Not only does this enactive, ecological account explain the empirical data of both SR-FBTs and SR-ITs, but it also shows that there is no need for thinking in either impoverished nor wealthy terms in regards to discrete stimuli, as discrete stimuli is always diachronically perceived embedded within an informationally wealthy socio-material environment. Contrary to cognitivist mindreading and non-mindreading approaches, the nature of social interaction, that in this framework spans in time and embeds social norms, allows explanations of these kinds of empirical tests and basic social cognitive abilities more broadly to neither appeal to theoretical enrichment, nor downplay the role social normativity plays in these infants tests and experiences. In this way, this enactive, ecological account can explain the spontaneous-response test data, and overcome the challenges raise by the traditional mindreading accounts.

Chapter 4

Folk psychological know-how

This chapter assumes that success on false-belief tests requires a kind of folk psychological know-how, i.e. gradable knowledge how to perform skillful social cognitive acts. Following Ryle (1946, 1949), this chapter argues the folk psychological know-how required for success on a false-belief test cannot be reduced to rule-based propositional knowledge as this would lead to an infinite regress where one would be required to think of another rule about how to apply the first rule, and so on ad infinitum. Within the skilled performance literature, Intellectualists (Stanley and Williams, 2001; Stanley, 2011) have attempted to solve Ryle's regress by appealing to automatic mechanisms similar in kind to theory of mind explanations of folk psychology. By examining two recent pragmatic Theory-of-Mind accounts (Westra and Carruthers, 2017; Fenici, Forthcoming) of cross-cultural false-belief test data (Shahaeian et al., 2011) that attempt to explain the gradability of folk psychological know-how, the chapter demonstrates the Intellectualistic commitments of these explanations. Then, by drawing on Fridland's (2012) argument against Intellectualist explanations of know-how, it is argued that neither an innate (Westra and Carruthers, 2017) nor a developmentally constructed (Fenici, Forthcoming) Theory-of-Mind account can adequately explain gradable folk psychological know-how and escape Ryle's infinite regress objection. The chapter ends by briefly outlining an alternative, enactive narrative explanation of folk psychological know-how, which avoids Ryle's regress.

Chapter 4

Folk psychological know-how

4.1 Introduction

In its most neutral formulation, folk psychology (FP) indicates our cognitive capacities for the everyday way in which we understand each other. The Theory-of-Mind (ToM) framework explains these capacities as our ability "to report our propositional attitudes, to attribute such attitudes to others, and to use such postulated or observed mental states in the prediction and explanation of behavior" (Garfield et al., 2001, p. 494; cited in Fenici, 2017, p. 309). Within this framework, FP denotes a set of rules, or propositions, that explain our ability to understand behavior of agents in terms of their reasons for acting by utilizing the concepts of belief and desire and other propositional attitudes. Yet, some (Hutto, 2012, p. 250) have objected that we cannot assume this is the best characterization of FP as this assumption would "muddle the explanandum with a possible explanans". In order to clarify how we should best understand FP, the aim of this paper is to argue that belief/desire propositional attitude psychology is not an adequate explanation of FP, when FP is considered as a gradable skillful capacity.[23] Instead, I argue that FP is best characterized as an embodied and embedded skillful ability to recognize and respond, in the appropriate normatively constrained ways, to others' actions and attitudes.

This is done by examining two ToM accounts (Westra and Carruthers, 2017; Fenici, Forthcoming) of the recent cross-cultural mindreading scale data (Shahaeian et al., 2011). The mindreading scale examines the social cognitive capacities of children in the standard false-belief test (FBT), the knowledge access test (KAT) and the diverse belief test (DBT).[24] While I explain the details of the KAT and DBT in section 2, what is important to stress here about the results of these experiments is that they show (1) *early competence* in that

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[23] Gradability as it is used here highlights the need to explain skills in terms of their acquisition and the development of differing levels of competency in an individual and across a population set.

[24] The standard FBTs typically follow the format of Wimmer and Perner's (1983) original change of location study where children were shown the story of Maxi, who hides chocolate in a cupboard and then leaves the room. While Maxi is gone, his mother moves the chocolate from where Maxi left it into another cupboard. Maxi then returns to the scene and the child is asked to indicate which cupboard Maxi will search for the chocolate. Children succeed on the test when they correctly identify that Maxi will search the original hiding location for the chocolate. According to Wimmer and Perner (1983), the empirical results demonstrate children who succeed on the test are able to attribute to Maxi the false-belief that the chocolate is in the original location.

children are able to reliably succeed on the KAT and the DBT in their fourth year of life prior to reliably succeeding on FBTs around 4.5 years-of-age, and (2) *cultural variability* as while American and Australian children first succeed on the DBT then the KAT and finally the FBT, Chinese and Iranian children first succeed on the KAT then the DBT and finally the FBT (Shahaeian et al., 2011).

This data shows the gradability of children's FP capacity in the early competence of children on these tests, and in the culturally variable developmental trajectories for succeeding on these various tests. In light of this, I examine these ToM explanations of FP gradability within the context of Ryle's (1949) distinction between know-how (knowledge how to perform an action or skill) and know-that (propositional knowledge). Ryle's distinction is applicable here because if we think of FP as a gradable skill, then explanations of this empirical data are essentially explanations of the FP know-how required to succeed on these various belief-based tests. Following Ryle, I argue that FP know-how cannot be reduced to rule-based propositional knowledge (know-that) as this would lead to an infinite regress where one would be required to think of another rule about how to apply the first rule, and so on ad infinitum. Within the context of the FBT data, I argue that these ToM accounts cannot avoid Ryle's infinite regress argument in their explanations of the FP know-how required to succeed on these various tests.

Importantly, Intellectualists (Stanley and Williams, 2001; Stanley, 2011) have argued that appeals to automatic mechanisms can avoid Ryle's regress problem. In order to stop the regress, following Fodor (1983), Stanley (2011, p. 16) claims that "triggering representations is something done by an input system rather than a central system, by a module rather than a central processor. Such triggering is something we do automatically." By appealing to an automatic mechanism, Stanley argues that Intellectualism can explain how the right conceptual knowledge is selected and applied by the mechanism without reliance on additional propositional rule-based knowledge in order to explain know-how and avoid Ryle's regress. Crucially, I argue that both the Westra and Carruthers and Fenici's accounts are committed to this kind of Intellectualism in order to explain the FP know-how examined by FBTs.

Section 4.2 explains in detail the mindreading scale, including the KAT and DBT, and how this data motivated the development of both Westra and Carruthers and Fenici's accounts. In sections 4.2.1 and 4.2.2 I present in turn Westra and Carruthers and Fenici's explanations of the gradability of the FP know-how required to succeed on various belief

tests, and demonstrate their respective hard and soft commitments to Intellectualism. Section 4.3 draws on Fridland's argument to show that neither of these ToM accounts can both secure their commitments to Intellectualism from Ryle's infinite regress objection and adequately explain FP know-how in regards to the mindreading scale data. Finally, section 4.4 briefly outlines an alternative enactive, narrative explanation of the FP know-how required for these tests. The section ends by addressing a potential reformulation of Ryle's infinite regress objection, and showing how the alternative account avoids both the traditional and reformulated versions this objection.

4.2 Pragmatic ToM explanations of the FBT data

Within the ToM framework there is a divide between nativist and constructivist ToM proponents. According to nativism, basic FP capacities are innately endowed via a ToM mechanism that utilizes a genuinely meta-representational concept of belief and the rules that govern belief driven behavior (Fodor, 1992; Westra, 2016). In order to account for the standard FBT data that indicates most children do not succeed on the test until 4.5 years of age, nativists claim that this appearance of development actually reflects failures of performance of younger children (Leslie, 1994; Westra and Carruthers, 2017). In contrast, constructivists claim that children slowly develop (or construct) through social interactions a ToM, and that this shift in performance in passing a FBT signals a child's acquisition of a ToM and a meta-representational understanding of the concept of belief (Gopnik and Wellman, 1992; Fenici, 2017).

Working from a constructivist ToM perspective, Wellman and Liu (2004) developed the mindreading scale, which Shahaeian et al. (2011) employed to examine cross-cultural developmental differences. What is important for the analysis here, is that the mindreading scale utilizes, in addition to the standard FBT, the DBT and KAT to show how children gradually improve their FP skills across these different belief-based tests. While children do not tend to succeed on the FBT until around 4.5 years of age, most children are able to succeed on the DBT and KAT before the age of four (Wellman and Liu, 2004). In order to understand this developmental trajectory, it is important to know the details of these two tests.

In DBTs, children are introduced to Bill and two locations, a classroom and a playground. The children are then told Bill is searching for his bag, which is either in the classroom or on the playground. Then, the children are asked which location they think the

bag is at. Regardless of which location the child chooses, the experimenter tells them that Bill has the opposite belief. Finally, the child is ask, "Where will Bill look for the bag?" (Wellman and Liu, 2004). According to Wellman and Liu (2004), answering correctly requires the children to refer to Bill's belief as opposed to their own belief of where the bag is located. Importantly, as opposed to the FBT, Wellman and Liu claim that the children do not need to inhibit their own knowledge of the situation as they do not know where the bag actually is, and they do not need to infer Bill's belief as they are explicitly told what Bill believes. For these reasons, the DBT is considered to offer fewer difficulties than the FBT, which is why children succeed on the test before they can succeed on a FBT.

In KATs, children are shown a closed drawer and asked: "What do you think is inside?" (Wellman and Liu, 2004). Regardless of the child's answer, she is shown that the drawer contains a plastic toy dog. The drawer is then closed, and the child is asked if she remembers what is inside. Next, Polly is introduced to the scene, and the children are told that Polly has never seen inside the drawer, and then the children are asked a yes/no question if Polly knows what is in the drawer. In order to succeed on the test, a child has to ignore her own knowledge of the plastic toy dog when considering what Polly knows. In contrast to the FBT, this test does not involve false-beliefs. According to Wellman and Liu (2004), for this reason the KAT is less difficult than the FBT, and this is why children typically succeed on the test before they can succeed on a FBT.

As stated above, while American and Australian children were found to first succeed on the DBT then the KAT, Chinese and Iranian children first succeed on the KAT then the DBT (Shahaeian et al., 2011). Drawing on this cross-cultural data, Wellman (2014) argues this data supports constructivist over nativist ToM accounts as these developmental differences are supposedly more difficult to explain for nativism. In response to this challenge, Westra and Carruthers offer a nativist explanation of this data and the performance differences within it. While they appeal to Gricean pragmatics in order to explain the different developmental trajectories in order to respond to Wellman's challenge, Fenci (2017) offers an alternative constructivist pragmatic ToM account. In their attempts to explain this diverse developmental data, both Westra and Carruthers and Fenici are essentially attempting to explain the gradability of FP in Intellectualist terms. While Westra and Carruthers make hard commitments to Intellectualism in terms of its epistemological and metaphysical claims, Fenici's account's commitments are softer in the sense that he only explicitly commits to Intellectualism in regard to his epistemic claims. However, as I argue in section 3, neither of these accounts solve Ryle's regress objection.

4.2.1 The Pragmatic Development Account

The Pragmatic Development Account (PDA), as proposed by Westra (2016) and Westra and Carruthers (2017), claims that nativism is consistent with this developmental and cross-cultural data. While nativism is committed to claiming that a ToM is innately endowed with particular core concepts (belief and desire) and basic rules for attribution ("seeing leads to believing"), the PDA claims that new novel concepts can be acquired and new rules learned, which may be dependent on an individual's cultural experiences (Westra and Carruthers, 2017, p. 166). Specifically, the PDA claims that in order for a child to know when to apply their ToM knowledge and reasoning capacities, the child has to learn the additional propositional fact that discourse can be about doxastic facts (i.e. others' beliefs) (Westra, 2016; Westra and Carruthers, 2017). Essentially, the claim that this additional knowledge is required to succeed on the standard FBT is their explanation of FP know-how, i.e. their explanation of how a child knows when and how to apply their conceptual knowledge of belief and the rules that govern belief driven behavior in the context of these various belief-based tests. In this sense, the PDA makes hard commitments to Intellectualism in terms of its epistemological claims that this innate conceptual knowledge is necessary for realization of FP skills, and in terms of its metaphysical claims that an innate ToM mechanism explains how this conceptual knowledge is applied in action.

The PDA claims that the DBT, KAT, and FBT feature different pragmatic demands, and children's success or failure is determined by their capacity to make a correct Gricean inference in interpreting the experimenter's question in order to apply their innate ToM capacities. In order to explain how these tests feature differing pragmatic demands, it's important to first understand the PDA's explanation of the standard FBT data. The PDA argues that there are three ways children could interpret the intention of the experimenter's question in the FBT. These are: (1) "helpfulness-interpretation"; (2) "Knowledge-exhibiting-interpretation-A"; and (3) "Knowledge-exhibiting-interpretation-B" (Westra and Carruthers, 2017, p. 169). The "helpfulness-interpretation" is where the child believes she is being asked to be helpful towards the protagonist. The "knowledge-exhibiting-interpretation-A" is when the child believes she is being asked to exhibit her understanding of what happened in the story, and is meant to explain where the object in question actually is. Finally, the "knowledge-exhibiting-interpretation-B" is the intended interpretation of the question where the child is asked to demonstrate that she knows the protagonist has a

false-belief regarding the location of the object. Importantly, on the standard FBT both the "helpfulness interpretation" and the "knowledge-exhibiting-interpretation-A" will lead to the child failing the FTB by giving the same incorrect answer (p. 169).

The PDA argues that the two incorrect interpretations of the experimenter's question are the more salient interpretations because "young children do not initially expect people's beliefs to be a topic for conversation" (Westra 2016, p. 237). It is only through having a thorough enough history of experiences of social interactions where facts about others' beliefs are implicated in conversation does the child learn that people's beliefs can be a topic of conversation. Thus, the main proposal of the pragmatic account is that children must learn that cognitive states (i.e., beliefs) can be a topic of conversation. In order to develop this pragmatic know-how, a child needs to learn through social experiences that "sometimes questions are really invitations for them to display their psychological knowledge rather than requests to be helpful or to display their knowledge of the worldly facts" (Westra & Carruthers 2017, p. 174).[25] Once a child has learned that doxastic facts can be a topic of discourse, they will be more likely to interpret the experimenter's question in the FBT as the knowledge-exhibiting-interpretation-B, which leads to providing the correct answer. Thus, the PDA claims it is learning this additional piece of propositional knowledge that determines whether a child succeeds or fails at a FBT.

As for the DBT, the PDA claims that in contrast with the FBT, where the child is told where the target object is actually located, by asking the child what she thinks, the DBT primes the child to focus on the state of the world, as opposed to her own beliefs. According to the PDA, this means that the child is more likely to interpret the experimenter's question as the knowledge-exhibiting-interpretation-A. Nevertheless, no matter which of the three ways the child interprets the experimenter's question, all three interpretations will lead to the same correct answer. Thus, unlike on the FBT, where only the knowledge-exhibiting-interpretation-B leads to the correct answer, on the DBT any interpretation will lead to the correct answer. Accordingly, the PDA claims the only way for a child to fail the DBT is either through "mere confusion, which is more likely in younger children" or if the child continues to believe her own initial guess of where the target object is, and provides this as an incorrect answer failing the test and demonstrating the child does not yet have this kind of basic social understanding (Westra and Carruther, 2017, p. 172).

In regards to the KAT, the PDA first claims that since the test does not suggest the

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[25] Westra (2016, p. 241) claims that reason that doxastic facts are a difficulty for novice speakers is because most conversations omit explicit references to others' beliefs (Papafragou et al., 2007).

target character has a goal of finding the toy do, the helpfulness-interpretation is less likely making the KAT easier than the FBT. Importantly though, the PDA claims that unlike the DBT and the FBT, the KAT only requires a yes/no answer. Citing empirical studies (Fritzley and Lee, 2003; Okanda and Itakura, 2008), the PDA claims that children at this age are "strongly biased to answer all yes/no questions positively", but during the fourth year of life (when children begin succeeding on KATs) this bias weakens (Westra and Carruthers, 2017, p. 173). Additionally, the PDA claims that in order to inhibit this bias and interpret the question correctly, a child needs to recognize when to apply the "seeing leads to knowing" principle (p. 173).

In order to explain the different developmental trajectories regarding either first passing the KAT then the DBT (Chinese and Iranian children) or first passing the DBT then the KAT (American and Australian children), the PDA focuses on (1) how quickly children learn when to apply the "seeing leads to knowing" principle and (2) the development of inhibitory control of the yes-bias. Adapting Wellman's own proposal to the PDA, Westra and Carruthers propose that in "collectivist" cultures there is a much greater emphasis placed on the importance of knowledge and respecting those who have it (Shahaeian et al., 2011; Wellman et al., 2006; cited in Westra and Carruthers, 2017, p. 173). The pragmatic twist is that children brought up in collectivist cultures (e.g., Iran and China) "will be better positioned to recognize the conversational importance of the "seeing leads to knowing" principle that is at stake in the knowledge-access test" (p. 173).

Additionally, the PDA claims that since "children in "collectivist" cultures tend to perform better on measures of inhibitory control (Lan et al., 2011; Oh and Lewis, 2008; Sabbagh et al., 2006)", this explains their capacity to inhibit the yes-bias. Inhibiting this yes-bias is needed in order for the child to then be in the position to apply the "seeing leads to knowing" principle. For this reason, the PDA claims that children from "collectivist" cultures are able to inhibit their yes-bias in order to correctly interpret the experimenter's question at an earlier age then children from "individualist" cultures (e.g., USA and Australia) (Westra and Carruthers, 2017, p. 173). Thus, the PDA claims that performance differences regarding the KAT can be explained and predicted by (1) whether a child can recognize the conversational importance of the "seeing leads to know" principle, and (2) the development of inhibitory control over the yes-bias.

While the PDA can account for the gradability of the FP know-how required for these various tests, it's clearly commitment to Intellectualism through (1) the metaphysical appeal to an innate ToM mechanism, (2) the epistemological claim that a child needs to

learn when to apply the "seeing leads to knowing" principle in order to pass the KAT, and (3) the epistemological claim that children need to learn that doxastic facts can be the focus of discourse in order to interpret the experimenter's question on the FBT in the right way. In section 4.3, I will show why these hard Intellectualist commitments make the PDA susceptible to Ryle's regress objection. However, first I present Fenici's (2017; Forthcoming) alternative pragmatic constructivist ToM account.

4.2.2 Fenici's constructivist alternative

In response to the PDA, Fenici (2017) argues that the PDA's appeal to Gricean pragmatics is problematic on the grounds that numerous authors have challenged the Gricean view's commitment to the claim that understanding communication requires us to understand the communicative intention of the speaker (see Breheny, 2006; Fenici, Forthcoming; Fenici and Garofoli, 2017; Hutto and Satne, 2015; Shieber, 2009; Taylor, 2012). To avoid this problematic commitment to Gricean pragmatics, Fenici (2017; Forthcoming) offers an alternative pragmatic account that focuses on how children slowly construct a conceptual understanding of belief and the rules that govern reasoning about others' beliefs, a ToM. Fenici (Forthcoming) claims that success on KAT and DBT reveal that a child has developed a partial, but incomplete, conceptual understanding of beliefs and the rules that govern belief reasoning. In other words, Fenici is arguing that children can have a scattered mastery of the pragmatics of belief reports before they develop an integrated mastery, and this scattered mastery does not require a ToM. This why children can pass either (or both) the KAT and the DBT, and still fail the FBT. According to Fenici (Forthcoming), success on a FBT demonstrates that a child has developed an integrated full conceptual understanding of belief as a representational mental state, a ToM. Nevertheless, beyond committing to this Intellectualist epistemological claim, Fenici is not explicit regarding the metaphysical basis of his conception of a ToM, i.e., whether it is an automatic mechanism similar to the PDA's claim or whether it is an amalgamation of various cognitive processes. In this sense, Fenici's account only softly commits to Intellectualism.

In order to explain how it's possible to have a scattered mastery of the pragmatics of belief without a ToM, Fenici appeals to a contextual paradigm for semantic understanding, (i.e. knowing the meaning of a word). The contextual paradigm holds that learning the meaning of a word "requires children to master progressively the use of mental verb labels in the social situations in which they are usually deployed" (Fenici and Garofoli, 2017, p.

105). In other words, knowing the meaning of a word and how to correctly employ a word are different things, and as such, agents can learn to use an expression correctly without understanding fully the concepts involved. Fenici argues that by taking a contextual approach, it is then possible to explain the mindreading scale data in terms of how children progressively develop their conceptual understanding of the concept of belief.

In regard to this, Fenici claims that the progressive steps towards a full conceptual understanding of belief that children need to learn are:

> (1) in which conditions it is correct to verbally credit an agent with a belief (belief-formation contexts), (2) what are the practical commitments towards action of an agent who has been verbally credited with a belief (belief-use contexts), and furthermore (3) how aspects (1) and (2) are connected (Fenici and Garofoli, 2017, p. 105).

Mapping these distinctions onto the mindreading scale data, Fenici claims that (1) corresponds to the ability to pass the KAT, (2) corresponds to the ability to pass the DBT, and (3) corresponds to the ability to pass the FBT. Fenici argues that children's earliest understanding of belief is "quite naïve and focused on situational rather than intrinsic features" of the concept (Fenici and Garofoli, 2017, p. 105). In this sense, the claim is that children can conform to the linguistic practices of belief-formation or belief-use contexts simply by focusing on the situational features without having a full conceptual understanding of belief (Perner, 2010). Then, through repeated exposure to social interactions involving these contexts, children progressively integrate this scattered mastery of the concept of belief until they learn how (1) and (2) are connected. At which point, the child has developed an integrated mastery of belief, i.e. a ToM. It's important to point out here that (1), (2) and (3) are all epistemological claims formulated in terms of rule-based propositional knowledge, which are clear commitments to Intellectualism.

According to Fenici (2017, Forthcoming), the KAT assess the ability for ascribing beliefs in belief-formation contexts. Similar to the PDA, Fenici argues that what explains success or failure on the KAT is how well children understand the "seeing leads to knowing" principle. Unlike the PDA, on this contextual account a child does not need to fully understand the connection between knowledge and perception. Rather, through their interactive experiences with caregivers children learn to be sensitive to others' ignorance from observing how habitual patters of social interaction are broken with another agent does not perceive particular objects in the shared environment (Carpendale and Lewis, 2006, 2015; Trevarthen, 1977).

Fenici (Forthcoming) argues that in order to credit the target agent with ignorance

of the target object, children need only consider the fact that the agent has not interacted with them, and so she cannot know what the child knows. On this account, the KAT only assess children's capacity to attribute ignorance to others, and does not assess whether children understand the concept of ignorance itself. Thus, according to Fenici, success on the KAT simply requires children to be able to associate specific features of social interaction with an agent's ignorance of those features, i.e. the capacity to ascribe beliefs in belief-formation contexts. In this way, children are able to succeed on the KAT without having a full conceptual understanding of belief, a ToM. Instead, the child only needs to understand the belief-formation rule and how to employ it.

According to Fenici (2017, Forthcoming), the DBT assess the ability for ascribing beliefs in belief-use contexts in the sense that what is assessed is whether a child understands how ascribed beliefs can affect others' actions. In order to succeed on the DBT, a child only needs to know what kinds of practical commitments agents have when they are credited with specific beliefs. Fenici (Forthcoming, p. 11) claims that children capable of succeeding on the DBT have only mastered the ability to notice the "variety of relations between belief self-reports, agents' behavior, and environmental conditions." In this sense, children who succeed on the test may not actually be focusing on the agent's belief of where the bag is located; but rather, they need only to interpret the experimenter's statement of the agent's belief as if the agent was covertly making the statement himself. Then, when questioned by the experimenter where the agent will search for the bag, the child need only consider the practical commitments of the agent as if the agent had uttered the attributed belief, which indicates the correct solution to the question. Thus, children need only understand the practical commitments of agents' when agents' express particularly beliefs, i.e. the belief-use rule.

Since the capacities for belief-formation and belief-use can be learned and employed situationally independently of one another, there need not be a predetermined path in which children develop these capacities (Fenici and Garofoli, 2017). In order to account for the cross-cultural differences, Fenici also appeals to Wellman's proposal, claiming that social interactions children have in collectivist cultures will lead to them learning the belief-formation rule before the belief-use rule. Similar to the PDA, Fenici appeals to the "seeing leads to knowing" principle; however, according to Fenici's account, this is an example of a belief-formation rule and is not evidence for an integrated mastery of the concept of belief. Fenici (Forthcoming, p. 13) claims that since children can only employ these capacities within situational interactions like the KAT and DBT where the "experimenter assumes on

herself almost the whole load of the narrative", which then only requires the child to contribute a small portion of the narrative, these early forms of understanding belief reports do not require a ToM nor inferential reasoning about others' mental states. On Fenici's account, exposure to narrative practices simply facilitates the development of a ToM.[26]

Finally, Fenici (2017; Forthcoming) argues that an integrated mastery of belief reports is required to reliably succeed on a FBT, which entails conceptually understanding how belief-formation contexts are causally connected to belief-use contexts. Fenici argues this integrated mastery is in part necessary because of the scarce conversational scaffolding of the FBT scenario, which places greater demands on the child. For example, when the child sees Maxi put the chocolate in the initial location, the child is not told that Maxi believes that is where the chocolate is now located. Later when being asked the test question, the child is not requested to consider what Maxi knows. Without these verbal prompts focusing the child's attention on Maxi's epistemic states, when the child is asked to predict Maxi next action, the child will not spontaneously consider Maxi's beliefs. This results in the child overlooking the fact that she needs to refer to the beginning of the story as she currently has no perceptual contact with this original location of the chocolate. This leads children to incorrectly answer the question based on what they are currently perceiving in the scenario.

In order for the child to overcome this limited conversational scaffolding and provide the correct answer on the FBT, Fenici (2017, Forthcoming) claims that children will need to have learned not only the belief-formation and belief-use rules, but how these rules are causally connected. Fenici argues that by participating in conversations with caregivers, where others' reasons for acting are explicitly discussed, children develop this integrated mastery of the pragmatics of belief reports. Once this integrated mastery is achieved, Fenici (2017; Forthcoming) claims children are able to reliably succeed on FBTs and that they have genuinely acquired an understanding of the concept of belief as a representational mental state, i.e. a fully developed ToM.

In terms of FP know-how, Fenici provides an explanation that progressively builds up a full conceptual understanding of belief through interacting with others. Nevertheless, at each new stage in this developmental account, the key developments are acquiring parts of a full conceptual understanding of belief, and the rules associated with how to utilize these new conceptual understandings. Thus his commitments to rule-based conceptual knowledge in his explanations of KAT (belief-formation context), DBT (belief-use context)

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[26] This is a substantially weaker claim regarding the role of narrativity than what is proposed in section 4.4.

and FBTs (an integrated mastery of beliefs, i.e. how belief-formation and belief-use contexts interrelate) bind him to an Intellectualist explanation of FP know-how. Nevertheless, while Fenici claims that reliable success on the FBT demonstrates the child has developed a ToM, Fenici offers little clarification in the metaphysical commitments associated with his conception of a ToM. For this reason, his commitment to Intellectualism is not as hard as the PDA.

4.3 Problems with hard Intellectualism

In this section I apply Fridland's (2012) argument against Intellectualist explanations of know-how to both the PDA and Fenici's ToM accounts. I argue that these accounts' commitments to conceptual and rule-based knowledge cannot both adequately explain FP know-how and avoid Ryle's infinite regress argument. As stated in the introduction, Stanley (2011) argues that by appealing to automatic mechanisms Intellectualism can explain how the right conceptual knowledge is selected and applied by the mechanism in order to explain know-how and avoid Ryle's regress. Importantly, Stanley accepts that in order for this kind of automatic mechanism to solve the regress problem, the mechanism needs to be a brute, non-propositional mechanism that is informationally encapsulated or cognitively impenetrable. Or in other words, "it cannot be systematically or logically related to the beliefs, experiences or knowledge states of the agent (Fodor, 1983; Pylyshyn, 1999)" (Fridland, 2012, p. 6). For the mechanism to solve Ryle's regress, it must be a fixed, unintelligent system that is not responsive or sensitive to the subtleties of what is learned from experience. If the mechanism did not function in this way, then it would not be modular or automatic, and it would then still be subject to Ryle's regress.

Summing up Stanley's Intellectualist appeal to mechanisms, Fridland (2012, p. 5) claims that though "Stanley admits that some non-propositional mechanism is required in order to apply knowledge in action, what he denies is that such a mechanism is intelligent". This means that the disagreement between Intellectualists and anti-Intellectualists about know-how is whether the selection or triggering mechanism is intelligent or not, as both camps can agree that an automatic mechanism could operate non-propositionally. However, Fridland's (2012) argument against Stanley's Intellectualist position claims that in order for the mechanism to do the work that Stanley needs it to do, it must be intelligent, and thus, is susceptible to Ryle's regress objection.

Central to Fridland's (2012) argument is distinguishing between two 'ways' of instantiating conceptual knowledge, which I will subsequently show tracks onto the substantive differences between the PDA and Fenici's account. This distinction is between coarse- and fine-grained ways of individuating propositional knowledge, and this distinction is essential for determining how an Intellectualist account explains the gradability of a skill. On the coarse-grained way, conceptual knowledge is conceived in general terms such that the same propositional knowledge can be utilized to employ a skill across various situations, i.e. the same knowledge facilitates skillfully doing similar things but in different situations and in a different manners. On the fine-grained way, conceptual knowledge is conceived in more narrow terms, such that doing similar things but in different situations and in different manners requires different propositional knowledge.

The PDA's commitment to the claims that infants are (1) innately endowed with the knowledge of certain core concepts, such as belief and desire, and basic principles of attribution, such as "seeing leads to believing" (Westra and Carruthes, 2017, p. 166) and (2) this theory of mind "does not alter fundamentally there after" (Carruthers, 2013, p. 141), aligns the account with the coarse-grained way of explaining the gradability of folk psychological know-how. This is because the ToM is supposed to explain how one can perform FP know-how (belief/desire reasoning) the same way at different times and under different circumstances. In other words, the child is governed by the same conceptual and rule-based knowledge in the different circumstances across the various tests.

If we consider FP know-how as a gradable skill, then the question is how does the PDA explain how children get better at FP in terms of a developmental trajectory where children first develop the capacity to succeed on the KAT at t1, then they later develop the capacity to succeed on the DBT at t2, and finally even later they develop the capacity to succeed on a FBT at t3. On the coarse-grained way to explain this gradability that the PDA takes, at t1 a child knows some contextually relevant way *w* such that the child has the knowledge relation to the proposition that *w* is the way to predict others' beliefs and the child represents *w* under a practical mode of presentation. At times t2 and t3, the child knows *the same* contextually relevant way *w* such that the child stands in the knowledge relation to the proposition that *w* is the way to predict others' beliefs and the child represents *w* under a practical mode of presentation, *but she instantiates the knowledge that w is the way to predict better at t3 than t2, and better at t2 than at t1*. According to the PDA, what makes the difference between t1/t2 and t3 is the child learning that doxastic facts can be a topic of discourse.

Nevertheless, in order to account for the cross-cultural and developmental data, the PDA also commits itself to the claim that new concepts "can be acquired, and new principles of attribution learned, relying both on individual experiences and cultural input", such as learning that doxastic facts can be the topic of discourse (Westra and Carruthers, 2017, p. 166). In terms of accounting for the FBT data, this claim combined with the novel appeal to Gricean pragmatics can adequately explain the FBT data. However, when we examine this account closely, we see that it cannot then escape Ryle's regress.

The reason the PDA falls prey to the regress is because the ToM mechanism it is positing is no longer unintelligent and non-propositional. As described by the PDA, the mechanism is not just a dumb, automatic, triggering mechanism that is needed to escape the regress. Instead, the mechanism is almost entirely responsible for the development of FP know-how because while the basic governing knowledge, conceptual understanding of beliefs and desires and their associated rules, does not change, more conceptual knowledge is added to the mix, i.e. learning the fact that discourse can be about doxastic facts. This violates the terms of what an automatic mechanism needs to be in order to escape Ryle's regress argument, i.e. a fixed, unintelligent system that is not responsive or sensitive to the subtleties of what is learned from experience.

The second, prima facie more promising, way to explain this gradability is the fine-grained way that Fenici appeals to with his claim that the key developments are acquiring parts of a full conceptual understanding of belief. [27] On this view, at t1 a child knows some contextually relevant way *w1* such that the child stands in the knowledge relation to the proposition that *w1* is the way to predict others' behavior in KATs and the child represents w1 under a practical mode of presentation. At t2 (and at t3), the child knows *a different* contextually relevant way *w2* (and at t3, *w3*) such that the child stands in the knowledge relation to the proposition that w2 (and w3) is the way for the child to predict others' behavior in DBTs (and FBTs) and the child represents w2 (and w3) under a practical mode of presentation and w2 (and w3) is superior to w1 *as a way of predicting others' behavior*. What explains the differences between w1, w2, and w3 is whether the child has a partial scattered mastery of the concept of belief (w1 and w2) or a full integrated mastery of the concept of belief (w3). However, examining this more closely, in the next section I argue this fine-grained way also cannot both explain FP know-how and avoid Ryle's regress objection.

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[27] The fine-grained way is also the approach endorsed by Stanely and Williams (2001) and Stanely (2011).

4.3.1 Problems with soft Intellectualism

It's important to recognize that on Fenici's fine-grained proposal each instantiation of the further development of one's FP know-how is governed by a specific narrowly defined piece of conceptual knowledge, such that this knowledge is only applicable in a more narrowly defined set of conditions. Problematically, this means that in situations where a child has developed both the conceptual understanding of belief-formation and belief-use rules, Fenici needs to explain how the child's knows which knowledge to apply in a particular situation without appealing to more rule-based conceptual knowledge. So, whereas knowledge is common and persistent on the coarse-grained way, this is not the case on the fine-grained way that Fenici takes.

Following on this, the first issue that arises is that by going the fine-grained way an ontological explosion of propositions occurs. Fridland (2012, p. 10) argues that this is because if skills are going to be "particularly attuned to the minute details of the environment in which they are performed" then the conceptual knowledge required to implement the skill needs to be able to account for not only the minute details of the environment but also the minute details of the individual's particular means through which the skill is manifested. However, if this is the case, then "the number of propositions that will exist in order to govern skill instantiations will be nearly infinite" (p. 10).

So, if the conceptual knowledge required to explain know-how is fine-grained, then something else needs to be able to determine what informational aspects of the environment and one's embodiment are important in order for an individual to manifest the skillful know-how. Essentially, the individual's cognitive system has to know how to select the right information from the infinite sets of information in the environment in order to apply the right knowledge for the skillful action. In regards to Fenici's account, it is not clear what is meant to fulfill this function other than a ToM mechanism, regardless if it's only partially or fully constructed. Thus, the question is whether appealing to a ToM mechanism can both adequately explain how this done and simultaneously avoid the problems associated with Ryle's regress objection. I argue that it cannot.

Following Fridland, I argue that Fenici's account can only escape Ryle's regress by appealing to an automatic ToM mechanism, but in doing so, the account then faces an insolvable framing problem regarding how the right knowledge is selected for the task. Essentially, the ToM would need to either consider all of the changes in the socio-material environment or the system has to know which changes it can ignore. However, neither of

these options work. The first is a non-starter as this option magnifies the regress issue as the ToM would have to have a rule for how to treat each piece of environmental information, and then there would need to be another rule for applying each of those rules, and so on ad infinitum. The second option also fails because it would have to embrace the claim that the ToM mechanism is itself intelligent as it is able to flexibly know in different situations what can be ignored and what is important. Nevertheless, as shown in the last section, the ToM mechanism cannot be intelligent otherwise it cannot both fulfill its explanatory role and avoid Ryle's regress objection.

Essentially, the problem is that since Fenici appeals to a ToM, which is minimally a conceptual understanding of belief as a representational mental state and the associated rules for understanding how beliefs govern behavior, he then needs to explain how the child knows when and how to apply this conceptual knowledge. However, this explanation cannot appeal to further rule-based conceptual knowledge because Ryle's regress objection shows this is problematic. Thus, when Fenici's account is examined in the light of the know-how discourse, it turns out that he cannot secure his Intellectualist epistemological commitments from Ryle's regress objection.

By applying Fridland's argument against Intellectualism to these two ToM accounts, we see that both of these accounts cannot both adequately explain FP know-how and also escape Ryle's infinite regress objection. In fact, we see that what we need to explain FP know-how without falling prey to Ryle's regress objection is non-propositional intelligent cognitive systems. In this sense, what is needed is an anti-Intellectualist account of FP know-how. The next section briefly outlines one such alternative in order to show how in principle an anti-Intellectualist enactive, narrative account of FP know-how and the FBT data can do this.

4.4 An anti-Intellectualist enactive, narrative alternative

In this section, I briefly present an anti-Intellectualist enactive, narrative account of FP know-how, and then show how this account avoids committing to a regress in its explanation. As stated above, there is no a priori reason for ruling out the conceptual possibility that FP know-how can be acquired without acquiring a set of conceptual knowledge or rules. The enactive framework provides a way for explaining how children *recognize* and *respond* to other agents' perspectives and goals in sustained embodied, embedded interactions set within normative social contexts. Enactivists argue that from basic innate

capacities to recognize others as agents and to engage with them, infants develop the capacity to track others' perspectives (Gallagher, 2015). Through further exposure to experiences of basic joint activities (Satne, 2020), infants then come to learn to embody and recognize particular patterns of goal-directed behavior and the local cultural norms (Maiese, 2018) that govern these patterned practices (Kirchhoff and Hutto, 2015).[28] Finally, through the development of linguistic capacities and through exposure to narrative practices (Hutto, 2008), children begin to develop a more mature FP know-how rooted in linguistic narrative practices.

As children are exposed to language and narratives practices, this then enables them to have experiences of the world that they could not have otherwise. Acquiring FP narrative know-how in this sense enables children to detect new kinds of significance in their shared socio-material world that they may have been oblivious to.[29] This capacity attunes children to the various perspectives offer in an encountered narrative structure, which allows children to recognize and respond to others' attitudes and actions in new ways. As a child follows through a narrative being presented to her, her attention naturally shifts, in alignment with shifts in the narrative structure, towards the various perspectives both offered in the story and in relating to the story itself. In this sense, the child does not need to represent a story nor know conceptually any rule-based knowledge in order to either follow the story or anticipate what might happen next in the story. In this way, practical narrative understanding depends on being sensitive to possible perspectives that may be adopted in regard to events, including—especially—cognitive, emotional and evaluative perspectives that may diverge from one's own (Hutto 2015, p. 6). Since this capacity is essentially developed through particular normatively constrained ways of perceiving and acting in the world, this capacity is primarily action-based. As such, this capacity does not rely on conceptual or rule-based knowledge.[30]

In order to explain the standard FBT data on this alternative account, we need to examine both the narrative structure and the interactive aspects of the test. In the standard

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[28]As Hutchins (2011) argues, "Cultural practices include particular ways of seeing (or hearing, or feeling, or smelling, or tasting) the world. Cultural practices are not cultural models traditionally construed as disembodied mental representations of knowledge. Rather they are fully embodied skills" (2011, p. 441; cited in Kirchhoff and Hutto, 2015, p. 14).

[29] FP narrative know-how is developed through interactions with caregivers and through exposure to cultural narratives via stories, books, etc. Importantly, not all narratives contribute to the development of FP narrative know-how, only those that "make mention of and show how mental states figure in the lives, history and larger projects of their owners" contribute to the development of FP narrative know-how (Kirchhoff and Hutto, 2015).

[30] This proposal is not simply a version of Fenici's account, even though he uses some of same locutions and claims. As opposed to Fenici's account, this enactivist explanation explicitly rejects the need to appeal to rule-based conceptual knowledge.

FBT a child experiences two different kinds of perspectives: a second-person interactive relation with the experimenter, and a third-person observational narrative perspective of the agent and the setting within which the agent is embedded. According to enactivists, the reason why younger children fail the FBT is that they systematically respond to the test question from the shared perspective that the child has with the experimenter, i.e. the second-person perspective. As Gallagher states:

> The child's answer in the standard test reflects a belief that the child shares with the experimenter about the real location of the toy (in their interaction with each other this shared knowledge becomes the salient feature and motivates the (wrong) answer to the third-person task). The dynamic pull of the interaction with the experimenter wins out in the standard test, which is set up in a way that excludes interaction with the agent (Gallagher, 2015, p. 176).[31]

The reason why the second-person perspective is more salient to the child is because perspective- and goal-tracking are made easier when one is directly interacting with another person, i.e. when one has a second-person perspective to the other (Kiraly, 2009; Moll et al., 2008). As the children primarily interact with the narrative structure of the standard FBT via a third-person observational perspective, younger children are more likely to focus on the actual second-person interaction between themselves and the experimenter, which is why they fail the test.

What then explains why children begin to succeed on the FBT has to do with multiple factors. First, through cognitive development 4.5-year-olds may be better suited to handle the complexity of the multiple perspectives, compensating for the competition between the perspectives, leading to higher engagement with the third-person observational narrative perspective. Second, through further exposure to joint activities and narrative patterns and practices, 4.5-year-olds are in a better position to recognize the goal being assigned to them in the FBT through the normatively structured interaction with the experimenter, which leads to their attending and responding to the third-person observational perspective. These improved practical abilities for perceiving the normative aspects of situations and the importance of particular perspectives combined with more mature narrative abilities allow for an increased cognitive flexibility for responding to more complex social interactions, such as those found in standard FBTs (Gallagher, 2015). Nevertheless, this

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[31] Gallagher (2015) appeals to Ciaunica's (2014) argument that in evolutionary terms of survival, moment-to-moment second-person interaction has priority over any third-person observational engagements. Gallagher also highlights that there is also a difference in the quality of the second- and third-person perspectives in terms of the specific attraction or affective pull of the interactions.

improved FP know-how does not necessarily demonstrate that a child has acquired a mature mastery of the concept of belief nor any associated rules governing belief-based behavior. Instead, children are simply recognizing and responding to the interactive and narrative aspects of the FBT, which includes the child recognizing the goal being assigned to them through the interactive and normative structure of the task.

In regard to the DBT and KAT data, it is possible to explain children's performance along similar lines. While the DBT still involves two perspectives for the child, there are important differences to the FBT. Even though the child has a third-person perspective in relation to the target agent, the narrative and normative structure of the task is less complex and emphasizes that the child has a clearly different perspective on the shared environment than the target agent. Additionally, the structure of the task is more interactive for the child than in standard FBTs as the child interacts with the experimenter through jointly constructing the narrative. This in turn makes it easier for the child recognize and track not only the two perspectives, but also the goals of the experimenter, the target agent, and the goal that the child is expected to accomplish herself.

Finally, the test question itself increases the saliency of the third-person perspective for the child, as the question invites the child to finish the joint construction of the story by specifically focusing on what the target agent will do. Importantly, the test question is not just an epistemic question, but it is also a normative question in the sense that there is a particular way the target agent should go about accomplishing his goal. This normative structure attunes the child to both the goals of the others and goal expectations that others might have of her. For these reasons, the DBT is easier for children to succeed at without the children needing to have even a partial conceptual understanding of belief. Rather, the child simply needs to be able to track the perspectives and goals of the other agents through the narrative and normative structure of the task.

As for the KAT, it is possible to explain the performance data by re-examining the experimenter's question in terms of what it attunes the child to. While the key question is formulated for a yes/no response, the first part of the question specifically draws the child's attention to the fact that the child and the experimenter know what is in the container before asking if the child knows whether Polly knows what is in the container. By drawing the child's attention back to the immediately prior experience of realizing she did not know what was in the container, this interactive aspect of the scarce narrative structure attunes the child to Polly's perspective, which results in the child providing the correct answer. In this sense, the child does not need to apply any rule-based knowledge, she simply

needs to recall the immediately previous experience of learning that she did not know what was in the container before being shown the contents.

As to why Iranian and Chinese children tend to pass this test earlier than Australian and American children, local cultural norms may determine how well a child is able to follow the scare narrative structure of the task in order to recognize what goal is being assigned to them by the test question. As collectivist cultures place a greater emphasis on the importance of knowledge, children from these cultures may have more practice recognizing the importance of yes/no questions, and for this reason have better inhibitory control from just providing a yes-biased response. Thus, in this way it is possible to explain why children succeed or fail on the KAT without appealing to a conceptual rule-based knowledge.

Yet, while I have shown the problems with appealing to Intellectualism, this raises the question of whether this anti-Intellectualist explanation of FP know-how is also susceptible to a version of Ryle's regress. Presumably, a possible version of the regress could raise the worry that if you need an anti-Intellectualist account of a particular kind of know-how, then wouldn't this know-how be dependent on other forms of know-how, i.e. knowing how to swing a hammer requires knowing how to grasp. In this sense, the question is, in order to know how to perform some actions, do we not need to be able to know how to perform other actions? If the answer to this question is yes, then the proposed enactive anti-intellectualist alternative account is in just as much trouble as the PDA and Fenici's account as then even basic capacities like perspective-tracking would need to be explained in terms of other more basic capacities, and so on ad infinitum.

In responding to this potential objection, it's important to highlight that the preceding enactive claims avoid the problems associated with Ryle's regress because the enactive framework conceptualizes social cognitive capacities as primarily action based. On this account, infants have basic innate abilities for recognizing, attending to, and responding to other agents' perspectives and emotions. However, unlike the PDA, these innate abilities do not depend on conceptual knowledge or a dedicated ToM. The key point is that actions are not dependent on action representations, thus they are not in the business of being fine- or coarse-grained, for there are no contents to be had. As Hutto and Satne (2015) argue, it's the content that is involved in conceptual knowledge—in form of known propositions or rules—that is problematic, and this is true of the regress problem as well.

Essentially, there is a difference between appealing to a basic action as opposed to a basic proposition. Actions themselves do not involve content as neither the environment

nor the agent's body needs to be internally represented in order to perform an action. For enactivism, it is from the foundational capacities to recognize, attend to, and respond to other agents' emotions, perspectives, and goals that narrative FP know-how is developed and practically employed. Thus, on this framework even explanations of sophisticated forms of social cognition ground out in capacities for basic action. It is precisely by denying that actions are performed via enacting descriptions of how to act that enactivism both takes an anti-Intellectualist position, and avoids this formulation of the regress. [32] While I have only briefly shown here how enactivism is able to explain FP know-how from an anti-Intellectualist perspective, it should be clear that this kind of explanation is not only possible, but that enactivism can do this in a way that avoids both Ryle's regress objection and this skill regress alternative formulation. Thus, for this reason we should prefer an anti-Intellectualist enactive explanation of FP know-how over Intellectualist ToM explanations.

4.5 Conclusion

In this chapter, I've argued that the ToM framework faces insurmountable problems in accounting for FP know-how regardless of whether a particular explanatory account goes nativist or constructivist. The commitment to conceptual knowledge as necessary to explain FP know-how necessitates an appeal to a ToM mechanism in order to attempt to avoid Ryle's regress objection. However, I've argued that such an appeal is problematic in itself for it leads to an explosion of candidate propositions that need to be known, or/and an infinite regress where one's cognitive system would be required to select another rule about how to apply the first rule, and so on ad infinitum, i.e. Ryle's regress objection. As an alternative to the ToM framework and Intellectualism, I pointed to how an anti-Intellectualist enactive, narrative explanation of FP know-how can both account for the belief test data and avoid any formulation of Ryle's regress objection by avoiding commitment to the need to grasp propositions or contentful rules in order to succeed on either the KAT, DBT, or FBT. This gives us reason to focus our empirical investigations on children's capacities for attuning to others' perspectives, and recognizing and responding to situated narrativity, as opposed to trying to examine their assumed capacity to represent, reason about, and attribute mental states to others via conceptual knowledge, rules, and inferential reasoning.

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[32] The debate regarding this issue will likely turn on the difference between action and propositional knowledge. Though this is an issue to be taken up elsewhere, see Castro and Heras-Escribano (2019) and Satne (2020) for recent anti-Intellectualist accounts of social cognition that tackle this issue more directly.

Chapter 5

Exploring enactive empathy:
Actively responding to and understanding others

This chapter argues that empathy comes in different forms: it isn't all of a piece. It seeks to cast light on that variety of forms by focusing on the characteristic features of different forms of empathy, which we take to exist along a continuum. Section 5.1 highlights the special advantages of thinking of empathy as enactive and exploratory, drawing on phenomenologically-inspired analyses of empathy offered by and Zahavi (2017) and Ratcliffe (2017). We propose modest adjustments to those treatments, augmenting them and drawing them to together. Section 5.2 clarifies and defends the idea that when empathizing we understand others by exploring their narratives. Finally, Section 5.3 provides a fresh defense of our narrativist account of the more sophisticated forms of enactive empathy, showing that understanding others by narrative means need not involve mental simulation. In particular, we explain how it is possible to account for the imaginative resistance that may occur during empathizing, and also how it possible to co-cognize with others without leaning on the idea that we mentally simulate other minds. We defend the view that empathy, understood by our lights, does not reduce to or depend on any kind of mindreading.

Certification

This chapter is a paper co-authored by Prof. Daniel D. Hutto and Alan Jurgens entitled "Exploring enactive empathy: Actively responding to and understanding others" published in *Philosophical Perspectives on Empathy*. Prof. Hutto and Mr. Jurgens worked together to conceptualized the paper and Mr. Jurgens did the literature review. Prof. Hutto and Mr. Jurgens planned the structure of the manuscript and wrote the first draft together. After the first draft was completed, both authors contributed evenly to polishing it before sending it to the book editors. Prof. Hutto authorizes Mr. Jurgens to include this material in his dissertation.

Daniel D. Hutto

Prof. Daniel D. Hutto
August 26th, 2020

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August 26th, 2020

Chapter 5

Exploring enactive empathy:
Actively responding to and understanding others

'I'll teach you differences'
- *King Lear*, Act I, Scene IV

5.1 Introduction

Empathising isn't easy. It is a hard-won achievement. Or is it? The answer depends, of course, on what we take empathy to be. As with so many important philosophical topics, there is no consensus on how to define or characterise empathy. This should come as no surprise since empathy is not a concept that has a long history: indeed, it is a rather recent term of theoretical art.[33]

The notion of empathy, of interest in philosophy and psychology, made its first appearance in these fields at the turn of the previous century. It was originally taken over from aesthetics by Lipps (1907), who sought to deploy it as a proposed answer to the question of how we know other minds. For, by Lipps' lights, our knowledge of others is *sui generis* – quite unlike other forms of knowing. Accordingly, the sort of knowledge of others that empathy provides can only be gained by connecting with others by special means.

Today, there are lively debates about whether there is any such thing as empathy as Lipps conceived of it. Perhaps, it is speculated, what Lipps thought of as empathy simply reduces to, or is exhausted by, some other social cognitive capacity, say, that of motor resonance, embodied mirroring, mindreading or some combination thereof.

Even for those who think empathy does exist in its own right – as *a* distinctive way of relating to and, broadly conceived, knowing others – there remain many open questions about whether, to what extent, and in what ways empathy involves such things as: sharing affects with others; emotionally and imaginatively engaging with others; and/or understanding others. On the assumption that empathy does not simply reduce to some other

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[33] There is an interesting question of how empathy, so understood, relates to the more everyday notion of sympathy. Like Zahavi (2010), though empathy has only been more recently articulated we propose that it picks out a more basic phenomenon than sympathy. Empathy is our rudimentary way of engaging with others, while sympathy is more restrictive in that it necessarily requires having a prosocial concern for the other. See Stueber (2006, 2012a) and Zahavi (2017) for discussions of the history of empathy.

type or set of social cognitive capacities or processes, there are also open questions about how and where it comes into play in social cognition. Is empathy, for example, a form of, a foundation for or a product of understanding others – and, if so, what kind of understanding, if any, is it, does it rest upon, or engender?

We assume that something answers to the name empathy, and that it is worthwhile to seek answers to the above questions. Yet, like many others, we do not seek to provide a definition of empathy. There are reasons to think that is a fool's errand.[34] Even so, building upon and clarifying the phenomenological investigations of Ratcliffe (2017) and Zahavi (2017), we give reasons for believing that empathy is, at its core, enactive – namely, it is a distinct kind of engaged, exploratory responsiveness to others and their situations. We defend the view that enactivism provides the right tools for understanding empathy in its various forms, and that it does a better job in this regard than its current rivals.

We do not think empathy can be captured by a general formula. Empathy comes in different forms: it isn't all of a piece. This paper casts light on that variety by focusing on the characteristic features of different forms of empathy, which we take to exist along a continuum. We initially show the special advantages of thinking of empathy as enactive. Then, we defend our account of empathy against arguments for thinking that its more sophisticated forms – those that involve understanding others – must incorporate the mental simulation of those other minds.

The action of the paper unfolds as follows: Section 1 makes a case for conceiving of empathy as enactive and exploratory, distinguishing between basic and more discursive varieties of empathy. Section 5.2 defends the idea that when we empathically understand others we do so by exploring their narratives, clarifying what this involves. Section 5.3 provides fresh arguments for thinking that there is no need to augment the type of narrativist account we advance in Section 5.2 by appeal to the idea that empathising requires mental simulation of the other. In particular, we explain how to account for imaginative resistance that may occur during empathising and also how to account for our foundational co-cognizing with others without leaning on the idea that we mentally simulate other minds.

5.2 Varieties of enactive empathy

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[34] Empathy, as Stueber (2012a) reports, is a topic on which there has been a 'rather shameful disregard for conceptual clarity' (p. 55). Indeed, he later says, 'I ultimately think that the correct way of defining the term 'empathy' does not exist' (2012b, p. 68, emphasis added). Ratcliffe (2017) similarly recognizes that analytic attempts to say what constitutes empathy 'risk of descending into a merely verbal dispute.' (p. 275). Zahavi (2017) too despairs of 'trying to reach a satisfactory definition' (p. 34).

The literature abounds with arguments for thinking that empathy proper neither reduces to emotional contagion nor the mere sharing of experiences (Zahavi 2010, Jacob 2011, Gallagher 2012). Against this backdrop, more sophisticated mindreading accounts of empathy have been developed in an attempt to deliver the required goods. A prominent example is de Vingemont and Jacob's (2012) account of empathy, which designates a central role for mental simulation while also recognising that empathy requires more than simulating – namely, that a caring condition needs to be met. Accordingly, these authors hold that, as a baseline, empathising requires all of the standard simulationist machinery to be at work: that A and B should have a shared mental state; that A's state is caused, in the right way, by the mental state of B; and that A ascribes that mental state to B. In addition, they also hold that A cares about B. This later condition is meant to satisfy the demand that A directs the appropriate kind of attention to B's mental state.

Serious doubts have been raised about whether any account of empathy should take the resources of simulation theory as a starting point. Drawing on insights from the phenomenological tradition, Ratcliffe (2017) for example, has argued that the mental simulation of another 'is … neither necessary nor sufficient for empathy' (p. 290, see also Zahavi 2017, p. 34).

Mental simulation is not necessary for empathising because we can empathise with another without mentally simulating their mental states at all. Arguably, it is possible to empathise with another by recognising and sensitively exploring the relevant differences between oneself and the other. If so, empathising need not be based on first trying to occupy another's mindset and then making adjustments to achieve a more accurate replication of it – it is enough for empathy that one be willing to engage with and explore their situation without attempting to eradicate those differences. Empathising with another can be a matter of second-personal engagement – the sort of engagement in which one is interactively moved by the other's expressed embodied responses and/or the details of their situation that are grasped by coming to understand their story. As Ratcliffe (2017) neatly puts the point, the gap between oneself and the other 'does not need to be bridged, by simulation or by anything else, for empathy to arise' (p. 283). Thus, mental simulation is not necessarily required nor desired when empathising.

Nor is mental simulation sufficient for empathy, on the assumption that empathy always requires openness to difference. Empathy requires more than understanding what it would be like for me to occupy your situation or, even, for me to understand what it is like for you to occupy your situation. Even allowing that such imaginative feats might be pulled

off, just taking on the first-person perspective of another person is not enough for empathising. Indeed, against this idea, empathy necessarily involves 'abstaining from projection, rather than projecting an adjusted simulation' (Ratcliffe 2017, p. 289). So conceived, what is essential to empathy 'is an attitude towards the other person's experience that involves receptiveness to potential difference' (Ratcliffe 2017, p. 289).

At root, Ratcliffe (2017) criticises the idea that mental simulation of others is the right platform for thinking about empathy. If mental simulation is our foundational means for empathising then the core process is too quick and easy. Accordingly, empathy is depicted as a static, snapshot achievement. Conceiving of empathy, alternatively, as a kind of enactive engagement gains credence from Ratcliffe's (2017) recent analysis: it seeks to show that empathising is an interactive, exploratory and 'temporally extended process' (p. 279). Following Margulies (1989), Ratcliffe (2017) brings out the dynamical and reciprocating character of empathic engagements, showing it to be a process through which 'both parties shape and adjust to each other's perspectives' (p. 280). Focusing on empathy in clinical practice, he emphasises its second-personal character by highlighting how such engagements are structured and unfold: thus 'a client's appreciation of the therapist's attitude towards her regulates interaction' (p. 279; see also Morag, 2019).

Seizing on Rogers' (1957) figurative talk of 'moving about in the client's world', Ratcliffe conceives of empathy as an 'exploratory process through which the other person's experience is progressively revealed to the therapist. There is also a degree of communication and cooperation: empathic understanding of A by B is related by B to A' (Ratcliffe 2017, p. 279).

By focusing on the exploratory character of second-personal engagements, Ratcliffe's analysis adds a crucial dimension that is missing from most accounts of empathy. Indeed, we think it highlights the basic contours of what empathising involves. Nevertheless, he focuses on just one form that enactive empathising might take. Thus, we should be careful not read all of the features of what goes on when empathising in the clinic into every kind empathising.[35]

Empathising can take the form of unprincipled embodied engagements that do not involve understanding the other in any discursive way. In responding to one another in such cases, emotions may be shared and/or they may contrast. As Smith (2002) observes, 'We sympathize with people's plight and in doing so we are not required to share their feelings.

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[35] As noted in the first footnote, we take sympathy to be a special case of empathy.

When I observe someone's humiliation, it is pity I feel, not humiliation' (p. 120). In a similar vein, your anger might fuel my anger or it might induce fear in me. Even in the wild, this sort of pattern is typical of the responses of many social animals.

Consider how we sometimes empathise in face-to-face encounters. These are situations which, arguably, require no speculation about the other's state of mind. In these encounters we simply perceive the other's attitude in his or her expressions; we 'see the other's elation or doubt, or surprise or attentiveness in his or her face, we can hear the other's trepidation, impatience or bewilderedness in her voice, feel the other's enthusiasm in his handshake, grasp his mood in his posture' (Zahavi 2017, p. 40).

Ratcliffe (2017) complains that this sort of account, even if restricted to face-to-face encounters, makes empathy too perceptual or quasi-perceptual in nature. Presumably, the worry is that if empathising is too perceptual in character it will be too static. Accordingly, to model empathising on basic acts of perceiving might be thought to suffer the same problem as mental simulation accounts of empathy. But that bad consequence needn't follow. And it certainly does not if we call on an enactive account of perceiving, one that takes perceiving to be an extended process that integrally intertwines with embodied activity.

Basic cases of empathising – which we might classify as primitive, full bodied varieties of empathising – lend themselves to a familiar phenomenological treatment. Accordingly, empathy is taken to be 'a form of 'expressive understanding' that requires bodily proximity, and which allows for a distinct experiential grasp of and access to the other's psychological life (Zahavi 2017, p. 42). This depicts basic forms of empathising as a kind of unprincipled embodied engagement with the other. Zahavi (2017) characterises this basic kind of empathy in terms of an 'immediate and direct form of social understanding (involving sensitivity to the animacy, agency, and emotional expressivity of others)' (p. 41). For him, this kind of other-related responding is the foundation for any subsequent capacity for predicting or explaining the mental life of others, say, in folk psychological terms that might develop down the line.

While there is much to admire in Zahavi's treatment of empathy – much that we endorse – there is a nagging question. For what exactly is the nature of this special 'social', 'expressive', 'experiential' empathetic *understanding* of which Zahavi (2017) speaks? What is its status? And is it supposed to be the basis for, constitutive of, or a product of primitive empathising?[36]

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[36] Zahavi's writing has pointed in all three of these directions. Sometimes an understanding the other is treated as a basis for empathy. For example, we are told that empathy "is a consequence of our understanding of the other's emotion, and not a pre-condition or pre-requisite for this understanding (Zahavi 2010, p. 291,

We certainly agree with Zahavi and Michael (2018) that basic cases of face-to-face empathising are best characterized in second-personal and interactive terms and explained using 4E resources, drawing on insights from enactive, embodied, embedded and extended approaches to the mind. Nonetheless, we allow that there can be such engaged responsiveness to another that is neither based upon, involves nor yields understanding.

Why assume that any understanding, as such, is part and parcel of the most rudimentary forms of intersubjective interaction engagement? Defenders of such ideas stress that the understanding in question need not be high grade; rather, what we get in such cases: 'is a *pragmatic, pre-conceptual, and pre-linguistic* form of understanding' (Rizzolatti and Sinigaglia 2006, p. xi, emphases added). Yet, stripped of all of these features, it remains unclear exactly how we should make sense of such putative forms of 'understanding'. The more cautious strategy we recommend is to reserve attributions of 'understanding' exclusively for properly discursive and, especially, narrative-driven forms of engagement with others.

5.3 Understanding others through narrative exploration

Empathising, in its most basic variety, involves being emotionally and imaginatively engaged with the other and the particularities of their situation. However, in the foregoing section, we gave reasons for doubting that face-to-face forms of full-bodied, enactive empathy are based upon, in-and-of-themselves qualify as, or necessarily produce an understanding of the other. According to our assessment, basic forms of enactive empathy need not involve understanding of the plight of others as that is a feature of more sophisticated forms of empathising.

Bearing this distinction in mind, we are faced with additional questions about the character of non-basic kinds of empathy and how we gain the kind of understanding of the other they require. For this task, it is useful to attend to the sophisticated, discursive forms of empathising in clinical encounters that Ratcliffe (2017) focuses on. We contend that the clinical cases share something important with everyday kinds of non-basic, discursive cases

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emphasis added). At other times, the language used suggest understanding is constitutive of empathising. Thus, we are told empathy is 'a basic, irreducible, form of intentionality that is directed towards the experiences of others. It is a question of understanding other experiencing subjects' (Zahavi 2010, p. 291, emphasis added). Finally, understanding is sometimes spoken of as a product of empathy, as when Zahavi and Rochat (2015) tell us that they do not mean 'to suggest that empathy provides an especially profound or deep kind of understanding' (p. 3, emphasis added, see also Zahavi 2017, p. 39).

of empathising – namely, the kind of understanding involved, when it is high fidelity, depends on gaining sharply focused insights into the specifics of the situation and background of the other. This raises the question: how is it that we come by the fine and particular details needed understand the other in such cases?

There is reason to think that the personal and particular framing knowledge we have of others is supplied through narratives not theories (see Hutto 2004, 2007, 2008). For in this domain, having a general theory of human beings will not suffice, and may not be necessary (Hutto 2009). The relevant framing knowledge needed here requires understanding the particulars of the other's situation and how they see it, not generalities about how anyone might see it.

When it comes to understanding reasons for acting, Stueber (2012a) reminds us that we cannot rely on a general theory to get at what the other sees as important about the relevant details of the particular case. Whereas theories can enlighten by focusing on what is abstract and law-bound, narratives focus on particulars, casting specific happenings in a certain light to reveal their significance. A narrative understanding of people gives us a handle on the relevant details.

The locus classicus of this division is found in Bruner (1986, 1990), who highlights the ways in which narratives provide a special kind of understanding – one that is distinct from other, more general ways of understanding people and things. Illustrating the difference, Bruner (1986) says of these two styles of understanding, 'One leads to a search for universal truth conditions, the other for likely particular connections between two events – mortal grief, suicide, foul play' (p. 11-12).

An illuminating narrative identifies 'which events are significant and why' (Roth 1991, p. 178). It does so by selectively focusing on 'the elements that are relevant to our interests, and to the interests of our audience' (Goldie 2012, p. 16). Narrating involves situating events in a certain light against a larger frame and, usually, also characterising them within a certain genre as opposed to subsuming them under general laws. Indeed, as Currie (2010) contends, this is why 'general theories are simply not narratives at all' (p. 35).

In their most familiar form, narratives are detailed accounts of the events and doings that feature in the lives of specific people and how such happenings shape how they see things. These are 'rich, particularized, and unified histories of cycles of thoughts, actions and contingencies' (Currie 2010, p. 36). Typically, narratives do not just give an account of

how a unique series of happenings unfold, they also give insight into the various perspectives taken toward such happenings (László 2008, p. 3). Emphasising this important feature of narratives, Goldie (2012) observes that:

> Narratives often provide explanations of why someone had a particular motive, or why someone has a particular character or personality trait, or why someone was drunk, depressed or angry. And the explanations we get are narrative-historical explanations, they locate the motive, the trait, the undue influence on thinking, within a wider nexus, in a way that enables us to understand more deeply why someone did the thing they did through appeal to aspects of their personal history or circumstances (p. 20).

Narratives of the sort of which Goldie speaks – personal or folk psychological narratives – are thus the perfect tools for providing insight into the peculiarities of personal perspectives. It is precisely because narratives, unlike general theories, can provide a contextualised understanding of the other that narratives are ideally suited for supplying the kinds of insight about another's specific attitudes and outlook needed for non-basic empathising.

Ratcliffe (2017) brings out the need for being receptive to, and gaining a, sophisticated, non-basic understanding of the other's particular psychology and situation vividly. He imagines a case of someone who tries to comfort a friend who has just lost her parents by saying, 'I know just how you feel; one of my parents died too.' It is easy to imagine, as Ratcliffe does in fleshing out the example, that, executed clumsily, 'the grieving person feels she has not been understood, that her experience has not been acknowledged at all' (p. 288).

Ratcliffe's (2017) example underscores the need for a receptivity to the other that does not try to close the gap between the people involved in discursively driven episodes of empathising. Hence, it is no surprise that he finds it plausible that in such cases we come to understand the other by engaging with their narratives. As he puts it, appreciating how the other sees things differently than we do involves, as Gallagher (2012) proposes, getting to 'know their stories' (p. 370).

Divining another's reasons cannot be achieved in the same way that we come by knowledge of objects and their properties. When it comes to knowing, as opposed to guessing, what another is doing, or their reason for doing it, we simply cannot avoid consulting the other. Drawing on Cavellian insights about what separates knowledge of objects and knowledge of persons, Moran (2015/2017) holds that it is always necessary for persons to have a 'say' in how we understand them:

> the tomato, the planet and the proton don't have a view on how they are described; there is no issue there for our best theories of these things leaving out

some aspect of their existence that matters terribly to them; and our explanations of their behaviour do not wait upon their acknowledgement that, 'Yes, this must be what I've been doing all along' (p. 134).

Persons, unlike purely physical objects, 'have *some say* in the matter as to what shall count as being known and being understood' (p. 135, emphasis added). This is why deciding what a person is doing, and what their reasons for acting are, cannot be known or discovered 'from the 'outside' – by means of, say, impersonal theorising. Hence, 'although hardly foolproof, by far the best and most reliable means of obtaining a true understanding of why another has acted is to get the relevant story directly from the horse's mouth' (Hutto 2007 p. 46). Yet to the extent that a person has a degree of privileged authority in saying what they are doing and why – 'from the inside', so to speak - it is only because they have mastered a very special kind of public practice (See Waldow, 2019). For, plausibly, to be able to understand and give an account of what one is doing and why, this ability is dependent on having been initiated into and mastered a distinctive sort of narrative practice (Hutto 2008).

Crucially, having the capacity to give an account of what one is doing and why with some authority does not entail, and need not be explained by, being able to implicitly narrativize one's life or to experience it narratively (Hutto 2016). Such psychologising explanations are unnecessary; as Moran (2015/2017), drawing an important lesson from Anscombe, emphasises: 'he knows what he is doing, and knows this in virtue of doing it intentionally, and he could tell someone this if he were asked, but not because of any thoughts he is having at the time' (p. 309).[37]

The process of engaging with another's narrative account of their actions and reasons for them is a temporally extended and exploratory affair. Moreover, as Ratcliffe (2017) observes, just as in the clinic, such exploratory engagements typically involve a collaborative construction of someone's narrative. Indeed, such co-authoring work is often necessary if all involved are to gain 'a progressively more refined appreciation of how an experience is situated in a life' (p. 291).

Pulling these ideas together, though the other must have a say in articulating what they are doing and why, it does not follow that the other has ultimate authority in such matters. Indeed, due to limitations of perspective, it is often the case that the other may often fail to

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[37] Moran (2015/2017) explicates Anscombe's views on intentional action, stressing that her 'idea of an action being intentional 'under a description' is not that of a set of thoughts being entertained by the agent at the time of acting' (p. 309).

be a trustworthy guide to what they are up to and why. Certainly, no one has a fully transparent understanding their own actions and reasons. That is to say, that just like ourselves, the other may not always be best placed to tell their own story.

Most famously, this is the tragic situation of Oedipus Rex. Though the story of Oedipus is in one clear sense his story, he was not always in a position to know all, or even its most important, details. And yet there is another clear sense in which Oedipus's 'story does not belong to him' (Moran 2015/2017, p. 314). He does not own or have authority over his story the way that he might own or have authority over a personal belonging or possession. To see this, it helps to be reminded that 'any person's story contains the stories of other people as well' (Moran 2015/2017, p. 314).

Reflection on our limited perspectives, and how these account for much of the tragedy and comedy of our lives, reminds of the need to allow for a special kind of evaluative distance when thinking about what we do and why we do it. The revelations, connected with dramatic irony, always exist alongside our special capacity to give an insider take on our reasons and actions.

Once again, these observations provide a forceful reminder of why a person's story should not be confused with a special kind of personal experience, event, process or activity – the stories of our lives are not things or experiences which the person has access to, or otherwise lives out.[38]

5.4 The simulationist strikes back?

For all that we've said so far, a final word is in order about whether the type of narrativist account we advance can stand on its own two feet. Specifically, Stueber (2012a, 2012b) holds that reenactive empathy, understood through the lens of simulation theory, must always be in play if we are to understand others.[39] If his analysis holds up, it undermines, or at least place a significant limit on, the narrativist accounts of sophisticated empathising of the sort we defended in the previous section.[40] Not to put too fine a point on it, if Stueber's argument works, then narrativist accounts of empathy cannot tell the whole story about empathy.

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[38] In the same vein, as Moran (2015/2017) observes, the whole complex of events that make up the story of Oedipus is 'not "lived out" by any character in the play, and could not be' (p. 314).
[39] Stueber (2006) first introduces and explicates the notion of reenactive empathy in his book, Rediscovering Empathy, on p. 158ff.
[40] He is indelibly clear about his purpose and target: 'I am particularly interested in articulating my defence of empathy in contrast to a philosophical position that emphasizes narrative competence' (Stueber 2012a p. 55).

Stueber defends the indispensability of reenactive empathy by questioning pure narrativist accounts along two fronts, doubting their capacity to explain how we are able to understand both diverse and familiar perspectives without invoking some version of simulation theory.

Essentially, he takes reenactive empathy to be epistemically central and necessary for our understanding of why the other acts as they do. He is explicit in telling us that his account of empathy 'is closely linked to contemporary simulation theory' (Stueber 2012a, p. 56).

When it comes to empathising, Stueber (2006, 2012a) contends that understanding others requires us to put ourselves in the other person's shoes and – somehow – replicate, match or mentally simulate the other's mindset.[41] This, he holds, is the only way to practically and emotionally evaluate the aspects of the situation that the other takes to be relevant. Only then – so the story goes – can we get an insider, truly first personal, take on how we have, or will, respond to various situations.

Similar to Goldman's (2006) version of simulation theory, reenactive empathy is depicted by Stueber (2012a) as an implicit, three-phase process. During the first, matching phase, A's mind imaginatively adopts or occupies B's perspective. During the second, simulation phase, A imaginatively explores B's perspective. In the final, attribution phase, A understands, interprets and explain B's reasons for actions based on A's knowledge of B's perspective.

Crucially, for Stueber, understanding another's reasons for action unvaryingly depends on knowledge gained by exploring the other's perspective 'from the inside' in the simulation phase. It is through simulating that 'I think, deliberate, and entertain reasons for possible actions from your perspective' (Stueber 2012a, p. 57). Only my simulating the other's perspective, he holds, yields such intimate knowledge of the other's reasons and motives. This is why he takes reenactive empathy, understood as a form of simulation of other minds, to be necessary for understanding reasons and individual agency.[42]

Stueber's (2012b) first challenge to narrativist accounts of sophisticated empathising is to explain how, without simulating the other in the ways described above, it is possible to understand those 'from very different backgrounds' (Stueber 2012b, p. 68). Stueber (2012b) issues the following challenge to the narrativist:

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[41] The necessity claim is stated as follows: 'Understanding other agents seems to require that I am able to recognize particular aspects of their situation relevant to their actions. And in order to do that I have to put myself in their shoes and practically evaluate what aspects of that situation have to be regarded as relevant' (Stueber 2006, p. 160, emphasis added).
[42] In his own words, Stueber (2012a) tells us that 'reenactive empathy (as a form of simulation) is epistemically essential for our major folk psychological abilities' (p. 57).

> If, however, as narrativists claim, understanding of narratives proceeds completely independent of simulation or reenactment, then it is not clear to me … why we are prone to experience something like imaginative resistance. The understanding of all narratives should be on par, regardless of how far removed they are from my familiar way of thinking about the world (p. 68).

He underscores this point: '*it is exactly in this context* that I see the great advantages of my view according to which such understanding *essentially involves reenactive empathy*' (Stueber 2012b, p. 68, emphasis added).

Stueber's (2012b) argument is clear enough. Unless defenders of the narrative approach concede the necessity of simulative re-enactment they, allegedly, incur a toxic explanatory debt. For how else, other than by appeal to the simulation of another's perspective, is it possible to explain the imaginative resistance that is sometimes experienced when trying to understand someone from a profoundly different background?

The imaginative acts that give rise to such resistance are of a special brand that cannot be subsumed under the category of hypothetical or suppositional forms of imagining – namely, those that only aim at imagining what is fictionally true about some possible situation or scenario.[43] Stueber (2012b) clearly thinks that narrative understanding is restricted to the suppositional side of the fence. Imaginative resistance arises when we refuse to imagine something that is morally or aesthetically repugnant to us, something that breaks with our background, accustomed ways of thinking. The fact that we might encounter imaginative resistance when empathising with others of different backgrounds suggests that the imagining in question cannot be of a purely intellectual sort that Stueber thinks typifies narrative understanding but must be rooted in a full-bodied kind of heated imaginative activity.[44] Put otherwise, because empathising can incur imaginative resistance it appears that it must involve something emotionally hotter than cold narrative understanding. As such, the imagining involved in emphasising is 'to be distinguished from all those cases of imagination that involve imagining *that p*, rather than actually *experiencing p*' (Ratcliffe 2017, p. 276).

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[43] As Moran (1994/2017) highlights, 'The difficulty, apparently, does not have to do with the imagining of characters with moral beliefs different from our own but rather with imaginatively entering into a fictional world where moral reality is different from what we take it to be. We can easily "accept" the existence of ghosts as one of the fictional truths implied by the story, but it seems we cannot similarly "accept" it is true in that fictional world that, say, the murder of one's guest (as it is actually depicted) is not to be condemned' (p. 19).

[44] We find some invitations to imagine unattractive or repugnant, say, to our current aesthetic and moral sensibilities. Thus 'imagination with respect to the cruel, the embarrassing, or the arousing involves something more like a point of view, a total perspective on the situation, rather than just the truth of a specifiable proposition. And imagining along these lines involves something more like genuine rehearsal, "trying on" the point of view, trying to determine what it is like to inhabit it' (Moran 1994/2017, p. 25).

To capture this difference, let us follow Medina (2013) in distinguishing enactive as opposed to propositional imaginings. If we are to account for the imaginative resistance that empathising sometimes exhibits we must understand how and why our resistance to imagine some of what a narrative asks us to imagine is an emotionally hot process.

All of this can be agreed upon, yet – and here's the rub – it is important to recognise that enactively engaging with the stories and situations of others in imaginatively hot ways need not depend upon our first getting into, or projecting ourselves into, their shoes (see Waldow, 2019). Kieran (2003) argues convincingly that the kind of imagining that occurs when engaging with narrative works of art does not entail mentally simulating others. Using the example of Gradgrind of Dickens's *Hard Times,* he shows that it is possible for us to both narratively understand, and affectively respond to, fictional characters without putting ourselves into the minds or perspectives of those characters.

Even when imagining what a character is thinking or feeling, we are directly moved by the manner in which they and their situations are described in the texts – that is to say, we let our imaginations be driven directly by what is laid down in the texts. Summing up, Kieran concludes that there are cases of such imaginative engagement in which "no fictional character is being simulated in any way" (2003, p. 72).

In the same vein, it seems possible that we can be hotly moved by another's situation in ways that might provoke imaginative resistance even if no mental simulation of another, real or fictional, person is involved. This is because the processes by which we are so moved by another can take the form of transformations achieved by enactive engagements, not with narrative texts, but by directly responding with the other's expressed attitudes.

Thus, we can accept enactively empathising with another involves emotionally charged imaginings, while denying that the best explanation of our hot narrative engagements need involve mentally simulating the other by means of anything like the sort of three-stage process that Stueber (2006, 2012a) takes to be part and parcel of reenactive empathy. For even if hot imagining involves simulation in the sense of re-enactment of, say, perception; it need not involve simulation in the sense of simulating the other as proposed by simulation theory.[45]

In any case, if we put the focus on explanatory power, it is utterly unclear how mental simulation of the other achieves its seemingly magical first step. How exactly, and by what mechanisms, does one match the mind, or imaginatively adopt, the perspective of the other

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[45] For further arguments along these lines and an explication of enactive imagining see Hutto (2008), (2015b), Hutto and Myin (2017).

in sophisticated, discursive cases of empathising? Far from being obvious, the very first stage of mental simulation appears both miraculous and mysterious (Hutto 2004).

Moreover, as discussed in the previous sections, contrary to simulation theory, it appears that in empathising it is important to keep our distance anyway. In order to feel for you I need not replicate your pain within myself, and then project that pain onto you. This neither seems to be how we empathise with or feel for others, real or fictional, when, say, they have lost a loved one, nor does it give us a solid explanation of how such empathising is achieved.

Crucially, even if empathising always involves hot imagining, it is not plausible that such imaginings involve having a first-person experience similar to that of the other (see Ratcliffe 2017, p. 275). Such a proposal quickly gives way under pressure when we are asked to give details about how similar A's experience must be to B's in order to make empathising possible.[46] A little reflection on such cases reveals that we can empathise with others even if we have no analogue of their experience in our psychological back catalogue; that is, 'we can sometimes empathize with experiences that we cannot simulate' (Ratcliffe 2017, p. 278).

In sum, once we look closely at the hot, imaginative feats of enactive empathising it becomes far from obvious that they must involve mentally simulating the other, at least on standard formulations of what the mental simulation of another is thought to involve. In particular, it is not obvious that reenactive empathy, understood through the lens of mental simulation, best explains how we achieve our empathic feats when it comes to answering Stueber's how question – namely, how we come to understand those from diverse backgrounds.

Stueber (2012b) makes a second argument for thinking that any narrative account of empathising that does not embrace reenactive empathy will lack something pivotal. His second argument goes in the opposite direction of his first, focusing not on the need for reenactive empathy to help explain how we understand others who are different from ourselves; but rather, how reenactive empathy plays a part in enabling us to understand those who are similar to ourselves.

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[46] As Zahavi (2017) highlights: 'the decisive difficulty concerns the question of how specific the match between empathizer and target must be in order to count as sufficiently similar…To claim that I can empathize with someone who is distressed because of the death of her two-year-old Spanish Timbrado…only if I have been distressed over the loss of the same kind of bird…is hardly convincing. By contrast, to claim that I can only empathize with a minded creature if I have a mind myself seems eminently plausible, but also rather trivial. If the account is to say something plausible, yet nontrivial, it must position itself somewhere in between these two extremes. The question is where' (p. 36).

Stueber (2006) argues that simulation-based reenactive empathy is a necessary component for understanding others because co-cognizing with others is necessary for getting a handle on what another finds relevant in some situation. In making his case, Stueber (2006, 2012a, 2012b) draws on arguments by Jane Heal. Heal (1998) holds that the platform for understanding others requires that we co-cognize with them – that is, to think about the subject matter of the other's thoughts for ourselves. Stueber (2006) extends this basic idea arguing that the mental simulation in question not only takes the form of working through chains of rational thought but can involve the replication of 'a whole range of psychological phenomena' (p. 159).[47] This putative fact, he claims, is what allows us to be moved by the emotional and normative considerations that 'are relevant in a particular situation' (Stueber 2006, p. 159).

The fact that we co-cognize with others is, arguably, what allows us to solve the notorious frame problem.[48] For in co-cognizing we are aligned with others who will find the same things relevant that we do when engaged in the same kinds of familiar activities, practices and ways of thinking that make up the common fabric of shared lives.

The background assumption for this argument is, of course, that reenactive empathy either equates to co-cognizing or that co-cognizing somehow entails reenactive empathy. Indeed, he makes the link to the simulation process clear in the following passage:

> Empathizing with others requires that I am able to recognize particular aspects of their situation relevant to their actions. And in order to do that *I have to put myself in their shoes* and practically evaluate what aspects of that situation have to be regarded as relevant (Stueber 2006, p. 160, emphasis added).

However, there is no necessary connection between co-cognizing and reenactive empathy, at least if the latter is understood to be some kind of psychological or cognitive process involving mental simulation. When co-cognizing with another we need not go through a process of putting ourselves in the other's shoes because we are already in each other's shoes (McGeer 2007).[49]

Our shared lives allow that we can 'take for granted that we inhabit a common framework of norms such as "one does not walk in the middle of the road" and "one pays for

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[47] On this score, Stueber (2012b) tells us, 'my argument for the essential involvement of reenactment for rational agents, who act for a reason, can be seen as a generalization of the argument that Jane Heal has given for co-cognition' (p 69).

[48] Stueber (2012b) is explicit about this, telling us that 'it is exactly in this context that the frame-problem raises its "ugly" head, which leads me to conclude that we need reenactive empathy in order to understand an agent's potential reasons for acting' (p. 69).

[49] Heal (2013) is indelibly clear that co-cognition does not entail simulation, writing that simulation 'is [not] a necessary element of … deliberative co-cognition. Simulation may occur in the course of co-cognition, when one person's remark is opaque and the other needs to reflect imaginatively to see what might lie behind it. But it need not do so since the other's remarks may be understood straight off' (p. 350).

things that one takes out of shops'" (Ratcliffe 2017, p. 283). Thus, we can co-cognize with others about all of this '*without conscious inference* … [because] we live in a shared world of buses, litter bins, cafes, and so on' (Ratcliffe 2017, p. 283, emphasis added). Indeed, we can do this without unconscious inference either – hence, without making any kind of inference at all. There is simply no need to psychologise co-cognizing; namely, to characterise it as a kind of cognitive or mental action on our part.[50]

Yet even if co-cognitive commonality is a necessary backdrop for enactive empathising, this is consistent with the proposal that the latter only really gets going when we go beyond co-cognizing.[51] We agree with Ratcliffe (2017) that 'suspension of ordinarily presupposed commonality is central to empathy. Once B has suspended the unquestioned assumption that A shares *x* with B, B can explore whether and to what extent A does share *x*' (p. 284). Thus, enactive empathising – even if it depends on a backdrop of co-cognizing – needn't involve mental simulation at all.

5.5 Conclusion

Drawing together all of its threads, if the analysis of this chapter holds good, then there are strong reasons to think of everyday empathising by enactive lights – as fundamentally temporally extended, exploratory and second-personal in character. We have argued that it is important to distinguish basic and more sophisticated forms of enactive empathising, and, in doing so, to recognize how the latter can depend on narratively driven engagements with the other. Yet despite this variety, no form of empathising, if we are right, need involve the mental simulation of others.

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[50] It is because Stueber (2012b) fails to see the lack of entailment between mental simulation and co-cognizing that he is puzzled by Hutto's take on this issue: 'since Hutto does accept the necessity of co-cognition, I am a bit puzzled why he does not recognize that [Heal's] argument can be generalized' (p 69).
[51] In such cases, 'interpersonal differences are understood against the backdrop of a social situation that is taken from the outset as ours' (Ratcliffe 2017, p. 284).

Chapter 6

Neurodiversity in a neurotypical world:
An enactive framework for investigating autism and social institutions

This chapter approaches the topics of social cognition and the well-being of autistic individuals through considerations of their relationships to neurotypical institutions. Utilizing an enactive framework informed by the social model approach, the chapter argues social cognition and identity are constituted via embodied and embedded social practices of institutions. By integrating the double empathy hypothesis (Milton, 2012) and the monotropism theory (Murray, Lesser, and Lawson, 2005) with the enactive framework, the chapter explores how aspects of neurotypical institutional social practices impact autistic individuals. Finally, the chapter concludes by discussing two further research paths based on the preceding analysis for the development of interventions to improve the social cognitive skills and well-being of autistic individuals. The first research path focuses on the potential the enactive framework has for explaining and further developing the field of animal assisted therapy for autistic individuals. The second raises the question of what an enactive neurodiversity paradigm in education would look like.

Chapter 6

Neurodiversity in a neurotypical world:
An enactive framework for investigating autism and social institutions

6.1 Introduction

In this chapter I argue enactivist accounts of the role social practices and institutions play in shaping cognition and identity reinforce the neurodiversity paradigm's focus on shifting the attention of interventions away from neurodivergent individuals and towards society.[52] Though I argue the enactive framework is especially suited for investigating and explaining neurodiversity, enactivist accounts have yet to engage with the issues raised by the social model approach to neurodiversity (Chown and Beavan, 2011) and two explanatory theories of autism, monotropism (Murray, Lesser, and Lawson, 2005) and the double empathy hypothesis (Milton, 2012a). While I draw on the established enactive accounts of De Jaegher (2013a) and Krueger and Maiese (2019) to show the advantages of enactivism, their work remains problematically committed to a medical model approach for explaining neurodiversity and proposing intervention strategies.

A medical model approach views physical or cognitive differences as disabilities, which are functional deficits that an individual either has or does not have. As the medical model approach views cognitive differences found in neurodiversity as deficits to be corrected, the intervention strategies on this approach are directed primarily at the neurodivergent. This can be seen in enactivist accounts, for example, where De Jaegher (2013a, p. 10) claims autistic self-stimulatory behaviour is something that we need to "find suitable ways to deal with…even to the point of converting them into acceptable activities or extinguishing them." Similarly, Krueger and Maiese (2019, p. 23) propose co-constructing inclusive music therapy institutions for improving autistic individuals' coordination and rhythm skills through musical practice. Both of these accounts' approaches to intervention strategies follows the medical model in seeing autistic differences as faults to be corrected

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[52] The term "social practices" is used here denote the patterns of behaviour one adopts in social environments. In this sense, social practices can develop either through exposure to cultural patterns of behaviour or from a pattern of behaviour an individual establishes over time in response to certain kinds of social stimuli.

primarily by the autistic individual him/herself. However, medical model attitudes have been challenged by the neurodiversity paradigm on the grounds that they are partly responsible for the creation of systemic barriers and negative stigmas the neurodivergent regularly face (Chown and Beavan, 2011).

In line with this challenge, the social model alternatively approaches neurodivergent differences by examining how society's normative expectations define their differences, and potentially causes further psychological 'disability' via "a culture and ideology of 'normalcy'" (Milton, 2012b, p. 10). As the social model examines neurodiversity from a social perspective, the model explicitly rejects the idea that the cognitive differences of the neurodivergent are faults of the individual to be corrected. Additionally, social model approaches shift the focus of intervention strategies for improving neurodivergent capabilities and well-being away from putting the onus for change on the neurodivergent individual him/herself. Instead, social model approaches to intervention strategies focus on improving neurotypical social practices and institutions to be more inclusive and accommodating for the neurodivergent.

Despite previous enactivist commitments to a medical model approach, enactivism is naturally suited to a social model approach. This is because enactivism focuses its investigations of cognition through the concept of intersubjectivity. At the core of the concept of intersubjectivity is the claim that the structure of human experience and cognition always involves a relation to the world and to others, which constitutively shapes cognition. This is understood as how one experiences the other as someone to whom things matter, one can connect with through feeling, and is a distinct other with their own perspective (De Jaegher, 2018, p. 454). Intersubjectivity is used to examine how relating and interactions create and transformation meaning, and through which individuals' perspectives on the world, each other, and themselves evolve (p. 454).

Intersubjectivity is further conceptualized by examining the ways a particular individual's embodiment and embeddedness constitute the individual's cognition and experiences in the world. The terms embodiment and embeddedness denote the claims respectively that an individual's physical body beyond her brain, and her socio-material environment beyond her body, play a significant constitutive, not just causal, role for her cognitive processes. The claim cognition is constituted via embodiment and embeddedness is to be understood in the sense that these aspects not only shape cognition but they are also necessary for it to arise in the first place. For enactivism, an individual's particular embodiment and embeddedness constitutively shape, via experiences in the socio-material

world, cognition.

On this framework, as an individual's embodiment and embedded environment partly constitutes her cognition, the significance that the world has for her is not simply pre-given, but it is enacted through her interactions with others and her socio-material environment. As a result, enactivism's emphasis on intersubjectivity brings to the forefront of investigations of cognition first-person perspectives that in turn are able to help explain the normative effects social practices and institutions have on individuals' cognition and personal identity. For enactivism, intersubjectivity is used to help explain how individuals' personal identities are constituted through their relationships to the world in regard to self-image, self-esteem, individuality, and social position within society.

The focus enactivism places on examining intersubjective effects on identity construction aligns with the neurodiversity paradigm's claim for a need for a shift in terminology relating to autism. First, advocates of the paradigm claim terms such as "Autism Spectrum Disorder" should be revised to reflect the preference of autistic self-advocates. In the autism community being autistic is, for many, central to their identity formation, and as such, it is not something suffered from. Rather, for these autistic individuals, being autistic is an integral part of their personal identity (Fenton and Krahn, 2007). Autistic self-advocates claim this shift in terminology helps to promote a positive self-image, while also countering negative bias autistic individuals experience in interactions with neurotypical individuals. Second, it is important to recognize the non-universality of autism, and that every autistic individual has a range of strengths and weaknesses just as every neurotypical individual does. In usage here, the term 'autism' simply refers to the whole range of the spectrum, whereas the term 'autistic individual' highlights the particularized nature of each individual's cognitive skills and behavioral habits.

While enactivism is a framework for explaining cognition, in order to examine the differences between autistic individuals and neurotypical individuals, in this chapter I integrate enactivism with the monotropic theory of autism. Monotropism claims "atypical patterns of attention" are a core inherent feature of autism from which many of the notable social differences arise (Murray, Lesser, and Lawson, 2005, p. 139). According to this account, there is a difference between the monotropic attention patterns of autistic individuals that involves having few, but intensely focused, attentional interests, and polytropic attention patterns of neurotypical individuals that involves having many, but less focused, attention patterns (p. 140). Monotropism claims these differences in attention patterns can explain many of the other cognitive and behavioral differences documented

between autistic individuals and neurotypical individuals. Some of these differences that are examined here are differences in: language development; sensorimotor synchronization and coordination in social interactions; sensory differences in regard to hyper/hypo-sensitivity; and having a higher propensity for self-stimulatory behaviors.

In order to understand how these differences affect interactions autistic individuals have with neurotypical individuals, Milton's (2012a) double empathy hypothesis proposes there is a double empathy problem. Milton claims that since autistic and non-autistic individuals have "different dispositional outlooks and personal conceptual understandings", when interacting with one another both groups are more susceptible to frequently misunderstanding one another (p. 884). It's a 'double problem' as the difficulty in understanding one another is bi-directional, arising from differences between the neurotypical individual and the autistic individual. As we live in neurotypical societies, societal institutions are structured in neurotypical-friendly ways and most of our interactions with these institutions are via individuals who are members, or representatives, of the institutions. For this reason, the double empathy hypothesis is also relevant for examining autistic individuals' interactions with, and relationships to, neurotypical social institutions.

In regard to this, Fenton and Krahn (2007, p. 1) identify that social institutions "either expressly or inadvertently model a social hierarchy" in which the "interests or needs of individuals are ranked relative to what is regarded as properly functioning cognitive capacities." The neurodiversity paradigm is motivated in part by challenging this kind of social hierarchy found in institutions by reweighing the "interests of minorities so that they receive just consideration with the analogous interests of those currently privileged by extant social institutions" (p. 1). Enactivism is well-suited for this task as it explains cognition in relation to social practices and institutions by (re)conceptualizing individuals and their relationships to others, societal roles, and social interactions that constitute their cognition and identities (De Jaegher, 2013b, p. 22).

The goal of this chapter is to show that enactivism as a general framework for explaining cognition is especially appropriate both for integration with the monotropism theory and the double empathy hypothesis and for explaining autism. This is because enactivism offers a holistic framework for examining the specific contributions internal (embodied) and external (embedded) factors play in shaping cognition. Though the social model approach is committed to highlighting the influence social environments have on shaping neurodivergent cognition, it is not in itself a framework for a comprehensive explanation of neurodiversity. Enactivism, as a philosophical and scientific framework for

explaining cognition in general, already shares this core commitment of the social model through its focus on intersubjectivity. As such, enactivism is especially suited for developing a systematic explanation of not only autism, but also alternative forms of neurodiversity. This can be done along the lines of the social model approach through its focus on how a neurodivergent individual's embodied and embedded differences affect his/her intersubjective relationships.

In order to demonstrate how enactivism can more fully embrace a social model account and be a framework for explaining neurodiversity, I begin in section 6.2 by providing an overview of the enactive social cognition framework. In section 6.3, enactivism is then integrated with the monotropism theory in order to show how the double empathy problem arises and to examine the relationships autistic individuals have with neurotypical social practices and institutions. Finally, the chapter concludes by briefly discussing two further research paths based on the preceding analysis for the development of interventions to improve the social cognitive skills and well-being of autistic individuals. The first research path focuses on the potential the enactive framework has for explaining and further developing the field of animal assisted therapy for autistic individuals (Smith, 2018). The second path raises the question of what an enactive neurodiversity paradigm in education would look like.

6.2 Enactivism, social practices, and institutions

A core proposal at the center of the enactive framework for explaining cognition is the claim that an individual's particular form of embodiment determines what stimuli in the environment the individual is sensitive and responsive to (Maiese, 2018, p. 7). Essentially, this means that by examining the way an individual moves and perceives, her sensorimotor system, it is possible to understand how her cognitive capacities and processes function and develop. Enactivism claims an individual's embodiment and embeddedness partly constitute her cognition; and at the same time, her actions in her environment change (or enact) the environment to better suit her needs and purposes. Importantly, the term constitution as it is used here, and throughout this chapter, should be taken as a species of causation, i.e., constitutive causation. Constitution used in this enactive sense is meant to capture the bidirectional aspect of enactive relationships where there is continuous reciprocal causal influence between individuals and their environments (Jurgens and Kirchhoff, 2019, p. 4).

In regard to the social realm, enactivism utilizes the concept of intersubjectivity to

explain cognition by examining the salience various aspects of the socio-material world have for an individual, and how the individual interacts with these worldly phenomena. The most basic form of intersubjectivity is primary intersubjectivity. Primary intersubjectivity is claimed to develop in the first year life where infants become capable of imitating facial expressions, which provides them with a basic sense of familiarity with others (Fuchs, 2015, p. 193). This results in infants being affected by others' expressive behavior, entering into a relationship of shared bodily feelings and affects (p. 193). The capacity for secondary intersubjectivity develops through experiences of joint attention, gaze-following, and pointing as infants begin to be able to explicitly refer the shared social and material context (p. 194). Through experiencing how others interact with the world, infants pragmatically learn the meaning of objects and how to use them (p. 194). Finally, tertiary intersubjectivity develops when children both understand that others may have conflicting perspectives and become able to shift between their own perspectives and the perspectives of others (p. 195).

A key aspect of all of these levels of intersubjectivity is social normativity, which plays a pivotal role in explaining how individuals form values, attitudes, desires, conceive of thoughts, and execute intentions through action (Maiese, 2018, p. 12). Individuals pick up social norms via their interactions with others by the embodied behaviors others have adopted from their own experiences with social practices and institutions. This is because "social institutions enhance specific patterns of thought, feeling, and behavior by providing a normative framework that rewards, reinforces, or discourages" particular kinds of ways of thinking and behaving (p. 12). One of the best, and developmentally earliest examples of how intersubjectivity both encourages, or discourages, normative behavior is the infant/caretaker dyad. This example also demonstrates how the dynamics of an interaction can be constitutively constrained by the socio-material environment, including the other interactor.

In this kind of interaction, body posture, expressive gesture, vocalization, gaze following, and attention are essential to maintaining an ongoing and recurrent engagement between infant and caretaker (Jurgens and Kirchhoff, 2019, p. 3). Still face experiments (Nagy et al., 2017) utilizing infant/caretaker dyads show the importance of ongoing and synchronous engagement by demonstrating what occurs when the synchrony formed by these kinds of behaviors breaks down. As the core features of this kind of interaction are the infant and caretaker recognizing, attending to, and responding to each other's interaction, the still face experiment shows that when the caretaker suddenly adopts a still face

and no longer interacts with the infant, the infant becomes noticeably discouraged and up-set. At this time, infants "withdraw from the interaction, avert their gaze, display negative affect, become increasingly distressed, start crying and smile less" than during the previous interactive engagement phase (Nagy et al., 2017, p. 2). Furthermore, even when the care-taker re-engages with the infant after the still face phase, there is a spill-over effect where the infant will continue to avert its gaze, display distress, and generally will not re-engage with the caretaker to the same level as the initial interactive phase (Nagy et al., 2017, p. 2). This shows beyond a mere causal effect that the caretaker's behavior of adopting a still face, where attention is no longer being paid to the infant, constitutively affects both the infant's social cognition during the still face phase, and interactions following this phase.

According to enactivism, what explains the still face experiment is primary intersub-jectivity. However, without attending to the right aspects of the other's embodied behaviors, developing secondary and tertiary intersubjectivity and more sophisticated social skills becomes more difficult. This is partly due to the fact that in order to develop social skills the infant not only needs to attend to the right aspects of the other's body, but also attune to the other's rhythm of movements. It is from attending and attuning to others, through interactive social experiences in the world, that infants develop more sophisticated social cognitive skills. In this view, the interactive gestures the caretaker directs towards the infant has a constitutive effect on how the infant perceives, moves, and emotes.

As De Jaegher (2013a, p. 7) points out, an attuned rhythm capacity determines, among other things, one's timing and coordination in interactions with others. Being able to coordinate with others' behaviors, gestures, and utterances makes it easier to fluidly de-velop new social capacities and skills. The particular bodily gestures and vocalizations the caretaker directs towards the infant, which are based on the caretaker's history of culturally acquired social practices, begins to enculturate the infant in these specific practices. Follow-ing from this, we can see that immediately from birth the infant is immersed in social practices, highlighting the deep significance intersubjectivity has on shaping embodied so-cial cognitive habits and processes. It is from these kinds of interactions that the infant already begins to develop culturally specific social skills.

It is only through our interactions with, and attending to, others and the cultural practices they embody, that we are able to develop specific social skills for understanding others (De Jaegher, 2013a, p. 7). These social skills are the embodied capacities that we de-velop to flexibly respond to the regularities, and irregularities found in interactions with individuals. These skills develop through a history of interactions with individuals and are

partly constructed by the norms and practices of the society, or societies, to which one is exposed. Thus, in order to understand how social skills develop, enactivism claims we need to examine the constitutive effects social practices and institutions have on embodied social habits.

Social practices and institutions take many different forms across different cultures and times as they are the bonds that hold societies together by providing normative frameworks for interactions. Enactivism claims individuals' identities, cognitive processes, and social skills are constituted by "social and cultural laws, regulations and norms" (De Jaegher, 2013b, p. 23). Some examples of social practices that Krueger and Maiese (2019, p. 21) identify are: lining up in queues; pausing in conversations to allow the other to finish a thought; or expressing disapproval with a well-timed eyebrow raise. Examples of institutions can range from the concept and practices of families to institutions that rely on a multitude of other institutions, such as international law that requires multiple other intersecting institutions like justice systems, governments, boarders, etc.

Importantly, De Jaegher (2013b, p. 23) claims that a central feature of all institutions is that "interactions with institutions often happen at the 'face-to-face' level." It is through our interactions with someone who represents an institution that we ultimately are influenced by the institution and its particular set of approved and regulated practices. Through our interactions with representatives of institutions we begin to embody "certain models of expectancy [that] come to be established, and the patterns, which over time emerge from these practices, guide perception as well as action" (Roepstorff, Niewöhner, and Beck, 2010, p. 1056; cited in Krueger and Maiese, 2019, p. 21). However, this doesn't necessarily mean that the person has to be an official representative of the institution. We don't need to interact with a police officer, a lawyer or judge to interact with someone who represents the institution of the law. A parent or teacher can also serve as a representative of the law simply by displaying acceptable lawful behavior or discouraging unlawful behavior.

Depending on our place within an institution's social hierarchy, we are exposed to and embody different kinds of social practices and skills. Just as we're encouraged to adopt certain kinds of behavior as children are by being corrected or scolded through overt and subtle indicators of social approval or disapproval, as we move into new levels of education, new jobs or new communities we are continuously exposed to and encouraged to adopt new kinds of thinking, perceiving and acting. Contingent on our place in an institution's hierarchy we will adopt different social practices and will have more or less influence

on the evolution of the institution's social practices.

Concerning positions in institutional social hierarchies, a core aspect of the adoption of new practices is the symmetry (or asymmetry) of power that exists in different roles in interactions with others within institutions (De Jaegher, 2013b, p. 23). We can see this in examining the effects asymmetric power relations have when one is in a subordinate position to another person as that person's practices may be more influential on us than we would recognize or like. This may be as innocent as adopting the gestures or speaking habits of a new friend or romantic partner that we want to impress or it could be harmful in the sense of adopting toxic masculinity or patriarchal gender norms from our elders (Hancock and Rubin, 2015). Thus, in order to understand how we adopt certain social practices and develop particular social skills we need to examine not only which institutions we are a part of, but also our place in the social hierarchy of these institutions.

In regard to social hierarchies, and as was stated above, social norms embedded in the social practices of institutions modulate individuals' intersubjectivity by constitutively shaping both their ways of thinking and acting in the world. While some of these embodied habits picked up from interactions with others and the institutions they represent can be good, others can be bad. These embodied habits can be bad insofar as they run counter to an individual's own interests, are detrimental to their well-being, or lead to social disapproval from other social institutions and their representatives (Maiese, 2018, pp. 12-13).

Recognizing the harmful potential of social practices and interactions with institutions is essential for understanding the relationships the neurodivergent have with neurotypical institutions. As I present in the next section, the asymmetry of power that often exists in autistic individuals' interactions with neurotypical individuals within neurotypical institutions can often be detrimental to the autistic individuals. In this regard, the enactive framework is especially useful as its focus on intersubjectivity can not only reveal the deep influence social practices and institutions have on cognition and identity, but also provide a systemic framework for investigating how social practices and institutions can be harmful.

6.3 Autism and neurotypical institutions

In this section, utilizing enactivism I show the constitutive influence neurotypical social practices and institutions have on the development of autistic individuals' social cognitive

skills and their well-being. I will adopt a social model approach to the examination of autism as autism is defined and determined by neurotypical societies' ways of moving, communicating, and thinking, which autistic individuals may do differently. It is important to note that autistic individuals manifest characteristics of autism differently and some of these characteristics involve cognitive strengths in comparison to neurotypical individuals. As Chown and Beavan (2011, p. 4) highlight, some of these cognitive strengths include good rote memory skills, ability to assimilate information quickly, long-term information memory, and high levels of concentration on specialized interests. Though some individuals are always going to be different from the neurotypical norm, these differences do not need to prevent autistic individuals, or other neurodivergent individuals, from participating in society.

I begin by showing how the double empathy hypothesis and monotropism theory can be integrated with the enactive framework. This integration is mutually beneficial as enactivism provides a general framework for explaining cognition with its unique focus on intersubjectivity. The double empathy hypothesis and the monotropism theory then serve to provide additional insights for understanding autism previously missing from enactive accounts.[53] Milton, Heasman, and Sheppard (2018, p. 1) explain the double empathy problem as neurotypical and autistic individuals having differences in their sociality that leads to frequent misunderstandings when interacting with each other. As both parties have difficulty in interacting fluidly with one another, it is a "double problem" as the difficulty does not rest solely with the neurotypical individual or the autistic individual. Milton, Heasman, and Sheppard (2018, p. 1) claim that as interactions unfold, the initial differences in social saliency that cause the double empathy problem can quickly lead to critical misunderstandings that can potentially terminate the interaction. Milton (2012a, p. 884) claims the experience of encountering this kind of difficulty is more severe for neurotypical individuals than autistic individuals, as it is an uncommon experience for neurotypical individuals.

The explanatory scope of the double empathy hypothesis aligns with enactivism's focus on intersubjectivity as it considers both the individual dispositions of agents in interactions, and the social context in which interactions take place (Milton, Heasman, and Sheppard, 2018, p.1). Additionally, as Milton, Heasman, and Sheppard (2018, p. 5) claim,

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[53] While the monotropism theory may only be relevant to explanations of autism, the double empathy hypothesis can also explain the social difficulties experienced by non-autistic neurodivergent individuals. This is because other forms of neurodivergence will also affect an individual's relationships to neurotypical social institutions and interactions with neurotypical individuals. This is partly due to these neurodivergent individuals having differences in coordination capacities and having to face bias issues in interactions with neurotypical institutions and individuals.

there is a deep connection between the monotropism theory and the double empathy hypothesis. They sum up the core claim of monotropism as an essential difference between monotropic individuals, whose tendency is to localize attentional resources on a specific interest while excluding other potential inputs, and polytropic individuals whose attentional resources are capable of spreading to multiple inputs simultaneously (Murray, Lesser, and Lawson, 2005; cited in Milton, Heasman, and Sheppard, 2018, p. 5). Milton, Heasman, and Sheppard (2018, p. 5) hypothesize that the kinds of reciprocal misunderstandings the double empathy problem highlights could be a "consequence of a transactional, albeit socially situated, developmental process". This is in line with enactivism's claim that embodied differences result in a different kind of intersubjectivity where the social world is experienced in structurally different ways. According to enactivism, this will in turn lead to the development of different kinds of social cognitive skills.

In regard to this, Murray, Lesser, and Lawson (2005, p. 140) claim monotropic attention patterns make social interactions and language development and use a different kind of experience as a monotropic individual will be "inhibited by the canalization of available attention into a few highly aroused interests". In line with enactivism's appeal to primary intersubjectivity as a set of basic capacities from which more sophisticated social skills develop, monotropic attention patterns would influence primary intersubjectivity in a structured way that can then be a basis for explaining the differences seen in autistic social cognitive development. This can be seen in monotropism's claim that learning new skills requires having an interest in doing so, and interests require both awareness and motivation, which are affected by monotropic attention patterns (p. 148). Since monotropic attention patterns "inhibit simultaneous awareness of different perspectives" this limits the intersubjective experience monotropic children have of being aware of others' viewpoints. This is especially true in regard to early language development.

Explaining monotropic differences in language development, Murray, Lesser, and Lawson (2005, p. 150) explain that conversations occur on multiple levels, such as "phonetic (sound), phonological (rule-governed sound), syntactic (grammar), semantic (word and sentence meanings), and pragmatic (adjusted to each other's current interests)" through a sequence of events. For monotropic children, phonetic sounds may not be identified and connected to one another as they could be perceived as "merely some among many noises in an unfiltered, undifferentiated aural environment" (p. 150). For a monotropic child, language needs to "become an object of interest" otherwise the child may take longer to realize the meaningfulness of language (p. 150). Even after acquiring language skills, delays

autistic children have in conversation (Leary and Donnellan, 2012) may violate the neuro-typical norms, which often results in neurotypical individuals finding these long pauses uncomfortable and attempting to change the subject or drop the conversation. This creates a reciprocal feedback loop where the difference in attention, rhythm, and coordination makes social interaction difficult for both parties. However, these experiences are more detrimental for the autistic child as the child then loses opportunities to socially interact, which is important both for developing more sophisticated social cognitive skills and has a harmful psychological impact.

With respect to the importance enactivism places on synchronization and coordina-tion for social interactions influencing the development of culturally specific practices, the monotropism theory clarifies autistic differences. Murray, Lesser, and Lawson (2005, p. 144) claim that "shortage of attention is key to the lack of simultaneous activity, rather than a lack of synchronization per se." As synchronization in rhythm and coordination were shown in the previous section to be important for maintaining fluidity in social interactions in order to pick up social practices, attention pattern differences that lead to difficulty in synchronization would make picking up new social practices more difficult. Additionally, as the double empathy hypothesis highlights, this synchronization issue cuts both ways as the social world is differently salient for autistic individuals and neurotypical individuals. This can again lead to more frequent breakdowns in interaction, and limit autistic individuals' opportunities to socially interact.

In regards to autistic sensory differences, Milton (2012b, p. 9) claims that autistic individuals' hyper/hypo-sensitivities to sounds, lights, smells, and touch can also be partly explained by monotropism. As a monotropic individual is either attending just to a particu-lar sensory stimulation itself (hypersensitivity) or attending to a different aspect of the environment to the extent of not noticing another stimulation (hyposensitivity), this pro-duces differences from the neurotypical norm (p. 9). While hyper/hypo-sensitivities vary between autistic individuals across the spectrum, these differences may be able to be better explained on a case by case basis by examining the individual's monotropic tendencies. Im-portantly these differences in sensitivities may also effect social interactions autistic individuals have as the sensory environment may make it harder for them to focus on the many different vocal and gestural aspects of the other's behavior, potentially missing im-portant normative aspects.

Monotropic attention patterns can further explain why autistic individuals have dif-ficulty in accessing "socially-salient information needed to fit into and become responsively

regulated by the expressive norms governing" neurotypical institutions and practices (Krueger and Maiese, 2019, p. 24). For example, autistic individuals may find it difficult to detect subtle differences in expressive style required in situations where one needs to recognize the specific intention of a smile being either "cold, sarcastic, confident, or wry" (p. 24). However, as the double empathy problem hypothesizes, this is a bi-directional problem. Milton, Heasman, and Sheppard (2018, p. 3) cite research (Sheppard et al., 2016; Edey et al., 2016) that suggests neurotypical individuals similarly have difficulty with identifying facial expressions of autistic individuals and making sense of autistic individuals' behavior in interactive contexts.

While autistic individuals have difficulty in smoothly participating in neurotypical practices, Krueger and Maiese (2019, p. 27) point out that autistic individuals have their own practices that neurotypical individuals have difficulty with recognizing, accepting, and even participating in. These autistic practices can include the observable behavior of "self-stimulation", which includes "hand-flapping, finger-snapping, tapping objects, repetitive vocalizations, or rocking back and forth" (p. 27). Self-stimulation is known to help autistic individuals "adapt to and negotiate changing environments" by organizing sensations that help "manage the physical, perceptual, and emotional demands of a given situation" (Leary and Donnellan, 2012, p. 51; cited in Krueger and Maiese, 2019, p. 27). On a monotropic reading, self-stimulative behaviors may help to shift attention away from overwhelmingly intense stimuli in order for the autistic individual to be able to then refocus his/her attention to other aspects of the environment. In this way, practices like these can be very helpful and comforting for autistic individuals, as it is a way for them to modulate their experience of the environment and the significance different sensations have for them via a controllable embodied behavior.

While these practices can assist an autistic individual by modulating his/her attention in order to relieve issues related to hypersensitivity, the practices may seem off putting for neurotypical individuals. Neurotypical individuals have a hard time accepting autistic self-stimulatory practices in the sense that neurotypical individuals may not know how to respectfully and appropriately respond when autistic individuals engage in self-stimulatory practices in social interactions. Neurotypical individuals' inability, or unwillingness, to appropriately respond to self-stimulatory practices not only further strains the coordination and rhythm of the current interaction, but it may result in the neurotypical individuals having less interest in interacting with autistic individuals in the future. These detrimental effects may occur because the neurotypical individuals do not see the positive roles these

autistic practices have for autistic individuals (Krueger and Maiese 2019, p. 28). Without a proper awareness for the significance the practices have for an autistic individual, neurotypical institutions and their representatives may view these practices negatively. This could in turn make interactions with the institution even more difficult for the autistic individual.

Nevertheless, this need not be the case. If neurotypical individuals are informed of the value self-stimulatory behaviors have for autistic individuals, it is possible for these detrimental effects to be avoided. In fact, neurotypical individuals can even adopt or engage in autistic practices. By doing so, it is possible to alter neurotypical institutions to create more space for autistic individuals. For example, some institutions, such as Manchester University's Student Union, have adopted hand flapping instead of clapping in order to thank speakers in an effort to be more inclusive for both deaf students and autistic students (Hinsliff, 2018). As this example shows, not only can awareness of autistic practices improve autistic individuals' interactions, but awareness can also help create space for not just acceptance, but even the adoption, of autistic practices by neurotypical individuals and institutions.

Though the aforementioned example shows the possibility of making neurotypical institutions more inclusive, the preceding intersubjective differences more often than not result in autistic individuals having more difficulty in smoothly participating in the everyday practices of neurotypical institutions. This can be partly explained by these differences making it more difficult for autistic individuals to detect the normative components of institutional practices (Krueger and Maiese, 2019, p. 26). Conversely, in accordance with the double empathy hypothesis, this also means that it is more difficult for neurotypical individuals to detect the normative components of autistic social practices, such as self-stimulatory behaviors or hand flapping instead of clapping, and the importance these autistic practices have for autistic individuals. Difficulty in recognizing these differences in each other's practices makes conforming to each other's expectations more difficult for both autistic individuals and neurotypical individuals.

The enactive framework's focus on intersubjectivity, coupled with the contributions from the double empathy hypothesis and monotropism theory, offers a systematic way of examining an autistic individual's experiences interacting with social practices and institutions. Understanding these intersubjective differences is important because even though autistic individuals jointly inhabit the same neurotypical institutions as neurotypical individuals, autistic individuals' difficulties in smoothly participating in the institutions' social practices can lead to a stigma that lowers their status in the institutions' social hierarchy.

This means that in the context of institutions and their practices, autistic individuals end up feeling more isolated and alienated from not only the institution, but also from the people within the institution. Sarrett's (2018, p. 687) survey of Australian autistic students in universities found that "only 27% reported having their social needs met." Additionally, Gelbar, Shefcyk, and Reichow's (2015) literature review found that of the autistic students surveyed, "56% reported feeling lonely, 61% reported feeling isolated, and 42% reported feeling depressed" (cited in Sarrett, 2018, p. 687). These effects can be even more pronounced in institutions that have a social hierarchy that even more strongly prioritizes the interests or needs of individuals who are regarded as better performers than their peers, such as is common in occupational institutions.

This leads back to issues raised in the last section, that there can be an asymmetry of power between interactors in interactions within social practices and institutions, and that some practices and institutions may lead to harmful habits that can be detrimental to one's well-being. For example, in a university educational setting there is already an asymmetry of power between a student and the professor that makes it difficult for many neurotypical students to speak up during in-class discussions, but for autistic students this asymmetry of power is even greater because of the difficulties discussed above. This can lead to autistic students feeling less confident with speaking to professors or speaking up during in-class discussion (Sarrett, 2018). However, when this occurs it only reinforces feelings of isolation and reduces autistic students' ability to practice the kind of social cognitive skills that in-class discussions are meant to help develop along with learning the course content. In line with the enactive framework, these kinds of experiences and interactions can have a negative impact by constitutively shaping autistic individuals' social cognitive habits to avoid these kinds of experiences and interactions.

According to enactivism, we develop our identities and ways of thinking and being through intersubjectivity, i.e. our interactions with others, social institutions, and their social practices. Nevertheless, institutions "cultivate framing patterns" and constitutively shape embodied cognitive habits even if these ways of thinking and being are counter to individuals' explicit interests or are in other ways harmful to their well-being (Maiese, 2018, p. 16). The above examples show how neurotypical institutions can have these detrimental effects on autistic individuals in particular, but also on the neurodivergent in general. Thus, through examining the intersubjective aspects of social hierarchies and asymmetrical power relations it is possible to further understand how certain social practices can be harmful.

Addressing these aspects is necessary not only for improving the overall well-being of autistic individuals, but to also improve interactions between neurotypical individuals and autistic individuals. In order to improve the interactions between neurotypical individuals and autistic individuals in shared social institutions, there needs to be a shift in the focus of interventions away from autistic individuals towards the intersubjective realm of neurotypical social practices and institutions.

6.4 Conclusion

This chapter has shown how the enactive framework, utilizing a social model approach, can provide a systematic method to develop comprehensive explanations of autistic individuals' intersubjective relationships with neurotypical social practices and institutions. If the analysis presented here of the ways in which neurotypical social practices and institutions can harm autistic individuals' social cognitive skills, identity, and well-being is on the right track, then we have good reasons to think that we should shift the focus of interventions away from the neurodivergent individual him/herself. Instead, we should focus our interventions towards the social environment of neurotypical social practices and institutions.

One potential research path for developing interventions targeting the social environment that enactivism can assist with is the developing field of animal assisted therapy for autistic individuals to help improve their social skills and well-being (see Smith 2018). While understanding human institutions and social practices are crucial for understanding cognition, this is only one aspect of the social world most individuals engage with. An advantage of adopting the enactivist framework in relation to animal assisted therapy is that enactivism has through its focus on intersubjectivity the capacity to explain both the nature of this kind of interspecies engagement and how it can be helpful for autistic individuals. For example, therapy trained dogs are not only capable of primary intersubjectivity, but also a basic form of secondary intersubjectivity. As enactivism embraces the diversity of cognition in such a way that is not bound to a particular species, enactivism is uniquely suited for examining and explaining the nature and impact of non-human animal interactions can have on neurotypical and neurodivergent individuals' intersubjective capacities and cognitive skills.

A second research path in need of further exploring is the development of an enactive neurodiversity paradigm for education. Such a paradigm would educate students about

neurodiversity as a property of people in general, rather than singling out particular neurodivergent people for what many people consider to be 'special treatment'. An enactive neurodiversity paradigm approach in education would essentially involve giving a prominent place in the education system for understanding neurodivergent differences by educating students about intersubjectivity and the differences individuals have in their experiences of the world based on their embodied and embedded differences. This means teaching children explicitly about how to understand differences and the see the value in having differences. For this reason, an enactive neurodiversity paradigm approach towards education should be extended to all levels of education, from primary education onwards with the teaching developing in complexity from level to level in the usual manner. Through further developing these research paths for interventions and by implementing the interventions, we can adjust the social world co-inhabited by neurodivergent individuals and neurotypical individuals in order to make it more inclusive for the neurodivergent and improve their overall well-being.

Concluding Remarks

This thesis provided new advances to enactive social cognition by clarifying the constitutive relationship bodies and socio-material environments have on our social cognitive processes and their development. It did this by focusing investigations of social cognition on the inter-subjective level of interaction dynamics, social normativity, and narrativity. Importantly, the thesis showed that it is possible to reject the mindreading view of social cognition as internal, representational, and/or computational; and in its place, the thesis offered an approach to social cognition that is grounded in active processes constituted in the interactive relationship between agents and their socio-material environments.

In order to demonstrate enactivism is a proper rival to mindreading, in various places the thesis secured enactivist claims from mindreading objections. Chapter 2 examined the metaphysical issue of the constitutive basis of social cognition by addressing and deflating the causal-constitutive fallacy (Adams & Aizawa 2001, 2008; Block 2005) put forth against the embodied and embedded claims utilized by enactive accounts of cognition. The chapter then addressed Carruthers' (2015) poverty of the interactional stimulus objection, which was dissolved by demonstrating that it is possible to cast anticipatory processes as orchestrated and maintained by the sensorimotor couplings between individuals in face-to-face interactions. Chapter 3 then addressed another version of the poverty of the stimulus problem within the context of spontaneous-response false-belief tests (SR-FBTs). Here, I disarmed this objection by showing that an enactive, ecological account of perception need not rely on the assumption that perceptual processes only acquire information via discrete stimuli. Finally, chapter 5 addressed Stueber's (2012a; 2012b) Simulation Theory objection against enactive and narrative accounts of empathy, where 'empathy' is understood as the variety of practices that we engage with when understanding others. The chapter showed that empathizing does not reduce to, or depend on, any kind of mindreading. By disarming these established objections the thesis serves to demonstrate that enactive accounts of social cognition are proper alternative, rivals to the dominant mindreading approaches to social cognition.

In addition to securing enactivist claims from objections, the thesis also develops new objections against mindreading. Along these lines, Chapter 3 argued the cognitivist framework that both Heyes (2014a; 2014b) and nativist mindreading proponents (Carruthers,

2013; 2015; Scott and Baillargeon, 2009; 2014) appeal to, begs the question in favor of not only the indispensability of mental representations for explaining perception and anticipation, but also for interpreting the empirical SR-FBT data. Chapter 4 then demonstrated that the folk psychological know-how required to succeed on a standard false-belief test cannot be reduced to rule-based propositional knowledge as this would lead to an inescapable infinite regress where one would be required to think of another rule about how to apply the first rule, and so on ad infinitum. By drawing on Fridland's (2012) argument against Intellecutalist explanations of know-how I showed that neither Westra and Carruthers' (2017) nativist nor Fenici's (2017; Forthcoming) constructivist theory of mind explanations of the false-belief test data can both adequately explain gradable folk psychological know-how and escape the infinite regress problem. In this way, the thesis reveals some problematic assumptions and commitments of the mindreading framework, and particular explanatory accounts within it.

As well as expanding upon enactive proposals in order to secure established claims from objections, the thesis also advances enactivism by developing new approaches to, and explanations of, social cognition. In securing the established constitutive claims of enactivists, chapter 2 articulated a diachronic notion of constitution through examining infant/caretaker dyads to show that embodied engagement can play a constitutive, rather than just causal, role in social cognition. Chapter 3 proposed an explanation of not only the SR-FBT data, but also the related spontaneous-response ignorance test data based on enactive, ecological approaches to cognitive science. In order to explain the standard false-belief data and the gradability of folk psychology, chapter 4 provided an account of intermediate social cognitive capacities. These were conceived of as more complex than basic capacities, but not quite as sophisticated as our most advanced capacities. It was argued that these capacities are required for responding to the narrative and normative structure of social interactions, like those found in false-belief tests. Additionally, Chapter 5 provided an expanded explanation of the roles that narrative practices have in facilitating our more sophisticated social cognitive capacities when we try to understand others on a deeper and more detailed level. Finally, chapter 6 integrated enactivism with the neurodiversity paradigm in order to develop both a method for examining neurodiversity and explaining the relationships the neurodiverse have with neurotypical individuals, social practices, and institutions. The chapter concluded by proposing two further research paths, animal assisted therapy and neurodiverse education models, for the development of interventions for autistic individuals that focus on the social environment as opposed to the autistic individual him/herself.

This entire body of work has secured and developed the foundations of an enactive, narrativist account of social cognition, yet there are three lines of research I think are important to pursue further. In both defending enactivism from objections and in developing objections against the mindreading framework, the thesis reveals that there are substantial differences between these frameworks' foundational assumptions. While these differences were approached in terms of establishing enactivism as a proper rival to mindreading, from a philosophy of science perspective, an important question arises. This is whether enactivism and mindreading are simply different frameworks (or paradigms) operating within the same philosophy of nature or whether enactivism and mindreading are two distinct philosophies of nature. While Gallagher (2018) has recently explored this second possibility, this issue has yet to get a thorough treatment. However, as this thesis has shown, the foundational assumptions of enactivist and mindreading proponents diverge so substantially that it may be better to conceive of these projects as operating with different philosophies of nature. In pursuing this line of research, an approach based on Longino's (1990) work in the philosophy of science, may be able to help determining which of these two options is the best way forward. Progressing on this issue would go a long way in addressing, and hopefully resolving, the problem of enactivists and mindreading proponents talking past one another in their debates because of their substantially different background assumptions.

Although the thesis already provided new developments for explaining the false-belief test data in enactivist terms, further work needs to be done in developing a more detailed account of the interrelation between basic, intermediate, and sophisticated social cognitive capacities. In particular, though there have been attempts to develop an enactive conception of language (Di Paolo, Cuffari, and De Jaegher, 2018), further work needs to be done to explain the role that narrativity plays in not only developing linguistic capacities, but also how narrativity and language influences more basic social cognitive capacities. In this sense, this work would include examining how social norms influence these developments, as the thesis has shown that normative structures not only facilitate the development of social cognitive capacities, but they also constitute social cognitive processes by constraining possibilities for behavior.

Finally, as the thesis raised a number of questions regarding the influence that culture, social position, and identity have on the development of one's social cognitive capacities, the third line of research to pursue in follow up work is examining these influences and their operation further. For this purpose, the implicit bias literature has already been exploring how these factors impact cognition in general and social cognition in particular (Fiske and

Taylor, 2013). These points require more development from an enactive perspective, expanding on the work done by Krueger and Maiese (2019), and De Jaegher (2013a; 2013b). In particular, I think there is a need to determine the effects that one's gender, race, sexuality, have on both the way in which one's social cognitive capacities develop, and are expressed, in interactions with others who might differ from oneself in these kinds of ways. Engaging with the implicit bias literature, and developing an enactive account of implicit bias, is not only important for addressing these questions, but it would also provide an alternative to recent mindreading accounts (Spaulding, 2018) of these issues.

This thesis has demonstrated that not only is enactivism a plausible alternative to the mindreading framework, but that enactivists can offer particularly well suited tools to address some of key issues on which the most recent debates within the social cognition literature turn. While there is still more work to be done in addressing other foundational and upcoming areas of debate, I have outline some of the possible ways to address these issues in future research.

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Review article

Enactive social cognition: Diachronic constitution & coupled anticipation

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A B S T R A C T

This paper targets the constitutive basis of social cognition. It begins by describing the traditional and still dominant cognitivist view. Cognitivism assumes internalism about the realisers of social cognition; thus, the embodied and embedded elements of intersubjective engagement are ruled out from playing anything but a basic causal role in an account of social cognition. It then goes on to advance and clarify an alternative to the cognitivist view; namely, an enactive account of social cognition. It does so first by articulating a diachronic constitutive account for how embodied engagement can play a constitutive role in social cognition. It then proceeds to consider an objection; the causal-constitutive fallacy (Adams & Aizawa, 2001, 2008; Block, 2005) against enactive social cognition. The paper proceeds to deflate this objection by establishing that the distinction between constitution and causation is not co-extensive with the distinction between internal constitutive elements and external causal elements. It is then shown that there is a different reason for thinking that an enactive account of social cognition is problematic. We call this objection the 'poverty of the interactional stimulus argument'. This objection turns on the role and characteristics of anticipation in enactive social cognition. It argues that anticipatory processes are mediated by an internally realised model or tacit theory (Carruthers, 2015; Seth, 2015). The final part of this paper dissolves this objection by arguing that it is possible to cast anticipatory processes as orchestrated as well as maintained by sensorimotor couplings between individuals in face-to-face interaction.

1. Introduction

There is still substantial dispute about the boundaries of social cognition, and what determines drawing the boundaries in one way as opposed to a different way. Is social cognition wholly and exhaustively constituted by elements in the brain or is it, rather, constituted in ongoing dynamic and interactive engagement between agents?

Social cognition has often been, and still is, presented as the inevitable result of the following key cognitivist assumptions: (i) *realiser* internalism, which states that cognition, and by extension social cognition, is realised by processes in the head of individuals; and (ii) *methodological* internalism, which states that the proper unit of social cognitive analysis should be the individual agent (Carruthers, 2015; Herschbach, 2012; Schönherr & Westra, 2017). The second assumption is a commitment to the idea that perception even if embedded in and scaffolded by sociocultural practices needs to be informed by conceptual knowledge (Carruthers, 2015; Schönherr & Westra, 2017; Schönherr, 2016). What fuels this assumption is the observation that there is no one-to-one mapping between mental states and behavior for "actions and facial expressions that manifest any given mental state are always

context-sensitive, and vary depending on the agent's other mental states and circumstances" (Carruthers, 2015, p. 499). Cognitivism thus posits the existence of an inner model or tacit theory, comprised of rules and representations, to explain the nature of social cognition.[1]

In this paper, we aim to both clarify and further develop an *enactivist* alternative to cognitivist social cognition. Enactivism, especially in its radical formulation (Hutto & Myin, 2013), casts the vast majority of cognitive activity as constituted in embodied and situated activity. Applying the enactivist framework to social cognition thus frontloads the central importance of embodied and social interaction in explaining the vast sea of social cognition.[2]

Defenders of cognitivist social cognition can, and do, acknowledge that embodied activity and social interaction plays a role in social cognition. Thus, simply touching on interaction as contributing to social cognition is uncontroversial.[3] However, advocates of enactivism claim that those in the grip of cognitivism only pay lip service to interaction in social cognition. In this paper we shall defend the enactive view that social cognition is constituted in interaction, thus alleviating the need, always and necessarily, to appeal to social cognition as mediated and grounded in the dynamics of internal, brain-based models.

We start by articulating the enactivist position that interpersonal interaction is constitutive of social cognition. We do this by offering a diachronic characterisation of the notion of constitution as it underlies enactivist views of social cognition (Kirchhoff, 2015; cf. Gallagher, 2018). Crucially, we show that: (i) both the explanandum and explanans of social cognition are processes, and thus ineliminably temporal; (ii) the relation between microscale (local) and macroscale (global) processes cannot hold wholly and exclusively at a synchronic instant *t*; (iii) the local and global processes stand in a relation of circular causation, as per the slaving principle in physics; and (iv) that social cognition is a novel, macroscale process that cannot be reductively explained by reference to processes residing and operating at the microscale *simpliciter*. This lends further support to enactivist proposals about the diachronic nature of social cognition (De Jaegher, Di Paolo, & Gallagher, 2010; Froese & Gallagher, 2012; Gallagher, 2018).

We then turn to consider an objection to our account of diachronic constitution; namely, the causal-constitutive fallacy (Adams & Aizawa, 2001, 2006, 2008; Aizawa, 2010; Block, 2005; Carruthers, 2015; Herschbach, 2012). The fallacy states that any claim about the extended nature of cognition that starts from observations about causal coupling unjustifiably infers facts about constitution from facts about causation. Hence, our diachronic account of constitution allegedly falls prey to this kind of worry. Following Hurley (2010) we show that this objection can be questioned, for it helps itself to the question-begging assumption that the distinction between constitution and causation is co-extensive with a distinction between internal constitutive elements and external causal elements. We argue, with Hurley, that without further evidence the causal-constitutive fallacy is itself a fallacy (for additional discussion, see also Abramova & Slors, 2018; Kirchhoff, 2015, 2017).

Even if we can diffuse the causal-constitutive fallacy, there is a different reason for being skeptical about enactive social cognition. We call this the 'poverty of the interactional stimulus' argument (Carruthers, 2015). It turns on the role and characteristics of anticipation in social cognition. It can be put as follows: there is a substantial problem with the claim that social cognition is constituted in interaction, for moment-by-moment interactional stimuli are too informationally impoverished to allow any individual to make sense of the richness and variety of behaviors that another agent might perform at any given moment. It is not possible to anticipate why some agent does this or that without presupposing that agents possess some kind of tacit theory of social cognition. Thus, Carruthers (2015, p. 499) claims that "enactivism cannot obviate the need for tacit theory" in its explanation of social cognition. Our response to this objection builds on the distinction between anticipation and situated interaction. The poverty of the interactional stimulus argument turns on the assumption that knowledge of social cognition underlies and therefore enables the ability to engage in multi-agent interaction. We flip this picture on its head by showing that anticipatory processes can, when in the right kind of circumstances, be partially constituted by online interaction between agents. This allows us to purge the enactivist appeal to counterfactual anticipation of sensorimotor dependencies from any unnecessary association with cognitivism (i.e., the appeal to tacit theory and representation as the basis of social cognition), on the one hand, and internalism, on the other. We argue

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[1] We do not consider simulation theory in this paper, but focus our attention on the dominant framework of theory theory. It is worth noting however that even simulationist accounts of social cognition such as Gallese (2014) embodied simulation account is open to the same theory theory objections considered here because these accounts could be argued to only get a grip on social cognition in virtue of being informed by a tacit theory.

[2] The enactive framework we propose does not rule out that some non-interactive, offline forms of social cognition might involve neurally realised representations or conceptual knowledge. For example, when thinking about having a difficult conversation with a partner one might rehearse the beginning of the conversation in one's head to anticipate the possible reactions of one's partner, which might involve representations and conceptual knowledge. Moreover, we see no reason to deny that social cognition is multi-dimensional and can be cast on a continuum. For instance, we will argue that infant-caretaker dyads illustrate cases of extended emotion regulation. This does not hold in all cases of social cognition. For example, one might only be able to manifest certain states of euphoria when participating in certain kinds of crowd behavior - this would be an example of Wilson (2004) social manifestation thesis. Yet granting the latter does not rule out cases such as the former.

[3] Overgaard and Michael (2015) raise a two-horned dilemma for enactive social cognition on this precise point. Either "social cognition, quite generally, is wholly a matter of processes outside the individual" (2015, p. 175). Or, social cognition must not be reduced solely to what is going on inside an individual as action and interaction play important, even if only, causal roles. This induced dilemma leads Overgaard and Michael to conclude that the enactive position is either implausible (first horn) or trivial (second horn). Enactivists however accept that internal brain processes play a constitutive role in facilitating social cognition. So the first horn is not a plausible argument against enactive social cognition. Yet enactivists also go further by embedding neural dynamics in an extended and constitutive nexus comprising embodied and situated dynamics in accounting for social cognition. So the second horn is not plausible, if cast as an argument against enactive social cognition. Enactive social cognition lies between these strong and weak versions that Overgaard and Michael (2015) attribute to it.

that the enactive appeal to anticipatory processes that target sensorimotor dependencies may, in the right circumstances, be constituted in the dynamic coupling between individuals in situated action. We conclude that even if social cognition rests on agentive abilities to anticipate counterfactual relations between perception and action (cf. Di Paolo, Buhrmann, & Barandiaran, 2017; Noë, 2004, 2009; Seth, 2015), these abilities are grounded in situated, ongoing engagement with other agents, over multiple spatial and temporal scales.[4]

2. Enactive social cognition

In this section our agenda is to establish the constitutive claim of enactive social cognition. We start, Section 2.1, with a neutral description of a paradigmatic example of face-to-face social cognition; namely, emotion regulation in infant/caretaker dyads. We then turn to address, Section 2.2, the enactive claim that the interactions themselves are at least partly constitutive of social cognition. We show that to make sense of this enactive claim one must turn away from the standard synchronic conception of constitution and adopt a notion of constitution that is dynamic and diachronic. The state of the art in enactive social cognition however bifurcates when addressing how best to understand the notion of diachronic constitution. Some argue that this is best explained through the lens of the new mechanist framework (Abramova & Slors, 2018; Gallagher, 2018). Others pursue an explanation in non-mechanistic terms, cast via the framework of dynamical systems theory (De Jaegher, 2018; Di Paolo & De Jaegher, 2017). We propose to chart a course between the options of new mechanism, on the one hand, and non-mechanism, on the other. Rather than defending one or the other, our articulation of diachronic constitution is applicable to both friend and foe of the mechanistic framework.[5]

2.1. Case study: Infant-caretaker interaction

We take it to be nearly if not entirely uncontroversial to say that the basic form of human social cognition takes place in face-to-face interaction with others (Krueger, 2010). One of the earliest examples of such interaction is the infant/caretaker dyad, where body posture, expressive gesture, vocalisation, gaze following, and so on, all play a role in the ongoing and recurrent engagement between infant and caretaker. The bedrock for this kind of face-to-face interaction can even be traced to shortly after birth, where infants have been shown to have a preference for engaging with faces of others, lending credibility to the view that the ability to engage in social forms of cognition is present very early in ontogeny.[6] In infant/caretaker dyads, the infant recognises when she is being addressed by the caretaker and responds accordingly to the caretaker's playful or more serious emotions, conditioned on the caretaker's facial and vocal postures and gestures. The core features of this example are the infant recognising, attending to, and responding to the caretaker's interaction with the infant, and the reciprocal behaviour of the caretaker recognising, attending to, and responding to the infant's behaviour and interaction with herself.[7]

The so-called 'still face' experiment brings to light the importance of ongoing and synchronous engagement, and what happens when the generalised synchrony of nonverbal behaviors of the infant and caretaker breaks down (Varga, 2015). In still face experiments, the infant is first engaged by her mother in a normal face-to-face interaction. This is followed by a period where the mother assumes a neutral facial expression, remaining motionless with a 'still face', which is then followed by the mother re-engaging the infant in normal face-to-face interaction (Gopnik & Meltzoff, 1996, p. 131). In these experiments, it has been shown that infants between 3 and 6 months become noticeably discouraged and upset during the second neutral face period, where synchronous, mutual interaction has broken down (Nagy, Pilling, Watt, Pal, & Orvos, 2017; Tronick, Als, Adamson, Wise, & Brazelton, 1978). During this period the "infants withdraw from the interaction, avert their gaze, display negative affect, become increasingly distressed, start crying, and smile less" than during the normal engaged behaviour prior (Nagy et al., 2017, p. 2). Additionally, there is a noticeable spill-over effect after the mother re-engages with the infant. In this re-engagement phase, the infant will continue to avert its gaze from the mother, displays distress and in general, it will not re-engage with its mother to the same level as before the still phase (Nagy et al., 2017, p. 2).

We intend this example to highlight the variables that one can observe or at least reasonably approximate given the occurrent behavior. Cognitivists and enactivist are divided in how to explain what does the constitutive, as opposed to merely causal, work in cases such as infant/caretaker engagements. Enactive accounts stress that social cognition is constituted in a non-trivial extended

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[4] This is not meant to remove the importance of internal processes. Our point is rather that anticipation can sometimes be realised or constituted by the dynamics of entire extended systems, including brains, eyes, hands, and so on, such that what enables anticipation in the first place has to do with situated and ongoing activity, given that it is the latter coupling agent to environment (or another agent) via perception and action (see also Gallagher, 2017).

[5] We take this to be a virtue of our proposal, for it avoids getting stuck in the long-grass having to defend either mechanistic or non-mechanistic schemes or some hybrid of both to articulate the constitution claim of enactive social cognition. Moreover, our proposal not only applies to enactive social cognition but more generally to any view of cognition that posits the relata of the constitution relation as being dynamic and processual. This is a real explanatory virtue of our constitutive proposal. Nevertheless, we cannot hope to address this in more detail in this paper - this will be a task for another occasion.

[6] How to understand and explain this preference for faces is still under debate - see Barrett (2011, p. 28–32) for discussion.

[7] We do not claim that this example speaks to sophisticated forms of social understanding. Still, we do not think this should count against it qualifying as a case of social cognition. Furthermore, even though the case we consider involves emotion regulation, this does speak against it being a form of social cognition, as there are strong reasons suggesting that affect and cognition are intimately linked and integrated (Colombetti & Krueger, 2015).

process such that social cognitive processes are instantiated not in a single individual but in the coupling between individuals (Varga, 2015).[8] Coupling relations like these are known as generalised synchrony - the process whereby multiple systems or agents are driven to assemble into a single coherent ensemble. The cognitivist framework that we target states that even if individual agents showcase dynamic coupling in face-to-face interaction, such coupling is meaningless unless supplemented by an implicit grip of a folk psychological theory (Carruthers, 2015). In the next section we will unpack how to think about the notion of constitution, when applied to enactive social cognition.

2.2. Enactive social cognition and diachronic constitution

Consider the following: you can leave your record player in the garage, return many years after and start using it again. But "if you accidentally leave your hamster in the loft, you will not have a hamster for very long." (Dupre & Nicholson, 2018, p. 15) This is obvious enough. Yet it speaks to a key theme of enactive social cognition; namely, action. Individual agents are always in need of acting in their environment to continue to exist. Such is their existential predicament. Action is at the root of what it is to be alive (Di Paolo, 2009; Friston, 2013). In social cognition, it is *inter*action that is at the foundation (De Jaegher et al., 2010).

The example above highlights a division between material objects (e.g., record players) and processes (e.g., remaining alive). Interaction is processual, through and through. Crucially, the distinction between material objects and processes maps onto two different conceptions of the constitution relation: synchronic and diachronic constitution. Only diachronic constitution is applicable to enactive social cognition (Gallagher, 2018; Kirchhoff, 2015).[9]

Synchronic constitution is the standard conception of how to think of constitution. In metaphysics, synchronic constitution is usually referred to as material constitution. However, the specification of constitution as a synchronic relation is also associated with related dependence relations such as realisation, composition and supervenience (Bennett, 2011). The synchronic constitution relation can be framed in terms of how to fill out the following schema: a piece of marble, *Piece*, constitutes a specific statue, *David*, at a synchronic instant *t* if and only if ____? (Wasserman, 2004, p. 694). It is widely agreed that a necessary condition for *Piece* to constitute *David* is that the constitution relation that holds between *Piece* and *David* involves two coincidence conditions. First, constitution requires spatial coincidence: *Piece* constitutes *David* at a synchronic instant *t* only if *Piece* and *David* have the same spatial location at t. Second, constitution requires material coincidence: *Piece* constitutes *David* at a synchronic instant *t* only if *Piece* and *David* share all the same material parts at t (Wilson, 2007, p. 5). Constitution is also understood to be asymmetric and a relation of relative fundamentality. Asymmetry means that if *Piece* constitutes *David*, then *David* does not, at the same time, constitute *Piece*. Relative fundamentality refers to the view that *Piece* is in some sense more ontologically significant than *David* - viz., the parts are at a more fundamental ontological level than the whole.

By comparison, consider the Mexican wave as an example of social engagement. A Mexican wave is a common phenomenon in sports and occurs when individuals stand up slightly after the person next to them does, and so on, resulting in what appears to be a wave running or rolling through the crowd. There are several things to note about this example, all of which speak to adopting a notion of constitution cast in diachronic terms (see Table 1 for an overview of the properties of synchronic and diachronic constitution).

First, a Mexican wave is an ontologically nested and multilayered process, as it is organised hierarchically into microscale (local) and macroscale (global) dynamics. Crucially, these differences in scale corresponds to a difference in the timescale over which local and global dynamics unfold - macroscale processes (i.e., the wave as it unfolds over space and time) exist over a longer timescale than microscale events or processes (i.e., individual agents standing up and down). Specifically, the Mexican wave loses and gains constituents at each moment of its existence and over its career. This observation sits in stark contrast with synchronic constitution, given the commitment of synchronic constitution to both spatial and material coincidence.

Second, in contrast to David/Piece, where the constitution relation holds between X and Y at an instant *t*, the relation between local and global dynamics in the Mexican wave cannot hold exclusively at such a snapshot moment in time. On the one hand, *coordination* is required for this phenomenon to arise. This means that there must be a systematic or non-accidental correlation in the activity of the individual constituents, which, over multiple temporal and spatial scales make up the Mexican wave. On the other hand, the relation between the microscale and macroscale dynamics is *time-dependent*, in the specific sense that the dynamics at *t1* are partly constitutive of the configuration of the wave at *t2*. So, temporally prior microscale dynamics feed into the configuration of the microscale and macroscale dynamics at temporally later stages.

Third, the formation of microscale dynamics, i.e., people standing up and sitting down, give rise to a macroscale and relatively stable pattern, which 'enslaves' the behaviour of individual agents by instantiating a normative standard for behaviour. On the one

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[8] We're working with the notion of extended in the *active externalism* sense of Clark and Chalmers (1998/2010), as opposed to the passive externalism of Putnam (1975) and Burge (1979). As in the classic Otto example by Clark and Chalmers (1998/2010), what is claimed to be extended is the cognitive process, not the subjects. In the Otto example, it is his process of remembering that is extended through the use of the notebook, not Otto himself nor his notebook. If the notebook is removed, this would cause a corresponding drop in Otto's behavioural competence in the same way that removing certain internal parts of the brain would (Clark & Chalmers, 1998/2010, p. 29). Similarly, in the infant/caretaker dyad it is the infant and the caretaker's social cognitive processes that are claimed to be extended, not the subjects themselves. See also Kirchhoff (2015) for a similar example of transactive memory where the process of remembering is extended between two agents working together to recall a specific experience.

[9] We take our conception of diachronic constitution to be a species of causation, i.e., constitutive causation, where constitutive causation is unidirectional. We capture this unidirectional feature in the terminology of continuous reciprocal causation. For further details on this issue, see Kirchhoff (2017).

Table 1
Properties of synchronic and diachronic constitution.

Michelangelo's David	Mexican Wave
- Synchronicity	- Diachronicity
- Asymmetry	- Co-constitutive
- Non-causal	- Reciprocal causation
- Object-based	- Process-based

hand, this highlights that *engagement* is a necessary component in the constitution of the Mexican wave. Following De Jaegher et al. (2010), we take engagement to specify a specific social interaction starting to acquire a momentum of its own, as the ongoing roll through the crowd sweeps up others as it moves along. So the Mexican wave is a case of complex social engagement that involves a raft of different participants, imposing temporal demands on one another. On the other hand, once established, the claim that the wave 'sweeps up others as it moves along' highlights that the activity of standing up and sitting down at the local scale is driven and shaped by the Mexican wave in virtue of it being a shared practice. This means that the cultural practice of engaging in a Mexican wave, at the global scale, combined with the dynamics of the individuals at the microscale "can be seen as elements of a single adaptive dynamical system" (Hutchins, 2011, p. 440).[10] This allows us to cast the relation between local and global dynamics in terms of *co-constitution* - i.e., local and global dynamics jointly constitute one another. The notion of co-constitution is associated with the concept of reciprocal causation - a concept that lies at the heart of theorems in the physical sciences such as the slaving principle in physics (Haken, 1983).

We now apply the constitutive properties of the Mexican wave to the infant/caretaker dyad, and show that the properties of the former map onto the properties of the latter. First, infant/caretaker interactions are inherently *diachronic*. Generally speaking, when two or more people interact, they tend to, on average and over time, modify their individual behaviour to those of others (Bernieri & Rosenthal, 1991). This not only impacts on social cognition but also facilitates social coordination (Barsalou, Simmons, Barbey, & Wilson, 2003). This ongoing attempt to modify or align behaviour is known as synchrony. Technically, synchrony is known as generalised synchrony, and refers to the matching of rhythmic behavior in chaotic dynamics, commonly in skew-product (i.e., master–slave) systems.

In the case of infant/caretaker dyads, generalised synchrony is applied to reciprocally coupled dynamical systems. Generalised synchrony has been extensively documented, most famously by Huygens (1673) and his work on pendulum clocks - matching their rhythms via the motions of the beam from which they were suspended (Friston & Frith, 2015). In infant/caretaker dyads, synchrony should not be associated with the synchronisation of two pendulums, as synchronous behaviour in the infant/caretaker case involves much more than mere 'rhythmic copying'. As Varga explains: "Synchrony, rather, refers to the co-creation of patterns that involve not mere copying, but also the temporally and dynamically variable completion of each other's vocalizations and gestures" (2015, p. 6). In this sense, the synchronous activity of non-verbal behaviors of the infant and the caretaker involves a degree of temporal co-ordination. It is for this reason that Varga (2015) says that the emotion regulation in infant/caretaker dyads is not an ability of a single individual but a socially extended process comprising both infant and caretaker. Against this claim, one might worry that reciprocal causation need not always imply co-constitution. For instance, you might think that the movements of two individuals are tightly or reciprocally coupled during dancing, and yet still hold that the individuals in question remain ontologically distinct. We would not want to say that the ontology of the individuals is in question; rather, the point is that the activity of the two agents co-constitute one another in the sense of reciprocally causing the ongoing and temporally extended act of dancing. The same point, we submit, holds in the infant/caretaker example.[11]

Second, emotion regulation in infant-caretaker dyads exhibits the hallmark of jointly coupled dynamical systems; namely, self-organisation. This means that dyadic emotion regulation self-assembles not from a predetermined intention but spontaneously. Crucially, self-organised ensemble behaviour can be shown to have top-down effects on the individual constituents of the joint system. This follows from the slaving principle, which we described above. In this sense the macroscale process constrains - also known as enslaves - the activity of behaviour at the microscale. At the same time, of course, microscale behaviour generates the macroscale process of emotion regulation. The influence between these different scales of dynamics is mutual - there is not such a

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[10] One might wonder about the following: even if one were to grant that the macroscale process is extended over spatial and temporal scales, does it follow that the dynamics of the component parts are also extended? To properly address this question we distinguish between two senses of 'extended'. First, if 'extended' means extended over spatial and temporal scales, then we can answer the question affirmatively. For example, in the Mexican wave, even the activities of the individual parts unfold over temporal and spatial scales; yet the temporal scales over which the parts unfold are much faster than the temporal scales over which the whole unfolds. Second, if we take 'extended' to imply an extended social-cognitive process, then the Mexican wave is best understood as a social-cognitive extended process comprised by dynamics at the scale of the individual.

[11] A different worry might be the following: even if there is a tightly coupled system, it could quite easily be the case that there is an asymmetry in the level of understanding relative to the comprising members of the system. No doubt there is something to this thought - as there might be some people that simply react to the Mexican wave as it is unfolding across the stadium, while other participants have a much greater grasp of the history and connotations of the event. The same can be said about the infant/caretaker dyad. Even so, we do not think this is a sufficient condition for rejecting our claim, as we are not saying that extended social cognitive processes can be extended if and only if there is symmetry in the level of understanding between the participants. In the infant/caretaker case we are rather focusing on the orchestrated and ongoing dynamics of emotion regulation.

Table 2
Properties of synchronic and diachronic constitution, extended.

Michelangelo's David	Mexican Wave	Infant-caretaker dyad
- Synchronicity	- Diachronicity	- Diachronicity
- Asymmetry	- Co-constitutive	- Co-constitutive
- Non-causal	- Reciprocal causation	- Reciprocal causation
- Object-based	- Process-based	- Process-based

thing as a privileged - or relatively fundamental - scale of dynamics. This point is nicely expressed by Thompson, as he says: "At this dynamic [scale], the distinction between pre-existing parts and supervening whole has no clear application. One might as well say that the components … emerge from the whole as much as the whole … emerges from the components" (2007, p. 423). Hence, on the enactive account of social cognition, it makes no sense to privilege the parts (i.e., microscale processes) over the whole (i.e., ensemble behavior). On this view, parts and whole co-constitute each other (see Table 2 for an overview of the properties of synchronic and diachronic constitution across Michelangelo's David, Mexican Wave and Infant-caretaker Dyad).[12]

This concludes our conceptualisation of diachronic constitution in the context of social cognition. To paraphrase Van Gelder and Port (1995), "imposing the [properties of synchronic constitution] onto the [case of dyadic emotion regulation] is like wearing shoes on your hands. You can do it but gloves fit a whole lot better." (1995, p. 2)

3. The causal-constitutive fallacy (fallacy)

One immediate and difficult question that arises in response to the diachronic constitution claim concerns the widely acknowledged view that facts about causation do not entail any facts about constitution, given that these relations of dependence are considered to be metaphysically distinct (Bennett, 2011). For instance, Carruthers (2015), following Block (2005) review of Noë (2004) enactivist account of perception, argues that enactivist explanations of social cognition "persistently conflate cause and constitution", and that at best enactive explanations establish that social "perceptual contents both give rise to, and are influenced by, sensorimotor knowledge" (Carruthers, 2015, p. 499). For this reason, Carruthers maintains that enactive explanations do not "establish that [perceptual contents] are constituted by such [sensorimotor] knowledge" (p. 499). While Block and Carruthers specifically target enactivist claims regarding sensorimotor dependencies, the objection is a version of the coupling-constitutive fallacy (CC-fallacy) (Adams & Aizawa, 2001, 2006, 2008). We consider the CC-fallacy, for if it holds the enactive framework will not get off the ground.

Targeting Noë (2004) sensorimotor theory of perception, Block (2005) argues that Noë only shows "sensorimotor contingencies have an *effect* on experience, not that experience is even partially *constituted* by - or supervenes, constitutively on - bodily activity." (2005, pp. 4–5). Block's objection comes from what he describes as the orthodox view that presents the issue of the constitutive supervenience base for perception as what is minimally "a metaphysically necessary part of a metaphysically sufficient condition of perceptual experience" (2005, p. 5). Thus, according to the orthodox view, in order to determine what factors play a constitutive role in perceptual experience, we should determine what factors satisfy a minimal metaphysical sufficient condition for perceptual experience to occur.

In order to do this, Block claims that one needs to determine "the minimal supervenience base for an experience that occurs at time *t*" as it will be "an instantiation of a physical property at *t*—according to the orthodox view" (2005, p. 6). By taking this synchronic approach to analysing the metaphysics of perception, Block argues that nothing outside of the brain is part of the minimal supervenience base for perceptual experience. This means that according to the orthodox view, only internal neural brain processes can satisfy the constitutive condition for perceptual experience. From this, Block (2005) emphatically concludes:

> there is often a process of perception that *involves* bodily activity—one moves closer to get a better look—but that should not be conflated with the very different idea that perceiving *is* an activity or, worse, that perceptual experience is an activity. And even if perceptual experience *depends* causally or counterfactually on movement or another form of activity, it does not follow that perceptual experience *constitutively* involves movement (2005 p. 6).

The orthodox view arrives at this conclusion because all that matters to determine the content of the perceptual experience at time *t* is the brain-bound neurological processes at time *t*. Hence, Block claims that even if we hold environmental variables as fixed, "only the features of the brain *now* are needed to determine the phenomenal character of experience *now*" (2005, p. 6). Thus, Block argues that Noë's claim that sensorimotor dependencies, which are the embodied and embedded dynamical relationships between the

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[12] One worry might be that it is unclear how to settle the issue of what comprises the constitutive relation. In the context of this paper, especially the discussion over the extent of minds, it is not uncommon to invoke conditions such as non-derived content (Adams & Aizawa, 2001) or functional profile (Rupert, 2009). There is however well-known problems with both conditions. For example, there is still no naturalised account of non-derived content, making it close to or identical with mere philosophical intuition. Although we do not explicitly address this issue here, our own bet on how to determine what makes up the constitutive relation is by appeal to either interventionism (Kirchhoff & Meyer, 2017; Meyer, 2018) or mutual manipulation (Kaplan, 2012; Kirchhoff, 2017). The benefit of going down this manipulation route is that it does not rest on specific philosophical intuitions but on scientific practice.

organism and its environment, constitute perceptual experience is fallacious, as the claim conflates causation and constitution.

Ascribing to the same orthodox view, Adams and Aizawa (2001, 2008) argue that causation and constitution are metaphysically distinct because the relation between cause and effect is temporal - causes precede their effects - whereas the constitution relation between parts and whole is cast as atemporal. Following on this, their version of the CC-fallacy argues that mere causal coupling of some internal process with a broader environment does not necessarily extend that process into the broader environment and conflates causation with constitution (Adams & Aizawa, 2001, p. 56). The claim is: "a process P may actively interact with its environment, but this does not mean that P extends into its environment" (2001, p. 56). They argue that we cannot simply assume that causally coupling a process X to a cognitive process Y will be sufficient to make X a constitutive component of the Y cognitive process (2001, p. 93).

Adams and Aizawa anticipate an appeal to notions such as generalised synchrony and the dynamics of coupling or circular causation that we have presented. In order to show that the fallacy still applies to such a move, they (2008) examine the classic coupled pendulums example. They argue that even in cases of generalized synchrony, "the motions of the first pendulum are still motions of the first pendulum. The motions do not extend form the first pendulum into either the spring or the second pendulum" (p. 109). Just because the two pendulums are reciprocally coupled, they argue that this does not give us reason "to think that there is no such thing as the motions of the first pendulum" (109). Their argument is that just because the first pendulum is coupled to the second and its behaviour is modified by the second pendulum's behaviour, this does not demonstrate that the motion of the first pendulum extends into the spring and into the second pendulum. Thus, Adams and Aizawa ask why we should then think that a comparable modification of a cognitive process by being coupled to another external process should convince us that the external coupled process constitutes the cognitive process (p. 110). For this reason, the fallacy allegedly still applies to our diachronic account of constitution.

There is good reason to resist the feasibility of the CC-fallacy; namely Hurley's (2010) causal-constitutive error error argument. The argument claims that "explanations tend to be treated as causal or constitutive with no independent justification, in accord with prior assumptions or intuitions about boundaries, which often themselves have no clear basis and do not illuminate the distinction" (2010, p. 106). For example, Block's objection to Noë is that only brain-bound processes will fulfill the minimal supervenience base. But why think so? Adams and Aizawa state that only content instantiated in the head of individuals can serve as a mark of the mental, for only such content is in need of no further grounding in, say, social norms and cultural practices. There is however no agreed upon theory of non-derived content. So this is at best a bet on a future theory of non-derived content or a non-sequitur. Indeed, as Hurley (2010) observes, whether one determines enactivist constitutive claims to be fallacious or not, is going to turn "on some theoretical account of content, or phenomenal quality, or their enabling processes–but this is just what is at issue between internalism and externalism" (Hurley, 2010, p. 106).[13]

4. Beyond the poverty of the interactional stimulus argument

No doubt there is something correct about Hurley (2010) observation that the distinction between constitution and causation need not be co-extensive with any internal-constitutive and external-causal divide. Even so, it is still possible to argue that deflating the CC-fallacy is not a sufficient condition for thinking that enactive social cognition is correct. In this final section we consider a reason for thinking that enactive social cognition still comes up short. We do this by focusing on the role and characteristics of anticipation in cognition in general and in social cognition specifically.

Stepp and Turvey (2010) point out that anticipation is an essential component to cognition in general - and by extension, in accounts of social cognition (see also Bickhard, 2016). This is the case both for cognitivist and non-cognitivist views of cognition, as anticipation is cast as constitutively involved in enabling an agent to respond flexibly to its dynamic and non-linear environment. Thus, answering the question of how to understand anticipatory behaviour will impact non-trivially on the discussion between cognitivism and enactivism.

The ability to anticipate the changing world seems to require rather sophisticated cognitive capacities, such as the ability to apply knowledge (and/or theorising) to sensory observations in order to arrive at a situationally appropriate response. The reason for this is that there is no one-to-one mapping between an agent's mental states and her observable behaviour because the same behavior might be manifested by different mental states (Carruthers, 2015). Once one acknowledges that such knowledge is both neurally instantiated and what grounds flexible patterns of behaviour it is but a short step to acknowledging cognitivism. According to Stepp and Turvey (2010), for "those inclined to the traditional view of mediation of behavior by representations, anticipation would seem to be an especially 'representation- hungry' problem … that is, one that cannot possibly be manifest without special internal states." (2010, p. 148). On this cognitivist view, anticipation involves a system encoding or instantiating a model of itself and its local environment, enabling it to predict the causes of its sensory observations - at least approximately.

The cognitive neuroscientist Anil Seth frames anticipation along such cognitivist lines in understanding the architecture of

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[13] As the determining factors regarding constitutive claims is just the issue at debate between cognitivists and enactivists, Hurley argues that the CC-fallacy is question begging, as it turns on the assumption, without any independent argument or empirical support, that the distinction between constitution and causation is such that only constitutive factors are internal to an organism and causal factors are external to organism (2010, p. 106). In order to avoid committing this error, Hurley recommends that we do not operate with prior assumptions regarding the causal-constitutive boundary (2010, p. 106). Hence, without an additional argument or further evidence to secure that the distinction between constitution and causation maps onto internal states being constitutive, while external states merely play a causal role in the instantiation of some specific phenomenon, the coupling-constitution fallacy cannot establish its conclusion without begging the question in its favor.

cognition in general. He argues that enactive accounts of anticipation should be understood in terms of internal (i.e., brain-bound) hierarchical models of sensorimotor dependencies - viz., "counterfactual knowledge of relations between particular actions and the resulting sensations" (2015, p. 16). In this fashion, face-to-face social cognition would be a matter of each individual trying to predict or anticipate the relevant mental states, including emotional states, of the other conditioned on a model. Hence, all the 'real' cognitive work is realised in a brain-bound and neurally instantiated model of the other, where 'the other' takes the form of the environment or external states - the target of the predictions.

Carruthers' account of social cognition, framed in terms of Theory Theory, similarly holds that anticipatory processes should be understood as constitutively brain-bound. He argues that "even enactivism cannot obviate the need for tacit theory" (2015, p. 499). This is the 'poverty of the interactional stimulus' argument against enactive social cognition. Carruthers claims that even if we grant that sensorimotor knowledge facilitates social cognition in interactions, as enactive accounts claim, we would still need to explain how any particular sensorimotor expectancy, or anticipation, can be generated by just the bare behavior of the other (p. 499). Pointing to Gallagher (2001) claim that emotions and goals are directly expressed in bodily actions, and so can be directly perceived without tacit theory, Carruthers (2015, p. 499) argues that Gallagher's claim is implausible.

Enactivists (Froese & Gallagher, 2012; Fuchs & De Jaegher, 2009) typically claim that a core assumption of cognitivism is the unobservability of mental states. But this need not follow. Indeed, Carruthers (2015, p. 499) may be correct to point out that this assumption is unnecessary. Rather, cognitivist explanations may simply assume that "mental properties cannot be simply seen … independently of concepts and acquired knowledge of the world" (p. 499). Hence, there is for Carruthers a need for conceptual knowledge to inform bare perception of behaviour.

Carruthers argues that since "there are no one-to-one correspondences between mental states and behavior", enactive accounts "need to explain why someone will, in one context, anticipate one action, yet in a subtly different context, or with subtle differences in the other's behavior, will anticipate something else" (2015, pp. 499–500). Carruthers' argument is that enactive accounts need to explain contextually sensitive behavioural tendencies. However, according to Carruthers, explaining contextually sensitive behavioural tendencies necessarily requires a tacit theory of such contextually sensitive responses. Therefore, enactive explanations cannot avoid having to appeal to an underlying tacit theory in order to account for anticipatory processes in social cognition. Formulated this way, the poverty of the interactional stimulus problem allegedly shows that without appealing to tacit theory in their explanation of social cognition, proponents of enactive social cognition cannot give a satisfactory explanation.

It is however possible to resist these cognitivist depictions of anticipation and thereby defuse the poverty of the interactional stimulus objection. For it is possible to provide an explanation of anticipation in social cognition without appeal to an underlying tacit theory or knowledge-based model. By embracing a radical enactive alternative that casts perception as an exploratory activity, which extends over time, "there is no need to introduce 'knowledge' as a kind of bond that holds together various percepts in order to *explain*" anticipation of contextually sensitive behavioural tendencies (Hutto, 2005, pp. 399–400). By casting perception this way, the simplified claim is that the sensorimotor dependencies of the various sensory modalities can account for the anticipation of the subtle differences in the other's behaviour in subtly different contexts. Sensorimotor dependencies, in conjunction with the particular features of the other as encountered in a situated physical and social context, account for both the perception and anticipation of the qualitative differences of the other's behaviour tendencies (Hutto, 2005, p. 400).

Enactive accounts that reject an appeal to behaviour mediated by representational models conceive of anticipation as instantiated in ongoing sensorimotor couplings between an agent and its milieu, which includes, from time to time, engagement with other agents (De Jaegher et al., 2010). To see this, consider that any attempt to lesion or destroy the coupling relation effectively disrupts or terminates the anticipatory process. This much is evident from the still-face experiment discussed above. In the initial case, the infant and caretaker mutually create a coordinated state, in which their affective states are shared directly in their embodied and embedded behaviour (Fuchs & De Jaegher, 2009, p. 479). This is what we referred to as generalised synchrony. General synchrony allows us to associate the process of emotion regulation as a process of the ensemble, inducing an overall state of stability and coordination. The still-face intervention, however, breaks the coordinated macroscale scale process, and what we see is a reduction in synchrony and thus of the ability to anticipate future states conditioned on action.

There is an important temporal aspect to anticipation that is analogous to the processual temporal dynamics we discussed in the Mexican wave example, and one we can exemplify by returning to the still-face experiment. The ongoing and synchronous engagement between the infant and caretaker constitutes and explains what happens when the generalised synchrony of nonverbal behaviours of the infant and caretaker break down (Varga, 2015). The spillover effect of the infant continuing to avert its gaze and display distress is a product of the infant now anticipating another future breakdown in the engagement.

Close inspection reveals that the infant and caretaker are unlikely to exhibit a special form of synchrony; namely, identical synchrony, where there is a one-to-one mapping between the states of the two agents - a case of what we might call 'perfect anticipation'. The infant and caretaker dyad is not always in perfect synchronisation, as they typically only have matching affects 30% of the time (Fuchs & De Jaegher, 2009, p. 479). This speaks to the pair having to continuously negotiate and renegotiate their interaction with one another. Indeed, it is the temporally unfolding process of maintaining affective coordination through synchronisation, desynchronisation and resynchronisation that drives the interaction forward. Hence, on this enactive construal of anticipation, it is through the embodied and dynamic process of mutual affective resonance that the infant and caretaker are able to get a dynamic grip on the affectivity of the other, and anticipate and respond accordingly to the perceived affectivity of the other, in the process of the interaction (Fuchs & De Jaegher, 2009, p. 479).

Emotion regulation in the infant/caretaker dyad is an example of a situated action. There is more to say about what orchestrates and constrains anticipation than just sensorimotor coupling - there is also a sociocultural dimension to anticipation. To unpack this we follow Hutchins (2011) in thinking of situated actions as cultural practices. Cultural practices are "the things that people do in

interaction with one another" (p. 440). This means that the emotion regulation in the infant/caretaker dyad is itself a cultural practice. As Hutchins puts it: "Cultural practices include particular ways of seeing (or hearing, or feeling, or smelling, or tasting) the world. [They] are not cultural models traditionally construed as disembodied mental representations of knowledge. Rather, they are fully embodied skills. Cultural practices organize the action in situated action" (p. 441). The nice thing about considering anticipation in social cognition in relation to cultural practices is that it avoids biasing the notion of anticipation toward internal, brain-based models and foregrounds the idea that sensorimotor couplings are embedded within particular sociocultural setting, which constrains how individuals act and perceive their world.

This brings out a deep reason for why it is a mistake to think of anticipation in terms of strict cognitivism. The cognitivist grounds social cognition in anticipation and conceives of ongoing and recurrent interaction as merely causally influencing the brain-based anticipatory machinery. On our enactivist account however, anticipatory processes do not underlie the capacity for social cognition in interaction; instead, they are realised and grounded in recurrent interaction between individuals. In other words, anticipatory processes are constituted in the interactional dynamics between the interactors and their relationships to their shared world. The ability of the interactor to attend to, recognise and respond to the others' emotions and intentional behaviour rests on counterfactual relations between perception and action, but this ability is grounded in situated, ongoing engagement with other agents, over multiple spatial and temporal scales.

Another significant departure of our enactive view of social cognition to cognitivism is the following: the cognitivist focus on model mediated behaviour gives pride of place to dynamics at the microscale at any given moment in time. Our diachronic account of constitution however not only casts social cognitive processes extended temporal processes, it also implies that the temporally unfolding patterns of engagement over time is explanatorily prior to what is the case at any given moment in time. Hence, in the infant/caretaker dyad, mutual affective resonance is constituted by in a reciprocally coupled two-body system, which is informed by a history of engagement (see also Di Paolo et al., 2017; Fuchs & De Jaegher, 2009). One cannot therefore explain social cognitive activity without such an explanation presupposing a wholly dynamic and diachronic view of the metaphysics of social cognition.

5. Conclusion

In this paper, we focused on clarifying and extending an enactive alternative to the dominant cognitivist account of social cognition. We did this by first articulating and describing a diachronic notion constitution using the examples of the Mexican wave and infant/caretaker dyads. Our analysis of these examples showed that embodied engagement can play a constitutive, rather than just a causal, role in social cognition. This provides one substantial reason for considering enactive social cognition as a *bona fide* alternative and rival to the cognitivist framework.

We then considered two versions of the C-C fallacy (Adams & Aizawa, 2001, 2008; Block, 2005) that has been put forth against enactive accounts of cognition. We deflated this objection by establishing that the fallacy assumes problematically that the distinction between constitution and causation is co-extensive with casting internal elements as constitutive and external elements as causal. Following Hurley (2010) we argued that this assumption begs the question against exactly what is being debated between traditional cognitivism and enactivism. Thus, the CC fallacy fails to block our enactive diachronic constitution claims.

Having argued that embodied and embedded elements of intersubjective engagements can play a constitutive role in social cognition; we turned to address Carruthers (2015) poverty of the interactional stimulus objection. This objection argued that the anticipatory processes that facilitate social cognition in interactions need to be mediated by internally realized models, i.e., a tacit theory of mind. In the final part of the paper, we dissolved this objection in the context of the infant/caretaker dyad by arguing that it is possible and proper to cast anticipatory processes as orchestrated and maintained by the sensorimotor couplings between individuals in face-to-face interactions. This demonstrates that our enactive account of social cognition is an alternative, rival account to the dominant cognitivist approach to social cognition.

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8 Exploring Enactive Empathy

Actively Responding to and Understanding Others

Daniel D. Hutto and Alan Jurgens

'I'll teach you differences'.

—*King Lear*, Act I, Scene IV

Empathizing isn't easy. It is a hard-won achievement. Or is it? The answer depends, of course, on what we take empathy to be. As with so many important philosophical topics, there is no consensus on how to define or characterize empathy. This should come as no surprise since empathy is not a concept that has a long history; indeed, it is a rather recent term of theoretical art.[1]

The notion of empathy, of interest in philosophy and psychology, made its first appearance in these fields at the turn of the previous century. It was originally taken over from aesthetics by Lipps (1907), who sought to deploy it as a proposed answer to the question of how we know other minds. For, by Lipps's lights, our knowledge of others is *sui generis*—quite unlike other forms of knowing. Accordingly, the sort of knowledge of others that empathy provides can only be gained by connecting with others by special means.

Today, there are lively debates about whether there is any such thing as empathy as Lipps conceived of it. Perhaps, it is speculated, what Lipps thought of as empathy simply reduces to, or is exhausted by, some other social cognitive capacity, say, that of motor resonance, embodied mirroring, mindreading or some combination thereof.

Even for those who think empathy does exist in its own right—as *a* distinctive way of relating to and, broadly conceived, knowing others—there remain many open questions about whether, to what extent and in what ways empathy involves such things as sharing affects with others; emotionally and imaginatively engaging with others; and/or understanding others. On the assumption that empathy does not simply reduce to some other type or set of social cognitive capacities or processes, there are also open questions about how and where it comes into play in social cognition. Is empathy, for example, a form of, a foundation for or a product of understanding others—and, if so, what kind of understanding, if any, is it, does it rest upon or does it engender?

We assume that something answers to the name empathy, and that it is worthwhile to seek answers to the above questions. Yet, like many others, we do not seek to provide a definition of empathy. There are reasons to think that is a fool's errand.[2] Even so, building upon and clarifying the phenomenological investigations of Ratcliffe (2017) and Zahavi (2017), we give reasons for believing that empathy is, at its core, enactive— namely, it is a distinct kind of engaged, exploratory responsiveness to others and their situations. We defend the view that enactivism provides the right tools for understanding empathy in its various forms, and that it does a better job in this regard than its current rivals.

We do not think empathy can be captured by a general formula. Empathy comes in different forms; it isn't all of a piece. This paper casts light on that variety by focusing on the characteristic features of different forms of empathy, which we take to exist along a continuum. We initially show the special advantages of thinking of empathy as enactive. Then, we defend our account of empathy against arguments for thinking that its more sophisticated forms—those that involve understanding others—must incorporate the mental simulation of those other minds.

The action of the paper unfolds as follows: Section 1 makes a case for conceiving of empathy as enactive and exploratory, distinguishing between basic and more discursive varieties of empathy. Section 2 defends the idea that when we empathically understand others we do so by exploring their narratives, clarifying what this involves. Section 3 provides fresh arguments for thinking that there is no need to augment the type of narrativist account we advance in Section 2 by appeal to the idea that empathizing requires mental simulation of the other. In particular, we explain how to account for imaginative resistance that may occur during empathizing and also how to account for our foundational co-cognizing with others without leaning on the idea that we mentally simulate other minds.

1.   Varieties of Enactive Empathy

The literature abounds with arguments for thinking that empathy proper neither reduces to emotional contagion nor the mere sharing of experiences (Zahavi 2010; Jacob 2011; Gallagher 2012). Against this backdrop, more sophisticated mindreading accounts of empathy have been developed in an attempt to deliver the required goods. A prominent example is de Vignemont and Jacob's (2012) account of empathy, which designates a central role for mental simulation while also recognizing that empathy requires more than simulating—namely, that a caring condition needs to be met. Accordingly, these authors hold that, as a baseline, empathizing requires all of the standard simulationist machinery to be at work: that A and B should have a shared mental state; that A's state is caused, in the right way, by the mental state of B; and that A ascribes that mental state to B. In addition, they also hold that A cares about B. This later condition

is meant to satisfy the demand that A directs the appropriate kind of attention to B's mental state.

Serious doubts have been raised about whether any account of empathy should take the resources of simulation theory as a starting point. Drawing on insights from the phenomenological tradition, Ratcliffe (2017), for example, has argued that the mental simulation of another 'is . . . neither necessary nor sufficient for empathy' (Ratcliffe 2017, 290; see also Zahavi 2017, 34).[3]

Mental simulation is not necessary for empathizing because we can empathize with another without mentally simulating their mental states at all. Arguably, it is possible to empathize with another by recognizing and sensitively exploring the relevant differences between oneself and the other. If so, empathizing need not be based on first trying to occupy another's mindset and then making adjustments to achieve a more accurate replication of it—it is enough for empathy that one be willing to engage with and explore their situation without attempting to eradicate those differences. Empathizing with another can be a matter of second-personal engagement—the sort of engagement in which one is interactively moved by the other's expressed embodied responses and/or the details of their situation that are grasped by coming to understand their story. As Ratcliffe neatly puts the point, the gap between oneself and the other 'does not need to be bridged, by simulation or by anything else, for empathy to arise' (Ratcliffe 2017, 283). Thus, mental simulation is not necessarily required nor desired when empathizing.

Nor is mental simulation sufficient for empathy, on the assumption that empathy always requires openness to difference. Empathy requires more than understanding what it would be like for me to occupy your situation or, even, for me to understand what it is like for you to occupy your situation. Even allowing that such imaginative feats might be pulled off, just taking on the first-person perspective of another person is not enough for empathizing. Indeed, against this idea, empathy necessarily involves 'abstaining from projection, rather than projecting an adjusted simulation' (Ratcliffe 2017, 289). So conceived, what is essential to empathy 'is an attitude towards the other person's experience that involves receptiveness to potential difference' (Ratcliffe 2017, 289).

At root, Ratcliffe criticizes the idea that mental simulation of others is the right platform for thinking about empathy. If mental simulation is our foundational means for empathizing, then the core process is too quick and easy. Accordingly, empathy is depicted as a static, snapshot achievement. Conceiving of empathy, alternatively, as a kind of enactive engagement gains credence from Ratcliffe's recent analysis: it seeks to show that empathizing is an interactive, exploratory and 'temporally extended process' (Ratcliffe 2017, 279). Following Margulies (1989), Ratcliffe brings out the dynamical and reciprocating character of empathic engagements, showing it to be a process through which 'both parties shape and adjust

to each other's perspectives' (Ratcliffe 2017, 280). Focusing on empathy in clinical practice, he emphasizes its second-personal character by highlighting how such engagements are structured and unfold; thus, 'a client's appreciation of the therapist's attitude towards her regulates interaction' (Ratcliffe 2017, 279; see also Morag, this volume).

Seizing on Rogers's (1957) figurative talk of 'moving about in the client's world', Ratcliffe conceives of empathy as an 'exploratory process through which the other person's experience is progressively revealed to the thera-pist. There is also a degree of communication and cooperation: empathic understanding of A by B is related by B to A' (Ratcliffe 2017, 279).

By focusing on the exploratory character of second-personal engagements, Ratcliffe's analysis adds a crucial dimension that is missing from most accounts of empathy. Indeed, we think it highlights the basic contours of what empathizing involves. Nevertheless, he focuses on just one form that enactive empathizing might take. Thus, we should be careful not read all of the features of what goes on when empathizing in the clinic into every kind empathizing.[4]

Empathizing can take the form of unprincipled embodied engagements that do not involve understanding the other in any discursive way. In responding to one another in such cases, emotions may be shared and/or they may contrast. As Smith observes, 'We sympathize with people's plight and in doing so we are not required to share their feelings. When I observe someone's humiliation, it is pity I feel, not humiliation' (Smith 2002, 120). In a similar vein, your anger might fuel my anger or it might induce fear in me. Even in the wild, this sort of pattern is typical of the responses of many social animals.

Consider how we sometimes empathize in face-to-face encounters. These are situations which, arguably, require no speculation about the other's state of mind. In these encounters we simply perceive the other's attitude in his or her expressions; we 'see the other's elation or doubt, or surprise or attentiveness in his or her face, we can hear the other's trepida-tion, impatience or bewilderedness in her voice, feel the other's enthusi-asm in his handshake, grasp his mood in his posture' (Zahavi 2017, 40).

Ratcliffe (2017) complains that this sort of account, even if restricted to face-to-face encounters, makes empathy too perceptual or quasi-perceptual in nature. Presumably, the worry is that if empathizing is too perceptual in character it will be too static. Accordingly, to model empathizing on basic acts of perceiving might be thought to suffer the same problem as mental simulation accounts of empathy. But that bad consequence needn't follow, and it certainly does not if we call on an enactive account of per-ceiving, one that takes perceiving to be an extended process that integrally intertwines with embodied activity.

Basic cases of empathizing—which we might classify as primitive, full-bodied varieties of empathizing—lend themselves to a familiar phenomenological treatment. Accordingly, empathy is taken to be 'a form of

"expressive understanding" that requires bodily proximity, and which allows for a distinct experiential grasp of and access to the other's psychological life' (Zahavi 2017, 42). This depicts basic forms of empathizing as a kind of unprincipled embodied engagement with the other. Zahavi characterizes this basic kind of empathy in terms of an 'immediate and direct form of social understanding (involving sensitivity to the animacy, agency, and emotional expressivity of others)' (Zahavi 2017, 41). For him, this kind of other-related responding is the foundation for any subsequent capacity for predicting or explaining the mental life of others, say, in folk psychological terms that might develop down the line.

While there is much to admire in Zahavi's treatment of empathy—much that we endorse—there is a nagging question. For what exactly is the nature of this special 'social', 'expressive', 'experiential' empathetic *understanding* of which Zahavi (2017) speaks? What is its status? And is it supposed to be the basis for, constitutive of or a product of primitive empathizing?[5]

We certainly agree with Zahavi and Michael (2018) that basic cases of face-to-face empathizing are best characterized in second-personal and interactive terms and explained using 4E resources, drawing on insights from enactive, embodied, embedded and extended approaches to the mind. Nonetheless, we allow that there can be such engaged responsiveness to another that is neither based upon, involves nor yields understanding.

Why assume that any understanding, as such, is part and parcel of the most rudimentary forms of intersubjective interaction engagement? Defenders of such ideas stress that the understanding in question need not be high grade; rather, what we get in such cases 'is a *pragmatic, pre-conceptual, and pre-linguistic* form of understanding' (Rizzolatti and Sinigaglia 2006, xi, emphases added). Yet, stripped of all of these features, it remains unclear exactly how we should make sense of such putative forms of 'understanding'. The more cautious strategy we recommend is to reserve attributions of 'understanding' exclusively for properly discursive and, especially, narrative-driven forms of engagement with others.

2. Understanding Others Through Narrative Exploration

Empathizing, in its most basic variety, involves being emotionally and imaginatively engaged with the other and the particularities of their situation. However, in the foregoing section, we gave reasons for doubting that face-to-face forms of full-bodied, enactive empathy are based upon, in-and-of-themselves qualify as or necessarily produce an understanding of the other. According to our assessment, basic forms of enactive empathy need not involve understanding of the plight of others, as that is a feature of more sophisticated forms of empathizing.

Bearing this distinction in mind, we are faced with additional questions about the character of non-basic kinds of empathy and how we gain the kind of understanding of the other they require. For this task, it is useful to attend to the sophisticated, discursive forms of empathizing in clinical encounters that Ratcliffe (2017) focuses on. We contend that the clinical cases share something important with everyday kinds of non-basic, discursive cases of empathizing—namely, the kind of understanding involved, when it is high fidelity, depends on gaining sharply focused insights into the specifics of the situation and background of the other. This raises the question: how is it that we come by the fine and particular details needed to understand the other in such cases?

There is reason to think that the personal and particular framing knowledge we have of others is supplied through narratives, not theories (see Hutto 2004, 2007, 2008), for in this domain, having a general theory of human beings will not suffice, and may not be necessary (Hutto 2009). The relevant framing knowledge needed here requires understanding the particulars of the other's situation and how they see it, not generalities about how anyone might see it.

When it comes to understanding reasons for acting, Stueber (2012a) reminds us that we cannot rely on a general theory to get at what the other sees as important about the relevant details of the particular case. Whereas theories can enlighten by focusing on what is abstract and law-bound, narratives focus on particulars, casting specific happenings in a certain light to reveal their significance. A narrative understanding of people gives us a handle on the relevant details.

The locus classicus of this division is found in Bruner (1986, 1990), who highlights the ways in which narratives provide a special kind of understanding—one that is distinct from other, more general ways of understanding people and things. Illustrating the difference, Bruner says of these two styles of understanding, 'One leads to a search for universal truth conditions, the other for likely particular connections between two events—mortal grief, suicide, foul play' (Bruner 1986, 11–12).

An illuminating narrative identifies 'which events are significant and why' (Roth 1991, 178). It does so by selectively focusing on 'the elements that are relevant to our interests, and to the interests of our audience' (Goldie 2012, 16). Narrating involves situating events in a certain light against a larger frame and, usually, also characterizing them within a certain genre as opposed to subsuming them under general laws. Indeed, as Currie contends, this is why 'general theories are simply not narratives at all' (Currie 2010, 35).

In their most familiar form, narratives are detailed accounts of the events and doings that feature in the lives of specific people and how such happenings shape how they see things. These are 'rich, particularized, and unified histories of cycles of thoughts, actions and contingencies' (Currie 2010, 36). Typically, narratives do not just give an account of how a

unique series of happenings unfold, they also give insight into the various perspectives taken toward such happenings (László 2008, 3). Emphasizing this important feature of narratives, Goldie observes that:

> Narratives often provide explanations of why someone had a particular motive, or why someone has a particular character or personality trait, or why someone was drunk, depressed or angry. And the explanations we get are narrative-historical explanations, they locate the motive, the trait, the undue influence on thinking, within a wider nexus, in a way that enables us to understand more deeply why someone did the thing they did through appeal to aspects of their personal history or circumstances.
>
> (Goldie 2012, 20)

Narratives of the sort of which Goldie speaks—personal or folk psychological narratives—are thus the perfect tools for providing insight into the peculiarities of personal perspectives. It is precisely because narratives, unlike general theories, can provide a contextualized understanding of the other that they are ideally suited for supplying the kinds of insight about another's specific attitudes and outlook needed for non-basic empathizing.

Ratcliffe brings out the need for being receptive to, and gaining, a sophisticated, non-basic understanding of the other's particular psychology and situation vividly. He imagines a case of someone who tries to comfort a friend who has just lost her parents by saying, 'I know just how you feel; one of my parents died too'. It is easy to imagine, as Ratcliffe does in fleshing out the example, that, executed clumsily, 'the grieving person feels she has not been understood, that her experience has not been acknowledged at all' (Ratcliffe 2017, 288).

Ratcliffe's example underscores the need for a receptivity to the other that does not try to close the gap between the people involved in discursively driven episodes of empathizing. Hence, it is no surprise that he finds it plausible that in such cases we come to understand the other by engaging with their narratives. As he puts it, appreciating how the other sees things differently than we do involves, as Gallagher proposes, getting to 'know their stories' (Gallagher 2012, 370).

Divining another's reasons cannot be achieved in the same way that we come by knowledge of objects and their properties. When it comes to knowing, as opposed to guessing, what another is doing, or their reason for doing it, we simply cannot avoid consulting the other. Drawing on Cavellian insights about what separates knowledge of objects and knowledge of persons, Moran holds that it is always necessary for persons to have a 'say' in how we understand them:

> The tomato, the planet and the proton don't have a view on how they are described; there is no issue there for our best theories of these

things leaving out some aspect of their existence that matters terribly to them; and our explanations of their behaviour do not wait upon their acknowledgement that, 'Yes, this must be what I've been doing all along'.

<div align="right">(Moran 2011/2017, 134)</div>

Persons, unlike purely physical objects, 'have *some say* in the matter as to what shall count as being known and being understood' (Moran 2011/2017, 135, emphasis added). This is why deciding what a person is doing, and what their reasons for acting are, cannot be known or discovered from the 'outside'—by means of, say, impersonal theorizing. Hence, 'although hardly foolproof, by far the best and most reliable means of obtaining a true understanding of why another has acted is to get the relevant story directly from the horse's mouth' (Hutto 2007, 46). Yet to the extent that a person has a degree of privileged authority in saying what they are doing and why—'from the inside', so to speak—it is only because they have mastered a very special kind of public practice (see Waldow in this volume). For, plausibly, to be able to understand and give an account of what one is doing and why, this ability is dependent on having been initiated into and mastered a distinctive sort of narrative practice (Hutto 2008).

Crucially, having the capacity to give an account of what one is doing and why with some authority does not entail, and need not be explained by, being able to implicitly narrativize one's life or to experience it narratively (Hutto 2016). Such psychologizing explanations are unnecessary; as Moran, drawing an important lesson from Anscombe, emphasizes: 'He knows what he is doing, and knows this in virtue of doing it intentionally, and he could tell someone this if he were asked, but not because of any thoughts he is having at the time' (Moran 2015/2017, 309).[6]

The process of engaging with another's narrative account of their actions and reasons for them is a temporally extended and exploratory affair. Moreover, as Ratcliffe observes, just as in the clinic, such exploratory engagements typically involve a collaborative construction of someone's narrative. Indeed, such co-authoring work is often necessary if all involved are to gain 'a progressively more refined appreciation of how an experience is situated in a life' (Ratcliffe 2017, 291).

Pulling these ideas together, though the other must have a say in articulating what they are doing and why, it does not follow that the other has ultimate authority in such matters. Indeed, due to limitations of perspective, it is often the case that the other may often fail to be a trustworthy guide to what they are up to and why. Certainly, no one has a fully transparent understanding of their own actions and reasons. That is to say, that just like ourselves, the other may not always be best placed to tell their own story.

Most famously, this is the tragic situation of *Oedipus Rex*. Though the story of Oedipus is in one clear sense his story, he was not always in

a position to know all, or even its most important, details. And yet there is another clear sense in which Oedipus's 'story does not belong to him' (Moran 2015/2017, 314). He does not own or have authority over his story the way that he might own or have authority over a personal belonging or possession. To see this, it helps to be reminded that 'any person's story contains the stories of other people as well' (Moran 2015/2017, 314).

Reflection on our limited perspectives and how these account for much of the tragedy and comedy of our lives reminds us of the need to allow for a special kind of evaluative distance when thinking about what we do and why we do it. The revelations, connected with dramatic irony, always exist alongside our special capacity to give an insider take on our reasons and actions.

Once again, these observations provide a forceful reminder of why a person's story should not be confused with a special kind of personal experience, event, process or activity—the stories of our lives are not things or experiences which the person has access to, or otherwise lives out.[7]

3.   The Simulationist Strikes Back?

For all that we've said so far, a final word is in order about whether the type of narrativist account we advance can stand on its own two feet. Specifically, Stueber (2012a, 2012b) holds that reenactive empathy, understood through the lens of simulation theory, must always be in play if we are to understand others.[8] If his analysis holds up, it undermines, or at least places a significant limit on, the narrativist accounts of sophisticated empathizing of the sort we defended in the previous section.[9] Not to put too fine a point on it, if Stueber's argument works, then narrativist accounts of empathy cannot tell the whole story about empathy.

Stueber defends the indispensability of reenactive empathy by questioning pure narrativist accounts along two fronts, doubting their capacity to explain how we are able to understand both diverse and familiar perspectives without invoking some version of simulation theory. Essentially, he takes reenactive empathy to be epistemically central and necessary for our understanding of why the other acts as they do. He is explicit in telling us that his account of empathy 'is closely linked to contemporary simulation theory' (Stueber 2012a, 56).

When it comes to empathizing, Stueber (2006, 2012a) contends that understanding others requires us to put ourselves in the other person's shoes and—somehow—replicate, match or mentally simulate the other's mindset.[10] This, he holds, is the only way to practically and emotionally evaluate the aspects of the situation that the other takes to be relevant. Only then—so the story goes—can we get an insider, truly first-personal take on how we have or will respond to various situations.

Similar to Goldman's (2006) version of simulation theory, reenactive empathy is depicted by Stueber (2012a) as an implicit, three-phase process.

During the first, matching phase, A's mind imaginatively adopts or occupies B's perspective. During the second, simulation phase, A imaginatively explores B's perspective. In the final, attribution phase, A understands, interprets and explain B's reasons for actions based on A's knowledge of B's perspective.

Crucially, for Stueber, understanding another's reasons for action unvaryingly depends on knowledge gained by exploring the other's perspective 'from the inside' in the simulation phase. It is through simulating that 'I think, deliberate, and entertain reasons for possible actions from your perspective' (Stueber 2012a, 57). Only my simulating the other's perspective, he holds, yields such intimate knowledge of the other's reasons and motives. This is why he takes reenactive empathy, understood as a form of simulation of other minds, to be necessary for understanding reasons and individual agency.[11]

Stueber's (2012b) first challenge to narrativist accounts of sophisticated empathizing is to explain how, without simulating the other in the ways described above, it is possible to understand those 'from very different backgrounds' (Stueber 2012b, 68). Stueber (2012b) issues the following challenge to the narrativist:

> If, however, as narrativists claim, understanding of narratives proceeds completely independent of simulation or reenactment, then it is not clear to me . . . why we are prone to experience something like imaginative resistance. The understanding of all narratives should be on par, regardless of how far removed they are from my familiar way of thinking about the world.
>
> (68)

He underscores this point: '*It is exactly in this context* that I see the great advantages of my view according to which such understanding *essentially involves reenactive empathy*' (Stueber 2012b, 68, emphasis added).

Stueber's (2012b) argument is clear enough. Unless defenders of the narrative approach concede the necessity of simulative reenactment, they, allegedly, incur a toxic explanatory debt. For how else, other than by appeal to the simulation of another's perspective, is it possible to explain the imaginative resistance that is sometimes experienced when trying to understand someone from a profoundly different background?

The imaginative acts that give rise to such resistance are of a special brand that cannot be subsumed under the category of hypothetical or suppositional forms of imagining—namely, those that only aim at imagining what is fictionally true about some possible situation or scenario.[12] Stueber (2012b) clearly thinks that the narrative understanding is restricted to the suppositional side of the fence. Imaginative resistance arises when we refuse to imagine something that is morally or aesthetically repugnant to us, something that breaks with our background, accustomed ways of

thinking. The fact that we might encounter imaginative resistance when empathizing with others of different backgrounds suggests that the imagining in question cannot be of a purely intellectual sort that Stueber thinks typifies narrative understanding, but must be rooted in a full-bodied kind of heated imaginative activity.[13] Put otherwise, because empathizing can incur imaginative resistance, it appears that it must involve something emotionally hotter than cold narrative understanding. As such, the imagining involved in emphasizing is 'to be distinguished from all those cases of imagination that involve imagining *that p*, rather than actually *experiencing p*' (Ratcliffe 2017, 276).

To capture this difference, let us follow Medina (2013) in distinguishing enactive as opposed to propositional imaginings. If we are to account for the imaginative resistance that empathizing sometimes exhibits, we must understand how and why our resistance to imagine some of what a narrative asks us to imagine is an emotionally hot process.

All of this can be agreed, yet—and here's the rub—it is important to recognize that enactively engaging with the stories and situations of others in imaginatively hot ways need not depend upon our first getting into or projecting ourselves into their shoes (see Waldow, this volume). Kieran (2003) argues convincingly that the kind of imagining that occurs when engaging with narrative works of art does not entail mentally simulating others. Using the example of Gradgrind of Dickens's *Hard Times*, he shows that it is possible for us to both narratively understand and affectively respond to fictional characters without putting ourselves into the minds or perspectives of those characters.

Even when imagining what a character is thinking or feeling, we are directly moved by the manner in which they and their situations are described in the texts—that is to say, we let our imaginations be driven directly by what is laid down in the texts. Summing up, Kieran concludes that there are cases of such imaginative engagement in which 'no fictional character is being simulated in any way' (Kieran 2003, 72).

In the same vein, it seems possible that we can be hotly moved by another's situation in ways that might provoke imaginative resistance even if no mental simulation of another, real or fictional, person is involved. This is because the processes by which we are so moved by another can take the form of transformations achieved by enactive engagements, not with narrative texts, but directly responding with the other's expressed attitudes.

Thus, we can accept that enactively empathizing with another involves emotionally charged imaginings while denying that the best explanation of our hot narrative engagements need involve mentally simulating the other by means of anything like the sort of three-stage process that Stueber (2006, 2012a) takes to be part and parcel of reenactive empathy. For even if hot imagining involves simulation in the sense of reenactment of, say, perception, it need not involve simulation in the sense of simulating the other as proposed by simulation theory.[14]

In any case, if we put the focus on explanatory power it is utterly unclear how mental simulation of the other achieves its seemingly magical first step. How exactly, and by what mechanisms, does one match the mind, or imaginatively adopt, the perspective of the other in sophisticated, discursive cases of empathizing? Far from being obvious, the very first stage of mental simulation appears both miraculous and mysterious (Hutto 2004).

Moreover, as discussed in the previous sections, contrary to simulation theory, it appears that in empathizing it is important to keep our distance anyway. In order to feel for you I need not replicate your pain within myself and then project that pain onto you. This neither seems to be how we empathize with or feel for others, real or fictional, when, say, they have lost a loved one, nor does it give us a solid explanation of how such empathizing is achieved.

Crucially, even if empathizing always involves hot imagining, it is not plausible that such imaginings involve having a first-person experience similar to that of the other (see Ratcliffe 2017, 275). Such a proposal quickly gives way under pressure when we are asked to give details about how similar A's experience must be to B's in order to make empathizing possible.[15] A little reflection on such cases reveals that we can empathize with others even if we have no analogue of their experience in our psychological back catalogue; that is, 'we can sometimes empathize with experiences that we cannot simulate' (Ratcliffe 2017, 278).

In sum, once we look closely at the hot, imaginative feats of enactive empathizing, it becomes far from obvious that they must involve mentally simulating the other, at least on standard formulations of what the mental simulation of another is thought to involve. In particular, it is not obvious that reenactive empathy, understood through the lens of mental simulation, best explains how we achieve our empathic feats when it comes to answering Stueber's 'how' question—namely, how we come to understand those from diverse backgrounds.

Stueber (2012b) makes a second argument for thinking that any narrative account of empathizing that does not embrace reenactive empathy will lack something pivotal. His second argument goes in the opposite direction of his first, focusing not on the need for reenactive empathy to help explain how we understand others who are different from ourselves, but rather how reenactive empathy plays a part in enabling us to understand those who are similar to ourselves.

Stueber (2006) argues that simulation-based reenactive empathy is a necessary component for understanding others because co-cognizing with others is necessary for getting a handle on what another finds relevant in some situation. In making his case, Stueber (2006, 2012a, 2012b) draws on arguments by Jane Heal. Heal (1998) holds that the platform for understanding others requires that we co-cognize with them—that is, to think about the subject matter of the other's thoughts for ourselves.

Stueber (2006) extends this basic idea arguing that the mental simulation in question not only takes the form of working through chains of rational thought, but can involve the replication of 'a whole range of psychological phenomena' (159).[16] This putative fact, he claims, is what allows us to be moved by the emotional and normative considerations that 'are relevant in a particular situation' (Stueber 2006, 159).

The fact that we co-cognize with others is, arguably, what allows us to solve the notorious frame problem.[17] For in co-cognizing we are aligned with others who will find the same things relevant that we do when engaged in the same kinds of familiar activities, practices and ways of thinking that make up the common fabric of shared lives.

The background assumption for this argument is, of course, that reenactive empathy either equates to co-cognizing or that co-cognizing somehow entails reenactive empathy. Indeed, he makes the link to the simulation process clear in the following passage:

> Empathizing with others requires that I am able to recognize particular aspects of their situation relevant to their actions. And in order to do that *I have to put myself in their shoes* and practically evaluate what aspects of that situation have to be regarded as relevant.
> (Stueber 2006, 160, emphasis added)

However, there is no necessary connection between co-cognizing and reenactive empathy, at least if the latter is understood to be some kind of psychological or cognitive process involving mental simulation. When co-cognizing with another, we need not go through a process of putting ourselves in the other's shoes because we are already in each other's shoes (McGeer 2007).[18]

Our shared lives allow that we can 'take for granted that we inhabit a common framework of norms such as "one does not walk in the middle of the road" and "one pays for things that one takes out of shops"' (Ratcliffe 2017, 283). Thus, we can co-cognize with others about all of this '*without conscious inference* . . . [because] we live in a shared world of buses, litter bins, cafes, and so on' (Ratcliffe 2017, 283, emphasis added). Indeed, we can do this without unconscious inference either—hence, without making any kind of inference at all. There is simply no need to psychologize co-cognizing; namely, to characterize it as a kind of cognitive or mental action on our part.[19]

Yet even if co-cognitive commonality is a necessary backdrop for enactive empathizing, this is consistent with the proposal that the latter only really gets going when we go beyond co-cognizing.[20] We agree with Ratcliffe (2017) that 'suspension of ordinarily presupposed commonality is central to empathy. Once B has suspended the unquestioned assumption that A shares *x* with B, B can explore whether and to what extent A does share *x*' (284). Thus, enactive empathizing—even if it depends on a backdrop of co-cognizing—needn't involve mental simulation at all.

4.   Conclusion

Drawing together all of its threads, if the analysis of this chapter holds good, then there are strong reasons to think of everyday empathizing by enactive lights—as fundamentally temporally extended, exploratory and second-personal in character. We have argued that it is important to distinguish basic and more sophisticated forms of enactive empathizing, and, in doing so, to recognize how the latter can depend on narratively driven engagements with the other. Yet despite this variety, no form of empathizing, if we are right, need involve the mental simulation of others.

Notes

1. There is an interesting question of how empathy, so understood, relates to the more everyday notion of sympathy. Like Zahavi (2010), though empathy has only been more recently articulated, we propose that it picks out a more basic phenomenon than sympathy. Empathy is our rudimentary way of engaging with others, while sympathy is more restrictive in that it necessarily requires having a prosocial concern for the other. See Stueber (2006, 2012a) and Zahavi (2017) for discussions of the history of empathy.
2. Empathy, as Stueber reports, is a topic on which there has been a 'rather shameful disregard for conceptual clarity' (Stueber 2012a, 55). Indeed, he later says, 'I ultimately think that *the* correct way of defining the term "empathy" does not exist' (2012b, 68, emphasis added). Ratcliffe similarly recognizes that analytic attempts to say what constitutes empathy 'risk of descending into a merely verbal dispute' (Ratcliffe 2017, 275). Zahavi too despairs of 'trying to reach a satisfactory definition' (Zahavi 2017, 34).
3. A conception of empathy that does not require simulating the mental states of another is explored by Abramson and Leite in Chapter 10 of this volume.
4. As noted in the first end note, we take sympathy to be a special case of empathy.
5. Zahavi's writing has pointed in all three of these directions. Sometimes an understanding the other is treated as a basis for empathy. For example, we are told that empathy 'is a *consequence of our understanding* of the other's emotion, and not a pre-condition or pre-requisite for this understanding' (Zahavi 2010, 291, emphasis added). At other times, the language used suggests understanding is constitutive of empathizing. Thus, we are told empathy is 'a basic, irreducible, form of intentionality that is directed towards the experiences of others. It is a question of *understanding* other experiencing subjects' (Zahavi 2010, 291, emphasis added). Finally, understanding is sometimes spoken of as a product of empathy, as when Zahavi and Rochat tell us that they do not mean 'to suggest that empathy *provides* an especially profound or deep kind of *understanding*' (Zahavi and Rochat 2015, 3, emphasis added; see also Zahavi 2017, 39).
6. Moran explicates Anscombe's views on intentional action, stressing that her 'idea of an action being intentional "under a description" is not that of a set of thoughts being entertained by the agent at the time of acting' (Moran 2015/2017, 309).
7. In the same vein, as Moran observes, the whole complex of events that make up the story of Oedipus is 'not "lived out" by any character in the play, and could not be' (Moran 2015/2017, 314).

8. Stueber (2006) first introduces and explicates the notion of reenactive empathy in his book, *Rediscovering Empathy*, on 158ff.

9. He is indelibly clear about his purpose and target: 'I am particularly interested in articulating my defence of empathy in contrast to a philosophical position that emphasizes narrative competence' (Stueber 2012a, 55).

10. The necessity claim is stated as follows:

> Understanding other agents seems to require that I am able to recognize particular aspects of their situation relevant to their actions. And in order to do that *I have to put myself in their shoes* and practically evaluate what aspects of that situation have to be regarded as relevant.
>
> (Stueber 2006, 160, emphasis added)

11. In his own words, Stueber tells us that 'reenactive empathy (as a form of simulation) is epistemically essential for our major folk psychological abilities' (Stueber 2012a, 57).

12. As Moran highlights,

> The difficulty, apparently, does not have to do with the imagining of characters with moral *beliefs* different from our own but rather with imaginatively entering into a fictional world where moral *reality* is different from what we take it to be. We can easily "accept" the existence of ghosts as one of the fictional truths implied by the story, but it seems we cannot similarly "accept" it is true in that fictional world that, say, the murder of one's guest (as it is actually depicted) is not to be condemned.
>
> (Moran 1994/2017, 19)

13. We find some invitations to imagine unattractive or repugnant, say, to our current aesthetic and moral sensibilities. Thus

> imagination with respect to the cruel, the embarrassing, or the arousing involves something more like a point of view, a total perspective on the situation, rather than just the truth of a specifiable proposition. And imagining along these lines involves something more like genuine rehearsal, "trying on" the point of view, trying to determine what it is like to inhabit it.
>
> (Moran 1994/2017, 25)

14. For further arguments along these lines and an explication of enactive imagining see Hutto (2008, 2015) and Hutto and Myin (2017).

15. As Zahavi highlights:

> The decisive difficulty concerns the question of how specific the match between empathizer and target must be in order to count as sufficiently similar . . . To claim that I can empathize with someone who is distressed because of the death of her two-year-old Spanish Timbrado . . . only if I have been distressed over the loss of the same kind of bird . . . is hardly convincing. By contrast, to claim that I can only empathize with a minded creature if I have a mind myself seems eminently plausible, but also rather trivial. If the account is to say something plausible, yet nontrivial, it must

position itself somewhere in between these two extremes. The question is where.

(Zahavi 2017, 36)

16. On this score, Stueber tells us, 'my argument for the essential involvement of reenactment for rational agents, who act for a reason, can be seen as a generalization of the argument that Jane Heal has given for co-cognition' (Stueber 2012b, 69).
17. Stueber is explicit about this, telling us that 'it is exactly in this context that the frame-problem raises its "ugly" head, which leads me to conclude that we need reenactive empathy in order to understand an agent's potential reasons for acting' (Stueber 2012b, 69).
18. Heal is indelibly clear that co-cognition does not entail simulation, writing that simulation

is [not] a necessary element of . . . deliberative co-cognition. Simulation may occur in the course of co-cognition, when one person's remark is opaque and the other needs to reflect imaginatively to see what might lie behind it. But it need not do so since the other's remarks may be understood straight off.

(Heal 2013, 350)

19. It is because Stueber fails to see the lack of entailment between mental simulation and co-cognizing that he is puzzled by Hutto's take on this issue: 'since Hutto does accept the necessity of co-cognition, I am a bit puzzled why he does not recognize that [Heal's] argument can be generalized' (Stueber 2012b, 69).
20. In such cases, 'interpersonal differences are understood against the backdrop of a social situation that is taken from the outset as ours' (Ratcliffe 2017, 284).

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Chapter 5

Neurodiversity in a neurotypical world

An enactive framework for investigating autism and social institutions

Alan Jurgens

In this chapter I argue enactivist accounts of the role social practices and institutions play in shaping cognition and identity reinforce the neurodiversity paradigm's focus on shifting the attention of interventions away from neurodivergent individuals and towards society.[1] Though I argue the enactive framework is especially suited for investigating and explaining neurodiversity, enactivist accounts have yet to engage with the issues raised by the social model approach to neurodiversity (Chown & Beavan, 2011) and two explanatory theories of autism, monotropism (Murray, Lesser, & Lawson, 2005) and the double empathy hypothesis (Milton, 2012a). While I draw on the established enactive accounts of De Jaegher (2013a) and Krueger and Maiese (2019) to show the advantages of enactivism, their work remains problematically committed to a medical model approach for explaining neurodiversity and proposing intervention strategies.

A medical model approach views physical or cognitive differences as disabilities, which are functional deficits that an individual either has or does not have. As the medical model approach views cognitive differences found in neurodiversity as deficits to be corrected, the intervention strategies on this approach are directed primarily at the neurodivergent. This can be seen in enactivist accounts, for example, where De Jaegher (2013a, p. 10) claims autistic self-stimulatory behaviour is something that we need to 'find suitable ways to deal with … even to the point of converting them into acceptable activities or extinguishing them'. Similarly, Krueger and Maiese (2019) propose co-constructing inclusive music therapy institutions for improving autistic individuals' coordination and rhythm skills through musical practice. Both of these accounts' approaches to intervention strategies follow the medical model in seeing autistic differences as faults to be corrected primarily by the autistic individual him/herself. However, medical model attitudes have been challenged by the neurodiversity paradigm on the grounds that they are partly responsible for the creation of systemic barriers and negative stigmas the neurodivergent regularly face (Chown & Beavan, 2011).

In line with this challenge, the social model alternatively approaches neurodivergent differences by examining how society's normative expectations define

their differences, and potentially cause further psychological 'disability' via 'a culture and ideology of "normalcy"' (Milton, 2012b, p. 10). As the social model examines neurodiversity from a social perspective, the model explicitly rejects the idea that the cognitive differences of the neurodivergent are faults of the individual to be corrected. Additionally, social model approaches shift the focus of intervention strategies for improving neurodivergent capabilities and wellbeing away from putting the onus for change on the neurodivergent individual him/herself. Instead, social model approaches to intervention strategies focus on improving neurotypical social practices and institutions to be more inclusive and accommodating for the neurodivergent.

Despite previous enactivist commitments to a medical model approach, enactivism is naturally suited to a social model approach. This is because enactivism focuses its investigations of cognition through the concept of intersubjectivity. At the core of the concept of intersubjectivity is the claim that the structure of human experience and cognition always involves a relation to the world and to others, which constitutively shapes cognition. This is understood as how one experiences the other as someone to whom things matter, who one can connect with through feeling, and who is a distinct other with their own perspective (De Jaegher, 2018). Intersubjectivity is used to examine how relating and interactions create and transformation meaning, and through which individuals' perspectives on the world, each other, and themselves evolve.

Intersubjectivity is further conceptualised by examining the ways a particular individual's embodiment and embeddedness constitute the individual's cognition and experiences in the world. The terms embodiment and embeddedness denote the claims respectively that an individual's physical body beyond her brain, and her socio-material environment beyond her body, play a significant constitutive, not just causal, role for her cognitive processes. The claim that cognition is constituted via embodiment and embeddedness is to be understood in the sense that these aspects not only shape cognition but they are also necessary for it to arise in the first place. For enactivism, an individual's particular embodiment and embeddedness constitutively shape, via experiences in the socio-material world, cognition.

On this framework, as an individual's embodiment and embedded environment partly constitutes her cognition, the significance that the world has for her is not simply pre-given, but it is enacted through her interactions with others and her socio-material environment. As a result, enactivism's emphasis on intersubjectivity brings to the forefront of investigations of cognition first-person perspectives that in turn are able to help explain the normative effects social practices and institutions have on individuals' cognition and personal identity. For enactivism, intersubjectivity is used to help explain how individuals' personal identities are constituted through their relationships to the world in regard to self-image, self-esteem, individuality, and social position within society.

The focus enactivism places on examining intersubjective effects on identity construction aligns with the neurodiversity paradigm's claim for a need for a shift

in terminology relating to autism. First, advocates of the paradigm claim terms such as 'Autism Spectrum Disorder' should be revised to reflect the preference of autistic self-advocates. In the autism community being autistic is, for many, central to their identity formation, and as such, it is not something suffered from. Rather, for these autistic individuals, being autistic is an integral part of their personal identity (Fenton & Krahn, 2007). Autistic self-advocates claim this shift in terminology helps to promote a positive self-image, while also countering negative bias autistic individuals experience in interactions with neurotypical individuals. Second, it is important to recognise the non-universality of autism, and that every autistic individual has a range of strengths and weaknesses just as every neurotypical individual does. In usage here, the term 'autism' simply refers to the whole range of the spectrum, whereas the term 'autistic individual' highlights the particularised nature of each individual's cognitive skills and behavioural habits.

While enactivism is a framework for explaining cognition, in order to examine the differences between autistic individuals and neurotypical individuals, in this chapter I integrate enactivism with the monotropic theory of autism. Monotropism claims 'atypical patterns of attention' are a core inherent feature of autism from which many of the notable social differences arise (Murray et al., 2005, p. 139). According to this account, there is a difference between the monotropic attention patterns of autistic individuals that involves having few, but intensely focused, attentional interests, and polytropic attention patterns of neurotypical individuals that involves having many, but less focused, attention patterns. Monotropism claims these differences in attention patterns can explain many of the other cognitive and behavioural differences documented between autistic individuals and neurotypical individuals. Some of these differences that are examined here are differences in: language development; sensorimotor synchronisation and coordination in social interactions; sensory differences in regard to hyper/hyposensitivity; and having a higher propensity for self-stimulatory behaviours.

In order to understand how these differences affect interactions autistic individuals have with neurotypical individuals, Milton's (2012a) double empathy hypothesis proposes there is a double empathy problem. Milton claims that since autistic and non-autistic individuals have 'different dispositional outlooks and personal conceptual understandings', when interacting with one another both groups are more susceptible to frequently misunderstanding one another (p. 884). It's a 'double problem' as the difficulty in understanding one another is bi-directional, arising from differences between the neurotypical individual and the autistic individual. As we live in neurotypical societies, societal institutions are structured in neurotypical-friendly ways and most of our interactions with these institutions are via individuals who are members, or representatives, of the institutions. For this reason, the double empathy hypothesis is also relevant for examining autistic individuals' interactions with and relationships to neurotypical social institutions.

In regard to this, Fenton and Krahn (2007, p. 1) identify that social institutions 'either expressly or inadvertently model a social hierarchy' in which the 'interests or needs of individuals are ranked relative to what is regarded as properly functioning cognitive capacities'. The neurodiversity paradigm is motivated in part by challenging this kind of social hierarchy found in institutions by reweighing the 'interests of minorities so that they receive just consideration with the analogous interests of those currently privileged by extant social institutions' (p. 1). Enactivism is well-suited for this task as it explains cognition in relation to social practices and institutions by (re)conceptualising individuals and their relationships to others, societal roles, and social interactions that constitute their cognition and identities (De Jaegher, 2013b).

The goal of this chapter is to show that enactivism as a general framework for explaining cognition is especially appropriate both for integration with the monotropism theory and the double empathy hypothesis and for explaining autism. This is because enactivism offers a holistic framework for examining the specific contributions internal (embodied) and external (embedded) factors play in shaping cognition. Though the social model approach is committed to highlighting the influence social environments have on shaping neurodivergent cognition, it is not in itself a framework for a comprehensive explanation of neurodiversity. Enactivism, as a philosophical and scientific framework for explaining cognition in general, already shares this core commitment of the social model through its focus on intersubjectivity. As such, enactivism is especially suited for developing a systematic explanation of not only autism, but also alternative forms of neurodiversity, along the lines of the social model approach through its focus on how a neurodivergent individual's embodied and embedded differences affect his/her intersubjective relationships.

In order to demonstrate how enactivism can more fully embrace a social model account and be a framework for explaining neurodiversity, I begin in Section 2 by providing an overview of the enactive social cognition framework. In Section 3, enactivism is then integrated with the monotropism theory in order to show how the double empathy problem arises and to examine the relationships autistic individuals have with neurotypical social practices and institutions. Finally, the chapter concludes by briefly discussing two further research paths based on the preceding analysis for the development of interventions to improve the social cognitive skills and wellbeing of autistic individuals. The first research path focuses on the potential the enactive framework has for explaining and further developing the field of animal-assisted therapy for autistic individuals (Smith, 2018). The second path raises the question of what an enactive neurodiversity paradigm in education would look like.

Enactivism, social practices, and institutions

A core proposal at the centre of the enactive framework for explaining cognition is the claim that an individual's particular form of embodiment determines what

stimuli in the environment the individual is sensitive and responsive to (Maiese, 2018). Essentially, this means that by examining the way an individual moves and perceives, her sensorimotor system, it is possible to understand how her cognitive capacities and processes function and develop. Enactivism claims an individual's embodiment and embeddedness partly constitute her cognition; and at the same time, her actions in her environment change (or enact) the environment to better suit her needs and purposes. Importantly, the term 'constitution' as it is used here, and throughout this chapter, should be taken as a species of causation, that is, constitutive causation. Constitution used in this enactive sense is meant to capture the bidirectional aspect of enactive relationships where there is continuous reciprocal causal influence between individuals and their environments (Jurgens & Kirchhoff, 2019).

In regard to the social realm, enactivism utilises the concept of intersubjectivity to explain cognition by examining the salience various aspects of the socio-material world have for an individual, and how the individual interacts with these worldly phenomena. The most basic form of intersubjectivity is primary intersubjectivity. Primary intersubjectivity is claimed to develop in the first year of life where infants become capable of imitating facial expressions, which provides them with a basic sense of familiarity with others (Fuchs, 2015). This results in infants being affected by others' expressive behaviour, entering into a relationship of shared bodily feelings and affects. The capacity for secondary intersubjectivity develops through experiences of joint attention, gaze-following, and pointing as infants begin to be able to refer explicitly to the shared social and material context. Through experiencing how others interact with the world, infants pragmatically learn the meaning of objects and how to use them. Finally, tertiary intersubjectivity develops when children both understand that others may have conflicting perspectives and become able to shift between their own perspectives and the perspectives of others.

A key aspect of all of these levels of intersubjectivity is social normativity, which plays a pivotal role in explaining how individuals form values, attitudes, desires, conceive of thoughts, and execute intentions through action (Maiese, 2018). Individuals pick up social norms via their interactions with others by the embodied behaviours others have adopted from their own experiences with social practices and institutions. This is because 'social institutions enhance specific patterns of thought, feeling, and behaviour by providing a normative framework that rewards, reinforces, or discourages' particular kinds of ways of thinking and behaving (p. 12). One of the best, and developmentally earliest examples of how intersubjectivity both encourages, or discourages, normative behaviour is the infant–caretaker dyad. This example also demonstrates how the dynamics of an interaction can be constitutively constrained by the socio-material environment, including the other interactor.

In this kind of interaction, body posture, expressive gesture, vocalisation, gaze following, and attention are essential to maintaining an ongoing and recurrent engagement between infant and caretaker (Jurgens & Kirchhoff, 2019). Still face

experiments (Nagy, Pilling, Watt, Pal, & Orvos, 2017) utilising infant–caretaker dyads show the importance of ongoing and synchronous engagement by demonstrating what occurs when the synchrony formed by these kinds of behaviours breaks down. As the core features of this kind of interaction are the infant and caretaker recognising, attending to, and responding to each other's interaction, the still face experiment shows that when the caretaker suddenly adopts a still face and no longer interacts with the infant, the infant becomes noticeably discouraged and upset. At this time, infants 'withdraw from the interaction, avert their gaze, display negative affect, become increasingly distressed, start crying and smile less' than during the previous interactive engagement phase (Nagy et al., 2017, p. 2). Furthermore, even when the caretaker re-engages with the infant after the still face phase, there is a spillover effect where the infant will continue to avert its gaze, display distress, and generally will not re-engage with the caretaker to the same level as the initial interactive phase (Nagy et al., 2017). This shows beyond a mere causal effect that the caretaker's behaviour of adopting a still face, where attention is no longer being paid to the infant, constitutively affects both the infant's social cognition during the still face phase and interactions following this phase.

According to enactivism, what explains the still face experiment is primary intersubjectivity. However, without attending to the right aspects of the other's embodied behaviours, developing secondary and tertiary intersubjectivity and more sophisticated social skills becomes more difficult. This is partly due to the fact that in order to develop social skills the infant not only needs to attend to the right aspects of the other's body, but also attune to the other's rhythm of movements. It is from attending and attuning to others, through interactive social experiences in the world, that infants develop more sophisticated social cognitive skills. In this view, the interactive gestures the caretaker directs towards the infant has a constitutive effect on how the infant perceives, moves, and emotes.

As De Jaegher (2013a) points out, an attuned rhythm capacity determines, among other things, one's timing and coordination in interactions with others. Being able to coordinate with others' behaviours, gestures, and utterances makes it easier to fluidly develop new social capacities and skills. The particular bodily gestures and vocalisations the caretaker directs towards the infant, which are based on the caretaker's history of culturally acquired social practices, begins to enculturate the infant in these specific practices. Following from this, we can see that immediately from birth the infant is immersed in social practices, highlighting the deep significance intersubjectivity has on shaping embodied social cognitive habits and processes. It is from these kinds of interactions that the infant already begins to develop culturally specific social skills.

It is only through our interactions with, and attending to, others and the cultural practices they embody, that we are able to develop specific social skills for understanding others (De Jaegher, 2013a). These social skills are the embodied capacities that we develop to flexibly respond to the regularities, and irregularities, found in interactions with individuals. These skills develop through a history of

interactions with individuals and are partly constructed by the norms and practices of the society, or societies, to which one is exposed. Thus, in order to understand how social skills develop, enactivism claims we need to examine the constitutive effects social practices and institutions have on embodied social habits.

Social practices and institutions take many different forms across different cultures and times as they are the bonds that hold societies together by providing normative frameworks for interactions. Enactivism claims individuals' identities, cognitive processes, and social skills are constituted by 'social and cultural laws, regulations and norms' (De Jaegher, 2013b, p. 23). Some examples of social practices that Krueger and Maiese (2019) identify are: lining up in queues; pausing in conversations to allow the other to finish a thought; or expressing disapproval with a well-timed eyebrow raise. Examples of institutions can range from the concept and practices of families to institutions that rely on a multitude of other institutions, such as international law that requires multiple other intersecting institutions like justice systems, governments, national boarders, etc.

Importantly, De Jaegher (2013b, p. 23) claims that a central feature of all institutions is that

> interactions with institutions often happen at the 'face-to-face' level.' It is through our interactions with someone who represents an institution that we ultimately are influenced by the institution and its particular set of approved and regulated practices. Through our interactions with representatives of institutions we begin to embody 'certain models of expectancy [that] come to be established, and the patterns, which over time emerge from these practices, guide perception as well as action.
> (Roepstorff, Niewöhner, & Beck, 2010, p. 1056; cited in Krueger & Maiese, 2019, p. 21)

However, this doesn't necessarily mean that the person has to be an official representative of the institution. We don't need to interact with a police officer, a lawyer or judge to interact with someone who represents the institution of the law. A parent or teacher can also serve as a representative of the law simply by displaying acceptable lawful behaviour or discouraging unlawful behaviour.

Depending on our place within an institution's social hierarchy, we are exposed to and embody different kinds of social practices and skills. Just as we're encouraged to adopt certain kinds of behaviour as children by being corrected or scolded through overt and subtle indicators of social approval or disapproval, as we move into new levels of education, new jobs, or new communities we are continuously exposed to and encouraged to adopt new kinds of thinking, perceiving, and acting. Contingent on our place in an institution's hierarchy we will adopt different social practices and will have more or less influence on the evolution of the institution's social practices.

Concerning positions in institutional social hierarchies, a core aspect of the adoption of new practices is the symmetry (or asymmetry) of power that exists

in different roles in interactions with others within institutions (De Jaegher, 2013b). We can see this in examining the effects asymmetric power relations have when one is in a subordinate position to another person as that person's practices may be more influential on us than we would recognise or like. This may be as innocent as adopting the gestures or speaking habits of a new friend or romantic partner that we want to impress or it could be harmful in the sense of adopting toxic masculinity or patriarchal gender norms from our elders (Hancock & Rubin, 2015). Thus, in order to understand how we adopt certain social practices and develop particular social skills we need to examine not only which institutions we are a part of, but also our place in the social hierarchy of these institutions.

In regard to social hierarchies, and as was stated above, social norms embedded in the social practices of institutions modulate individuals' intersubjectivity by constitutively shaping both their ways of thinking and acting in the world. While some of these embodied habits picked up from interactions with others, and the institutions they represent, can be good, others can be bad. These embodied habits can be bad in so far as they run counter to an individual's own interests, are detrimental to their wellbeing, or lead to social disapproval from other social institutions and their representatives (Maiese, 2018).

Recognising the harmful potential of social practices and interactions with institutions is essential for understanding the relationships the neurodivergent have with neurotypical institutions. As I present in the next section, the asymmetry of power that often exists in autistic individuals' interactions with neurotypical individuals within neurotypical institutions can often be detrimental to the autistic individuals. In this regard, the enactive framework is especially useful as its focus on intersubjectivity can not only reveal the deep influence social practices and institutions have on cognition and identity, but also provide a systemic framework for investigating how social practices and institutions can be harmful.

Autism and neurotypical institutions

In this section, utilising enactivism I show the constitutive influence neurotypical social practices and institutions have on the development of autistic individuals' social cognitive skills and their wellbeing. I will adopt a social model approach to the examination of autism as autism is defined and determined by neurotypical societies' ways of moving, communicating, and thinking, which autistic individuals may do differently. It is important to note that autistic individuals manifest characteristics of autism differently and some of these characteristics involve cognitive strengths in comparison to neurotypical individuals. As Chown and Beavan (2011) highlight, some of these cognitive strengths include good rote memory skills, ability to assimilate information quickly, long-term information memory, and high levels of concentration on specialised interests. Though some individuals are always going to be different from the neurotypical norm, these differences

do not need to prevent autistic individuals, or other neurodivergent individuals, from participating in society.

I begin by showing how the double empathy hypothesis and monotropism theory can be integrated with the enactive framework. This integration is mutually beneficial as enactivism provides a general framework for explaining cognition with its unique focus on intersubjectivity, and the double empathy hypothesis and the monotropism theory provide insights for understanding autism previously missing from enactive accounts.[2] Milton, Heasman, and Sheppard (2018) explain the double empathy problem as neurotypical and autistic individuals having differences in their sociality that leads to frequent misunderstandings when interacting with each other. As both parties have difficulty in interacting fluidly with one another, it is a 'double problem' as the difficulty does not rest solely with the neurotypical individual or the autistic individual. Milton et al. (2018) claim that as interactions unfold, the initial differences in social saliency that cause the double empathy problem can quickly lead to critical misunderstandings that can potentially terminate the interaction. Milton (2012a) claims the experience of encountering this kind of difficulty is more severe for neurotypical individuals than autistic individuals, as it is an uncommon experience for neurotypical individuals.

The explanatory scope of the double empathy hypothesis aligns with enactivism's focus on intersubjectivity as it considers both the individual dispositions of agents in interactions, and the social context in which interactions take place (Milton et al., 2018). Additionally, as Milton et al. (2018) claim, there is a deep connection between the monotropism theory and the double empathy hypothesis. They sum up the core claim of monotropism as an essential difference between monotropic individuals, whose tendency is to localise attentional resources on a specific interest while excluding other potential inputs, and polytropic individuals whose attentional resources are capable of spreading to multiple inputs simultaneously (Murray et al. 2005, cited in Milton et al., 2018). Milton et al. (2018, p. 5) hypothesise that the kinds of reciprocal misunderstandings the double empathy problem highlights could be a 'consequence of a transactional, albeit socially situated, developmental process'. This is in line with enactivism's claim that embodied differences result in a different kind of intersubjectivity where the social world is experienced in structurally different ways. According to enactivism, this will in turn lead to the development of different kinds of social cognitive skills.

In regard to this, Murray et al. (2005, p. 140) claim that since social interactions and language development and use 'require broadly distributed attention', monotropic attention patterns produce a different kind of experience as a monotropic individual will be 'inhibited by the canalisation of available attention into a few highly aroused interests'. In line with enactivism's appeal to primary intersubjectivity as a set of basic capacities from which more sophisticated social skills develop, monotropic attention patterns would influence primary intersubjectivity in a structured way that can then be a basis for explaining the differences seen in autistic social cognitive development. This can be seen in monotropism's

claim that learning new skills requires having an interest in doing so, and interests require both awareness and motivation, which are affected by monotropic attention patterns. Since monotropic attention patterns 'inhibit simultaneous awareness of different perspectives' this limits the intersubjective experience monotropic children have of being aware of others' viewpoints. This is especially true in regard to early language development.

Explaining monotropic differences in language development, Murray et al. (2005, p. 150) explain that conversations occur on multiple levels, such as 'phonetic (sound), phonological (rule-governed sound), syntactic (grammar), semantic (word and sentence meanings), and pragmatic (adjusted to each other's current interests)' through a sequence of events. For monotropic children, phonetic sounds may not be identified and connected to one another as they could be perceived as 'merely some among many noises in an unfiltered, undifferentiated aural environment' (p. 150). For a monotropic child, language needs to 'become an object of interest' otherwise the child may take longer to realise the meaningfulness of language (p. 150). Even after acquiring language skills, delays autistic children have in conversation (Leary & Donnellan, 2012) may violate the neurotypical norms, which often results in neurotypical individuals finding these long pauses uncomfortable and attempting to change the subject or drop the conversation. This creates a reciprocal feedback loop where the difference in attention, rhythm, and coordination makes social interaction difficult for both parties. However, these experiences are more detrimental for the autistic child as the child then loses opportunities to socially interact, which is important both for developing more sophisticated social cognitive skills and has a harmful psychological impact.

With respect to the importance enactivism places on synchronisation and coordination for social interactions influencing the development of culturally specific practices, the monotropism theory clarifies autistic differences. Murray et al. (2005, p. 144) claim that 'shortage of attention is key to the lack of simultaneous activity, rather than a lack of synchronization per se'. As synchronisation in rhythm and coordination were shown in the previous section to be important for maintaining fluidity in social interactions in order to pick up social practices, attention pattern differences that lead to difficulty in synchronisation would make picking up new social practices more difficult. Additionally, as the double empathy hypothesis highlights, this synchronisation issue cuts both ways as the social world is differently salient for autistic individuals and neurotypical individuals, which can again lead to more frequent breakdowns in interaction and limit autistic individuals' opportunities to socially interact.

In regard to autistic sensory differences, Milton (2012b) claims that autistic individuals' hyper/hyposensitivities to sounds, lights, smells, and touch can also be partly explained by monotropism. As a monotropic individual is either attending just to a particular sensory stimulation itself (hypersensitivity) or attending to a different aspect of the environment to the extent of not noticing another stimulation (hyposensitivity), this produces differences from the neurotypical

norm. While hyper/hyposensitivities vary between autistic individuals across the spectrum, these differences may be able to be better explained on a case-by-case basis by examining the individual's monotropic tendencies. Importantly, these differences in sensitivities may also affect social interactions autistic individuals have as the sensory environment may make it harder for them to focus on the many different vocal and gestural aspects of the other's behaviour, potentially missing important normative aspects.

Monotropic attention patterns can further explain why autistic individuals have difficulty in accessing 'socially-salient information needed to fit into and become responsively regulated by the expressive norms governing' neurotypical institutions and practices (Krueger & Maiese, 2019, p. 24). For example, autistic individuals may find it difficult to detect subtle differences in expressive style required in situations where one needs to recognise the specific intention of a smile being either 'cold, sarcastic, confident, or wry' (p. 24). However, as the double empathy problem hypothesises, this is a bi-directional problem. Milton et al. (2018) cite research (Sheppard, Pillai, Wong, Ropar, & Mitchell, 2016; Edey et al., 2016) that suggests neurotypical individuals similarly have difficulty with identifying facial expressions of autistic individuals and making sense of autistic individuals' behaviour in interactive contexts.

While autistic individuals have difficulty in smoothly participating in neuro-typical practices, Krueger and Maiese (2019) point out that autistic individuals have their own practices that neurotypical individuals have difficulty with recog-nising, accepting, and even participating in. These autistic practices can include the observable behaviour of 'self-stimulation', which includes 'hand-flapping, finger-snapping, tapping objects, repetitive vocalisations, or rocking back and forth' (p. 27). Self-stimulation is known to help autistic individuals 'adapt to and negotiate changing environments' by organising sensations that help 'manage the physical, perceptual, and emotional demands of a given situation' (Leary & Donnellan, 2012, p. 51, cited in Krueger & Maiese, 2019, p. 27). On a mono-tropic reading, self-stimulative behaviours may help to shift attention away from overwhelmingly intense stimuli in order for the autistic individual to be able to then refocus his/her attention to other aspects of the environment. In this way, practices like these can be very helpful and comforting for autistic individuals, as it is a way for them to modulate their experience of the environment and the significance different sensations have for them via a controllable embodied behaviour.

While these practices can assist an autistic individual by modulating his/her attention in order to relieve issues related to hypersensitivity, the practices may seem off-putting for neurotypical individuals. Neurotypical individuals have a hard time accepting autistic self-stimulatory practices in the sense that neuro-typical individuals may not know how to respectfully and appropriately respond when autistic individuals engage in self-stimulatory practices in social interac-tions. Neurotypical individuals' inability, or unwillingness, to appropriately respond to self-stimulatory practices not only further strains the coordination and

rhythm of the current interaction, but it may result in the neurotypical individuals having less interest in interacting with autistic individuals in the future. These detrimental effects may occur because the neurotypical individuals do not see the positive roles these autistic practices have for autistic individuals (Krueger & Maiese, 2019). Without a proper awareness of the significance the practices have for an autistic individual, neurotypical institutions and their representatives may view these practices negatively. This could in turn make interactions with the institution even more difficult for the autistic individual.

Nevertheless, this need not be the case. If neurotypical individuals are informed of the value self-stimulatory behaviours have for autistic individuals, it is possible for these detrimental effects to be avoided. In fact, neurotypical individuals can even adopt or engage in autistic practices. By doing so, it is possible to alter neurotypical institutions to create more space for autistic individuals. For example, some institutions, such as Manchester University's Student Union, have adopted hand flapping instead of clapping in order to thank speakers in an effort to be more inclusive for both deaf students and autistic students (Hinsliff, 2018). As this example shows, not only can awareness of autistic practices improve autistic individuals' interactions, but awareness can also help create space for not just acceptance, but even the adoption, of autistic practices by neurotypical individuals and institutions.

Though the aforementioned example shows the possibility of making neurotypical institutions more inclusive, the preceding intersubjective differences more often than not result in autistic individuals having more difficulty in smoothly participating in the everyday practices of neurotypical institutions. This can be partly explained by these differences making it more difficult for autistic individuals to detect the normative components of institutional practices (Krueger & Maiese, 2019). Conversely, in accordance with the double empathy hypothesis, this also means that it is more difficult for neurotypical individuals to detect the normative components of autistic social practices, such as self-stimulatory behaviours or hand flapping instead of clapping, and the importance these autistic practices have for autistic individuals. Difficulty in recognising these differences in each other's practices makes conforming to each other's expectations more difficult for both autistic individuals and neurotypical individuals.

The enactive framework's focus on intersubjectivity coupled with the contributions from the double empathy hypothesis and monotropism theory offers a systematic way of examining an autistic individual's experiences interacting with social practices and institutions. Understanding these intersubjective differences is important because even though autistic individuals jointly inhabit the same neurotypical institutions as neurotypical individuals, autistic individuals' difficulties in smoothly participating in the institutions' social practices can lead to a stigma that lowers their status in the institutions' social hierarchy. This means that in the context of institutions and their practices, autistic individuals end up feeling more isolated and alienated from not only the institution, but also from the people within the institution. Sarrett's (2018, p. 687) survey of autistic students

in Australian universities found that 'only 27% reported having their social needs met.' Additionally, Gelbar, Shefcyk, and Reichow's (2015) literature review found that of the autistic students surveyed, '56% reported feeling lonely, 61% reported feeling isolated, and 42% reported feeling depressed' (cited in Sarrett, 2018, p. 687). These effects can be even more pronounced in institutions that have a social hierarchy that even more strongly prioritises the interests or needs of individuals who are regarded as better performers than their peers, such as is common in occupational institutions.

This leads back to issues raised in the last section, that there can be an asymmetry of power between interactors in interactions within social practices and institutions, and that some practices and institutions may lead to harmful habits that can be detrimental to one's wellbeing. For example, in a university educational setting there is already an asymmetry of power between a student and the professor that makes it difficult for many neurotypical students to speak up during in-class discussions, but for autistic students this asymmetry of power is even greater because of the difficulties discussed above. This can lead to autistic students feeling less confident with speaking to professors or speaking up during in-class discussion (Sarrett, 2018). However, when this occurs it only reinforces feelings of isolation and reduces autistic students' ability to practice the kind of social cognitive skills that in-class discussions are meant to help develop along with learning the course content. In line with the enactive framework, these kinds of experiences and interactions can have a negative impact by constitutively shaping autistic individuals' social cognitive habits to avoid these kinds of experiences and interactions.

According to enactivism, we develop our identities and ways of thinking and being through intersubjectivity, that is, our interactions with others, social institutions, and their social practices. Nevertheless, institutions 'cultivate framing patterns' and constitutively shape embodied cognitive habits even if these ways of thinking and being are counter to individuals' explicit interests or are in other ways harmful to their wellbeing (Maiese, 2018, p. 16). The above examples show how neurotypical institutions can have these detrimental effects on autistic individuals in particular, but also on the neurodivergent in general. Thus, through examining the intersubjective aspects of social hierarchies and asymmetrical power relations it is possible to further understand how certain social practices can be harmful. Addressing these aspects is necessary not only for improving the overall wellbeing of autistic individuals, but to also improve interactions between neurotypical individuals and autistic individuals. In order to improve the interactions between neurotypical individuals and autistic individuals in shared social institutions, there needs to be a shift in the focus of interventions away from autistic individuals towards the intersubjective realm of neurotypical social practices and institutions.

Conclusion

This chapter has shown how the enactive framework, utilising a social model approach, can provide a systematic method to develop comprehensive explanations

of autistic individuals' intersubjective relationships with neurotypical social practices and institutions. If the analysis presented here of the ways in which neurotypical social practices and institutions can harm autistic individuals' social cognitive skills, identity, and wellbeing is on the right track, then we have good reasons to think that we should shift the focus of interventions away from the neurodivergent individual him/herself towards the social environment of neurotypical social practices and institutions.

One potential research path for developing interventions targeting the social environment that enactivism can assist with is the developing field of animal-assisted therapy for autistic individuals to help improve their social skills and wellbeing (see Smith, 2018). While understanding human institutions and social practices are crucial for understanding cognition, this is only one aspect of the social world most individuals engage with. An advantage of adopting the enactivist framework in relation to animal-assisted therapy is that enactivism has through its focus on intersubjectivity the capacity to explain both the nature of this kind of interspecies engagement and how it can be helpful for autistic individuals. For example, therapy trained dogs are not only capable of primary intersubjectivity, but also a basic form of secondary intersubjectivity. As enactivism embraces the diversity of cognition in such a way that is not bound to a particular species, enactivism is uniquely suited for examining and explaining the nature and impact of non-human animal interactions on neurotypical and neurodivergent individuals' intersubjective capacities and cognitive skills.

A second research path in need of further exploring is the development of an enactive neurodiversity paradigm for education. Such a paradigm would educate students about neurodiversity as a property of people in general, rather than singling out particular neurodivergent people for what many people consider to be 'special treatment'. An enactive neurodiversity paradigm approach in education would essentially involve giving a prominent place in the education system for understanding neurodivergent differences by educating students about intersubjectivity and the differences individuals have in their experiences of the world based on their embodied and embedded differences. This means teaching children explicitly about how to understand differences and see the value in having differences. For this reason, an enactive neurodiversity paradigm approach towards education should be extended to all levels of education, from primary education onwards, with the teaching developing in complexity from level to level in the usual manner. Through further developing these research paths for interventions, and by implementing the interventions, we can adjust the social world co-inhabited by neurodivergent individuals and neurotypical individuals in order to make it more inclusive for the neurodivergent and improve their overall wellbeing.

Notes

1 The term 'social practices' is used here denote the patterns of behaviour one adopts in social environments. In this sense, social practices can develop either through exposure

to cultural patterns of behaviour or from a pattern of behaviour an individual establishes over time in response to certain kinds of social stimuli.

2 While the monotropism theory may only be relevant to explanations of autism, the double empathy hypothesis can also explain the social difficulties experienced by non-autistic neurodivergent individuals. This is because other forms of neurodivergence will also affect an individual's relationships to neurotypical social institutions and interactions with neurotypical individuals. This is partly due to these neurodivergent individuals having differences in coordination capacities and having to face bias issues in interactions with neurotypical institutions and individuals.

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