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Scripts and Social Cognition

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Abstract:

To explain how social cognition normally serves us in real life, we need to ask which factors contribute to specific social interactions. Recent accounts, and mostly pluralistic models, have started incorporating contextual and social factors in explanations of social cognition. In this paper, I further motivate the importance of contextual and identity factors for social cognition. This paper presents scripts as an alternative resource in social cognition that can account for contextual and identity factors. Scripts are normative and context-sensitive knowledge structures that describe behavior in terms of corresponding events, situations, social roles, individuals, or mental state types in a way that guides action. The script approach presented here builds on recent accounts of social cognition but points out important differences and possible advantages it has over them: e.g., the script approach focuses even more strongly on context and identity.

0. Do we need another Approach to Social Cognition?

In standard theories of social cognition (Theory Theory and Simulation Theory), understanding is linked to the ability to explain and predict mental states of others (see also Musholt 2018).[1] Both laboratory studies and resulting theories offer

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[1] [1] When using „standard accounts", I refer to standard approaches to Theory Theory or Simulation Theory. Standard accounts presume that we need information additional to what is observed in the behavior – i.e., information about the internal, unobservable causes of behavior – in order to make sense of what we see. On Theory Theory, we consult a theory or database, and on Simulation Theory we engage in an act of simulation to understand mental states. I explain more on Theory Theory in section 4.2 as I compare scripts to a specific version of Theory Theory in that section.

simplified cases, where the focus is on explanation and prediction of mental states. But this emphasis has been called into question – for example, in direct perception approaches (Gallagher 2001, 2005, 2007, 2012; Gallagher and Hutto 2008; Zahavi 2005, 201) but also approaches defending a more hybrid understanding of social cognition (Nichols and Stich 2003, Apperly and Butterfill 2009, Butterfill and Apperly 2013) or approaches mentioning the role of scripts for social cognition (Bermúdez 2003, 2005). To explain how social cognition normally serves us in real life, I think we need to be asking a different question. Rather than asking how we predict or explain behavior, we need to ask which factors contribute to specific social interactions. The issue is not how we understand each other *per se*, as if we were disengaged observers, but how we manage to interact with each other. When we shift attention to practical concerns in the real world, two things become immediately apparent: context matters and social identity matters. There is mounting recognition of these points, and efforts under way to find theories that can best accommodate them. Here I contribute to those efforts by presenting a script-based theory of social cognition.

In what follows, I first discuss the issue of context for social cognition and interaction. The case for context will motivate approaches to social cognition that have context-sensitivity at their center. I then present arguments for why scripts present a social cognition resource that deserves to be taken more seriously. Scripts have already gained attention in recent approaches to social cognition (e.g., Bermúdez, 2003, 2005; Andrews 2012, 2020; Spaulding 2018). The goal of this paper is to make use of the attention scripts have received and motivate scripts beyond the consideration they are given in recent approaches. I do not try to prove that scripts are all we need—pluralism in this domain remains plausible (e.g., McGeer 2017, Andrews 2020, Zawidzki 2013)—but I argue that scripts should be placed alongside leading contenders as a major resource from which pluralistic theories might draw. Here I echo a point made by Bermúdez (2003: 46), who makes a plea for "social roles, frames and routines", but he, like the others, underestimates the power of scripts, relegating them to use in stereotyped situations. I motivate a script approach by offering an updated formulation of that approach that better highlights its advantages and potential. In arguing for the value of scripts, I focus on context-sensitivity and social identity. In this, I join other recent authors, who

defend integrative approaches (e.g., Spaulding 2018; Andrews 2012, 2020; McGeer 2015; Maibom 2007). The social cognition debate is no longer so polarized, and newer models find ways to combine resources. Scripts have been mentioned in these contexts but are underemphasized. My goal is not to show that any of the recent theories are flawed. Rather, this paper builds on recent approaches and offers a powerful addition – scripts - that strengthens the emphasis on the influence of socio-contextual factors on social cognition.

1. The Issue of Context for Social Cognition and Interaction

Social cognition is not just about being an observer of social scenarios, and about explaining and predicting others' mental states, but, more fundamentally, involves actual participation in social interactions that are embedded in a social world (Maibom 2007). To interact, one needs to attend to the demands of the current context and the roles occupied by everyone involved. Consider the different norms of conduct during peer socialization as compared to interactions with an authority figure in an institutional setting. In this section, I look at some more specific examples of social interaction that highlight contextual factors. This, in turn, motivates the alternative presented in this paper, scripts, which has resources to elegantly address contextual factors in social interaction.

Consider a scenario that crops up frequently to illustrate the task of social cognition: observing someone taking a drink from a refrigerator (e.g., Stich, 1996; Andrews, 2003; Goldie, 2007). This example is supposed to illustrate how people infer mental states, like beliefs and desires, from behavior. If agent A takes consumable object O from place P, we can infer that A wants O. However, this emphasis on generic cases conceals the wealth of highly specific sociological knowledge needed to understand and navigate the social world (Bicchieri 2006; Andrews 2012, 2020; McGeer 2015).

Rather than thinking about a situation in which we merely observe someone else's behavior, let us consider an example of an everyday social interaction between two humans: someone ordering a drink in a bar. To make sense of this scene, we need to know how ordering drinks works in this bar, and it also helps to know something about who is ordering and who is working at the bar, as well as the kind of bar and time of day. Immediately we are struck by the fact that the

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behaviors we observe and engage in in everyday life require a rich array of culturally informed and adaptable information.

Shifting the emphasis away from generic cases to real-life and everyday examples of social interaction helps to make sense of the specifics involved in social cognition and interaction. The tools we use in understanding social behavior are not limited to causal generalizations (e.g., if you want O you will seek O), but also involve specific factors (e.g., if you want a drink in a bar, you have to order it, then pay). The relevant knowledge is not just descriptive but normative (cf. Eickers, 2019, 2023). In the bar scenario, there are norms of politeness, age limits, norms about serving those who are intoxicated, and so on. We do not approach the social world from the position of neutral observers, but from the position of members of society, communities, and groups with deeply inculcated values. The social interactions of humans are largely driven by social norms, which humans in specific interactions are not necessarily aware of, but which are exhibited in coordinated or routinized behaviors. Consider for example gender norms. These impact our social interaction and social cognition. Take (unwritten) rules such as "boys don't cry" or "all women want children" – these are not descriptive but rather normative. They impact not only how we behave in social interaction but also how we are able to understand the people we are interacting with. That is, a person's identity may impact how we understand them based on norms around that specific identity. Recent approaches have started acknowledging that norms and identities impact social cognition. Spaulding, for example, motivates her account by criticizing standard accounts of social cognition, saying they "provide no basis for predicting how one's own social identity and the social identity of the target(s) will affect one's mindreading" (Spaulding 2018, 67). "Boys don't cry", for example, is a norm about whether and how certain genders are supposed to express certain emotions (cf. Eickers, 2019). This is accounted for in emotion theory, for example by Arlie Hochschild (1979), who argues for feeling rules guiding our emotional behavior, or by Imke von Maur (2021), who argues that norms have an impact on our emotion repertoires, i.e., on our capacity to engage in certain emotional behaviors.

Context has a pervasive influence on how our social interactions play out. But what is context and what does context-sensitivity mean? Here, context is understood to consist of different aspects: situational, personal, cultural. I

understand another person's behavior because of a script that is sensitive to (1) the situation in which the behavior appears, and (2) the individual displaying the behavior – including the individual's social identity, and (3) to the larger cultural context in which the individual is embedded and in which the situation appears. The examples mentioned below will show how those aspects provide context to social interactions and thereby determine how the interactions proceed. Let me look at an example now in order to make clear which contextual aspects and kinds of social interactions I'm talking about.

Suppose I see a stranger holding bread and I ask to have it. There would be no expectation that my command would be followed. But the same command is very effective in a bakery. If someone in a bakery gives me bread when I ask them to, I do not need an (explicit) explanatory posit that says people always follow commands. Nor do I need to postulate causal mechanisms (e.g., Gopnik & Wellman 1992, 1994); I can request bread (and be successful in doing so) without needing a theory for how hidden desires or beliefs cause action (e.g., a theory about what causes the baker to give me bread). Even if such a theory can be employed tacitly and non-explicitly, relying on a context-sensitive regularity that provides us with normative force (e.g., so that the baker follows my request) seems sufficient and more ecologically plausible here.[2]

The example provided points out that situational contexts determine how we understand particular social behaviors. Real-life social interactions seem to involve context-sensitive regularities – which do not require recourse to mental states. These regularities are not only specific to situations, but also to individuals. For example, my friend A always acts loud and extroverted when in a crowded bar but not in small gatherings, while my friend B always acts quiet and introverted when in a bar but seems extroverted in small gatherings or gatherings with close ones. That is, different contextual factors determine how we understand the social behaviors of others.

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[2] Coninx and Newen make the related point, complaining that some accounts of social cognition describe social interactions as if we were neutral observers rather than engaged participants: "The worry is that the observational stance which is usually adequate in science is only an exceptional perspective in understanding others, while humans are frequently involved in second-person interactions" (Coninx & Newen, 2018, p.130).

In observing emotions, which is a crucial part of many social interactions, we find much evidence for context-sensitivity as well. For example, if and how we perceive someone's anger will depend a lot on the context: Anger can be expressed in multiple ways. When we are on a subway, for example, it is likely that we share the ride with some people who are angry. But it is not necessarily considered appropriate behavior to shout on the subway or to release anger in a way that's more appropriate for private contexts. If a stranger on the subway is angry but does not show or express their anger in any way, it is very unlikely someone will pick up on their anger. In comparison, when a friend we have known for a long time is angry while we are on the subway together, we are typically able to tell they are angry by knowing more minimal cues or from their very specific way of dealing with anger. The friend does not necessarily have to show or express their anger explicitly in a way that everyone surrounding them will recognize; the friend might just go silent or use specific words or stand awkwardly. If the friend were angry in a more private situation, they would probably express it differently, e.g., be verbal about it.

This is borne out empirically. The same expression may have different emotional correlates on different occasions, and we may only arrive at a correct interpretation or coordination by drawing on contextual information (Barrett et al. 2011). There is also a wide variety of studies that have shown that fear, anger, and disgust, for example, are associated with different expressions in different cultures and that the recognition of those depends on context (Russell 1994; Matsumoto et. al 2008; see also Scarantino 2017). Thus, emotion attribution is not something we immediately pick up directly from visual inputs, but rather requires background knowledge that may be provided to us through context. Anger towards a colleague, a lover, a sales-clerk, a child, a politician, and a broken appliance will result in different behaviors. In turn, anger can only be recognized in these different contexts if our social cognition is able to make sense of contextual variation. In order to be able to explain this, it would be advantageous to have an account of social cognition and interaction that makes contextual variation a central explanatory goal.

In sum, contextual variation is a pervasive feature in social life. People will respond differently to me suddenly raising my arms in a business meeting versus me suddenly raising my arms when we work out together. This needs to be explained. One might therefore want to explore models that take context on in a

more central way. Scripts, I suggest, can handle context more directly, and a script-based account has some advantages over recent approaches that address context and identity, such as Model Theory or identity-sensitive versions of Theory Theory or hybrid accounts involving Theory Theory.

2. Scripts and Alignment

Scripts, I argue, offer a promising avenue for addressing context and identity. Scripts have received uptake in recent approaches to social cognition (e.g., Bermúdez, 2003, 2005; Andrews 2012, 2020; Spaulding 2018) but, I believe, scripts should be motivated beyond the consideration they have been given recently. Scripts still tend to be treated rather passingly (see Harris 2017; Zawidzki 2013; Bermúdez 2003, 2005; Maibom 2007; Spaulding 2018; Andrews 2020). Bermúdez was the first author to promote scripts in the context of debates about standard accounts of social cognition, but, as we will see, he advocates a hybrid model in which scripts play a limited role alongside these standard accounts. In addition, Bermúdez places no emphasis on context, identity, or social norms. He and others have also underappreciated the flexibility of scripts. Here I suggest that fully elaborated scripts offer more promise than has been appreciated in this literature.

Kristin Andrews (2020) has pointed to the normative turn in social cognition, by which she means to describe the rise of attention given to social norms and stereotypes in social cognition research. This normative turn has allowed tools like scripts to gain attention in the debate. As Andrews (2020) notes, standard approaches in social cognition have focused on explaining and predicting behavior individualistically. In more recent approaches, it has been argued that social norms and social roles contribute to our way of understanding and interacting with other people, and scripts may have a role in explaining how this happens (Eickers, 2023). There is no consensus, yet, however, as to how far that contribution goes and regarding the specific tasks in social cognition the suggested resources can handle.

2.1 What are Scripts?

Scripts are normative, context-sensitive, nested knowledge structures that describe behavior in terms of corresponding events, situations, social roles,

individuals, or mental state types in a way that guides action. Let's unpack this. To say scripts describe behavior means they indicate how people in various situations, roles, and states (etc.) are expected to act. They do this in a way that varies across context. They also serve as guides for action: someone using a script is not just informed about what others will do, but about the roles others play. This information is not just descriptive, but also normative: scripts specify how behavior ought to transpire. Scripts are nested in that they have component parts, which may themselves have corresponding scripts. A script for an event like buying bread is constituted of components such as actors (the customer and the salesperson), setting (the bakery), actions and behaviors (waiting turns, placing the order, giving money, getting change). This describes a script for a buying bread event. Its elements may also have corresponding scripts. For example, being a salesperson may be guided by norms of efficiency and politeness.

A crucial but underappreciated aspect of scripts is their combinatoric plasticity. The bread-buying event script can be combined with a script for anger. The anger script specifies how people behave when they are angry, and it can be made specific to contexts such as anger in the context of being a customer: angry customer might complain, raise their voice, make accusations. The angry customer script and the buying bread script can be combined: there might be an angry person in a bakery. Here, anger is grounded in context, and it becomes easier to imagine what the expression of anger in this situation looks like, how it influences the event, and how others can respond to it. An angry person in a bakery might, for example, complain about waiting too long or complain that a certain kind of bread is not available, and the salesperson might apologize or get mad.

Originally, the term "scripts" was used in reference to the performing arts: theater, movies, opera, role playing, and so on. However, the understanding of scripts that is provided in those contexts can and has been extended to how social interactions proceed. Unlike the scripts posited here, the scripts in performing arts are acted out deliberately (Funkhouser & Spaulding 2009; Russell 1991, 1994, 2003). Along with social scientists who use this construct, I want to extend this understanding of scripts to an understanding that allows for explicit as well as implicit information provided by a script. This distinguishes real life scripts (i.e., scripts for social interactions) from acting scripts. When we use scripts in real life,

we are usually unaware that we are acting upon or behaving according to scripts, and we do not acquire scripts by rote memorization; rather, we pick up on social norms and expectations about how we and others should act. These norms include behavior deemed appropriate or inappropriate in specific situations (like how to sit in a lecture hall or how to behave in a museum) and norms about social roles, among others.

Schank and Abelson (1975, 1977) were among the first to introduce the script approach to social interaction: specifically, they make use of scripts in their work on artificial intelligence, where they use scripts to explain successful alignment in familiar situations. Schank and Abelson argue that scripts are the perfect tool to describe a restaurant scenario. In a restaurant, the social roles are defined and obviously distributed: it's clear who the waiter/waitress is, it's clear what their tasks are, it is clear why people come into a restaurant. That is, there is a set frame of expectations and behaviors for a restaurant scenario. Following Schank and Abelson, Bermúdez posits scripts only for highly structured and repeatable situations (see Bermúdez 2003, 2005). Bermúdez also claims that, when we use scripts, we do not attribute mental states. Other social cognition resources are posited for cases that are less stereotypical and involve consideration of mental states on his account. This restriction for scripts to only account for stereotypical situations goes back to Schank and Abelson's understanding of scripts as conceptual representations of event sequences: "The understander is hypothesized to possess conceptual representations of stereotyped event sequences, and these scripts are activated when the understander can expect events in the sequence to occur in the text" (Abelson, 1981, 715). While this may help to understand scripts initially (or intuitively, even, because we may associate sequences with theater scripts), it postulates that scripts are somewhat inflexible, as they are internally structured in a specific sequential order. On this understanding, a script allows for variety regarding certain parameters, for example, leaving only a small tip for the waiter at the restaurant, but not others. Any deviation that is unrelated to the script itself, like for example the waiter starts laughing suddenly, is not accounted for by a script. It is important to note here, however, that Schank and Abelson have acknowledged more possibilities for script deviation and recombination (Schank & Abelson, 1977). For example, they state that new inputs "trigger detour paths in the

(…) script that are capable of handling them even though the impetus for them came from outside the script itself" (Schank & Abelson, 1977, p.58). This kind of flexibility of scripts has not been appreciated by Bermúdez and others who have relied on the script account provided by Schank and Abelson. *Pace* Bermúdez, Schank and Abelson show that scripts can be highly flexible. Their model explains how this is possible, but they also neglect some of the key dimensions of flexibility that I have been emphasizing here. I am suggesting that we take social norms into account (which hasn't been done by Schank and Abelson) and more specific aspects of contexts.

In contrast to Schank and Abelson, on the present account, scripts can capture both whole situations and much more specific things, providing even greater flexibility, and they are not necessarily structured sequentially or restricted to stereotyped situations. While we may in fact have scripts about temporally-extended social situations, such as "how to behave in a bar", these scripts consist of a combination of scripts for more specific elements of interactions, such as "how to order a drink", "how to say hello to the bar staff", "which emotional display to use with the bar staff". Scripts do not determine every detail of a social interaction—they may need to be supplemented on the spot (what if they are out of your favorite drink), but they are flexible enough to accommodate many specifics. The flexibility is needed as scripts need to allow for context to provide them with necessary information to be filled in. "How to order a drink" and "how to say hello to the bar staff" are scripts that guide our actions, but these depend on the specifics of a given situation: what kind of bar is it, which country and city is the bar located in, are there any behavioral norms people in this bar typically follow, is it a laid-back punk bar or a posh cocktail bar.

For Bermúdez and some who follow him, scripts are what we use when we entirely ignore what people are thinking or feeling. The present account departs from that approach. Scripts can also be applied to mental states, such as anger. So-construed, scripts can be a tool for coordinating social behaviors more generally (see Eickers, 2023). That is, scripts can do more work than has previously been attributed to them, i.e., we might have scripts about contextually situated emotions, about specific social behaviors of specific people, or about group dynamics in specific contexts. For example, you are at a funeral with a close friend, and

everyone seems sad and displays sadness. Then a minute of silence gets introduced. During the minute of silence, your close friend can barely hold their laughter. The stereotypical script for seeing someone laugh tells us that this is a display of being amused. However, the funeral script tells us that being amused is not among the things one feels at a funeral, especially not if the funeral has been consistently sad and also especially not during a minute of silence. Alignment does not seem to work to understand the laughing behavior in this scenario as the behaviors seem all but well adjusted. But the script(s) you have about your friend (the individual context) might help you understand the situation here: your close friend is prone to unusual behaviors, and they have burst into laughter in very unusual situations before. Here, the script(s) you have about this very individual help you navigate this unusual situation. Understanding the other person does not only rely on observable cues but also on our normative expectations about behavior in specific contexts or of specific persons, which are stored in scripts.

2.2 What is Scripted Alignment?

If the foregoing account of scripts is correct, scripts can guide our social interactions, our social understanding, our perception of emotions and emotional expressions, our social routines; in general, our socio-behavioral patterns. This allows for social alignment.

In referring to social alignment, I draw on Martin Pickering and Simon Garrod's work on alignment in interaction. They suggest that interacting individuals align their communication at multiple levels of representation. "Successful dialogue occurs when interlocutors construct similar situation models to each other. In our terminology, their situation models become aligned." (Pickering & Garrod, 2006, p. 204). While Pickering and Garrod are mainly concerned with verbal communication, it's plausible to transfer this model of alignment in interaction to social interactions more generally.

Alignment is the adjustment of behaviors of people to one another in a social interaction. Scripts are not just used by a single individual but can be carried out simultaneously by multiple individuals as when we sit in restaurants, classrooms, or metros. Scripted alignment says that scripts play a central role in such social

interactions. This is a shift away from theories of social cognition that emphasize an external observer's perspective on social situations. Often, in the literature on standard accounts, the task of social cognition is presented in a highly detached an individualistic way: a person observing social behavior instead of different people interacting with each other (see Musholt, 2018; Spaulding, 2018; Zawidzki, 2013). Scripted Alignment breaks from this pattern, both in emphasizing scripts, and drawing attention to the fact that scripts are guides to behavior, and the behaviors they guide often involve interactions with others who are also relying on scripts. The term "alignment" is meant to emphasize that social cognition exists, first and foremost, to facilitate interaction.

Alignment, here, means taking socio-environmental conditions into account without necessarily consciously representing them. Scripts allow for this because they do not need to be explicit, they often guide our behaviors implicitly, without us knowing or realizing that our behaviors are guided by scripts. Social norms are exhibited in coordinated or routinized behaviors. This is what leads to and/or constitutes alignment. We need not be aware of the social norms we exhibit. Alignment is made possible, due to implicit norms for social interactions and for specific patterns of social interactions, which are incorporated in scripts.

In this section, I have described what scripts are and how scripted alignment works, and indicated that scripts may be well suited to explain contextual variation in social interaction. In the following section, I will explain how scripts make sense of context and identity in social interaction.

3. **How Scripts Handle Context and Identity**

3.1 Context

As mentioned previously, there is a lot of evidence for context-sensitivity in social cognition. One domain where this has been actively investigated is emotion research. Context influences our interpretation of emotional expressions and recognition of emotions, and thus, our social cognition.

Expressions do not only indicate an underlying mental (i.e., emotional) state but they can also be precursors of (further) actions or behaviors. In response, observers of an expression may be motivated or required to (re)act or behave in a

certain way to the foregoing emotional expression. For example, as Fridlund (1997,107) argues, a sad face may read as a "recruitment to succor." These meanings are impacted by socialization. As Parkinson et al. (2005, 228) observe, "We pick up culture- and group-sanctioned modes of emotional conduct not only over the course of socialization but also as part of our continuing adjustment to the ongoing responsiveness of our interaction partners." For example, a smile can invite a reciprocal smile or gesture, and tears can invite soothing behaviors from the observers. The specific kind of behavior invited by an emotional expression is sensitive to context. While we might want to calm down a beloved person expressing anger, we usually distance ourselves from strangers expressing anger.

These examples can be accommodated by the script approach proposed here. In emotion research, it has been argued that we acquire scripts that tell us how to recognize emotions in specific contexts and how to deal with them properly in a specific situation (cf. Russell 1991, Hochschild 1979). Hochschild, for example, emphasizes the importance of contextual factors and social structures for social situations (e.g., appropriate expressive behavior for an airport or a New Year's Eve party). Based on considerations like Hochschild's, I propose that scripts are meaningful, context-sensitive knowledge structures that we acquire over time through practice and that enable us to coordinate and interact socially. Instead of simulating others, theorizing about others, or directly perceiving others' minds, we understand mental states as embedded in context via contextual information. Consider again the anger example from earlier: If a stranger on the subway is angry but does not show or express their anger in any way, it is very unlikely someone will pick up on their anger. In comparison, when a friend we have known for a long time is angry while we are on the subway together, we are typically able to tell they are angry by knowing more minimal cues or from their very specific way of dealing with anger. We are able to pick up on our friend's anger even if they do not shout or say that they are angry because we have a script for this friend's anger. A generic script for anger does not suffice to do the social cognition work in this situation since the friend does not display their anger in a generic way (i.e., shouting or making an angry face). Rather, the scripts that help us make sense of this situation and pick up on the friend's anger are context-sensitive. We have spent a lot of time with this friend and have learned that they do not show their emotions in public.

This knowledge has become incorporated into our anger script for this friend and made it person- and situation-, thus context-specific. That is, relevant information about our friend's social behavior has been stored in our minds in the form of scripts. Those scripts are now, in the subway situation, retrieved in order to enable us to interact and to predict the actions or behaviors of our friend. Likewise, we might ultimately use scripts to make sense of a polite (rather than a happy) smile. The situational context provides us with the necessary information to make sense of the smile and understand that it is a polite smile (e.g., being on a plane and seeing flight attendants smiling). Hochschild (1979) argues that different contextual aspects require different "feeling rules" – i.e., guidelines around our emotions and emotional expressions. That is, there are guidelines (or norms) governing which expressions to use in which situational contexts. These guidelines do not only hold for how we express emotion but will also for how we understand others' expressions. Such rules, on an individual level, can be understood as normative scripts: they tell us how to act in specific contexts.

If someone has no script that considers the possibility of polite smiling, a script-based approach will not successfully explain the example. It is within the scope of every theory of social cognition and interaction, however, that sometimes our social cognition is not successful. But, by moving the emphasis from explaining and predicting others' behavior to interacting with others, scripted alignment presents a more real-life-focused approach to social interaction than standard accounts.

The point about context-sensitivity discussed here extends beyond emotions; it applies to mental states in general. Real-life social interactions show context-sensitive regularities or patterns. We understand the behavior of the other person due to scripts and are thus able to align our own behaviors to them. If I have a script for the grieving behavior of a friend of mine, for example, due to having encountered their grieving behavior before, I am now aware that they do not like me to hug them when they cry when grieving, and I am thus able to update the general script my parents taught me ("Hug people when they are sad and cry") according to the context, in this specific case, according to the needs of my friend.

Previously, I pointed out that not all cultures feature the same emotions, emotion concepts, and emotion expressions. Accounts of social cognition and

interaction need to acknowledge that a specific instance of an emotion expression might be understood in different ways or might mean different things, i.e., a specific emotion expression might have multiple meanings or multiple ways to be understood.

Imagine two people having a conversation, and one of them suddenly frowns. Taken by itself, from the point of view of an observer, the frown carries multiple possibilities for interpretation – in the sense that as an observer, you can always understand that there are two people chatting or communicating somehow and then something happens that makes the person frown, likely something negative, but nothing more. Place that situation in front of a wedding altar, or in a club at midnight, add knowledge about the relationship dynamics between these two people, add the information that the other person starts laughing loudly at the frown, and the way we understand this situation will change accordingly. That is the case, I argue, because the context given provides the script to make sense of the specific social situation. From that, it follows that we are unlikely to interpret the described contextualized situation in front of an altar with the frown following an instruction by the priest as the two persons chatting about the death of their pet, for example. So, behaviors, emotional expressions, words spoken, interactions in general are taken as things-in-context via scripts. Scripts enable us to make sense of specific, i.e., context-dependent, social interactions. That is, scripts allow for context and enable us to not get lost in the multiple possibilities for interpretation, but to make sense of a specific situation or a specific emotion expression via the context accordingly.

3.2 Social Identities

Social identities have – perhaps even more so than context – been largely ignored in the social cognition debate. Only recently have they moved more into the focus when pluralists started addressing biases and stereotypes in their social cognition accounts. Ignoring social identities is not "merely" a political shortcoming; it is ignoring a large part of human social life. An alternative explanation of social interaction that takes norms and social identity (e.g., race and gender) into account has a lot of predictive power. Consider for example a norm like "boys don't cry". If someone who believes in this norm (or never questioned

this norm) sees a person they consider to be a boy or a man cry, they might ascribe weakness to them or interpret them as performing an inappropriate action. This stands in contrast to when the same person (who believes in the "boys don't cry" norm, e.g.) does not attribute inappropriateness to the crying person when they consider them to be a girl. The norm "boys don't cry" is manifested in a script that tells us how to understand the other person and that guides us on how to interact with them. That very script I just described might even lead us to soothe the person considered a woman and scorn the person considered a man.

Consider another example: a cisgender trainer working with a transgender customer at the gym. The transgender customer looks around a lot and seems quite distracted. The trainer notices this behavior and now tries to understand what's going on so they can adjust their behavior. The trainer might think that it's the customer's first time at the gym, or that they don't know how the exercises work. Whereas, in reality, the customer is mostly concerned that someone will notice they are trans. We can easily imagine a scenario where the trainer has had the possibility to build awareness around transgender customers. That is, the trainer's scripts for customers will now include scripts for understanding why a transgender customer might be nervous at the gym. If the trainer has no such awareness, they obviously have no script that will help them navigate the situation successfully – but the way they understand the situation might show us that they are relying on a more general "nervous gym customer script" that doesn't include specifics about social identity (yet). To overcome this limitation, it would help the trainer to learn that transgender customers may have concerns about outer appearance, and that these might be addressed in specific ways (e.g., steering clear of people in the gym who stare), and, thus, to update their customer scripts accordingly.

In the social sciences, such examples are typically treated as cases of bias (see, for example, Greenwald & Banaji, 1995). An example for biased cognition is bias in perception (Siegel, 2020; LeBoeuf, 2020), which may impact the way we perceive other people's social behavior. For example, if I experience a Black man as taller than he actually is due to bias in perception (cf. LeBoeuf, 2020), I may be more likely to ascribe social behaviors to him that are associated with dominance, or I may be more likely to engage in specific ways of interacting with him. Bias, then, also interacts with or influences our knowledge about others (see Beeghly,

2020). Scripts can shed light on biased cases of social interaction. The scripts for members of social identity groups may be patchy through inexperience, or erroneous through prejudice. Scripts also provide a resource for addressing bias. We need an explanation of the structures that cultivate and (re-)produce certain behaviors in order to be able to unlearn, extend, or replace particular behaviors. Scripts offer a tool that explains how we are able to learn sensitive behaviors.

Having sketched how scripts handle context and identity, in the following section, I compare scripts to other recent approaches to social cognition and interaction that do pay attention to context and identity. The script approach resonates with these recent proposals, but also has some differences and advantages, which deserve further investigation.

4. **Comparing Scripts to Other Recent Approaches to Social Cognition and Interaction**

The normative turn in social cognition motivated the search for approaches to social cognition that would be more overtly suited to explain stereotypes, context, and norms. Recent accounts of social cognition have started taking these factors into consideration (Andrews 2012, 2020; Spaulding 2018, McGeer, 2015 2017, Andrews 2020, Zawidzki 2013, Maibom 2007); e.g., factors such as stereotypes, bias, and situational context. Pluralistic and recent accounts have also criticized standard accounts of social cognition for not paying enough attention to the fact that social interactions are typically structured by norms in virtue of being embedded in the social world (Maibom 2007; Andrews 2020; Spaulding 2018) and that an account of social interaction needs to center context-sensitivity in order to be able to explain the vast variety of contexts we interact in. In addition, interactions depend on social identities – our position in social space. The need for an account paying attention to social identity is made clear when we consider social interactions between parties who are not equal.

Scripts are among the tools for social cognition that have occasionally been taken up in recent and pluralistic approaches to social cognition (e.g., Andrews 2020, Spaulding 2018). Here, I argue that scripts play an even more important role in social cognition than has been acknowledged in the approaches mentioned.

Scripts, I think, are a major resource in social cognition and interaction, and one from which pluralistic theories might draw.

4.1 Scripts versus Model Theory

Model Theory looks suited for contextual variation, since it presumes that we form different models to understand different individuals and situations. Model Theory presupposes contextual variation, rather than treating it as an afterthought. In this regard, I see Model Theory as the best current alternative, but there is a more general concern with the approach. Let me first outline Model Theory, then explain the concern I have.

In recent years, Model Theory has been proposed as a pluralistic (or hybrid) account of social cognition by Heidi Maibom (2005, 2007), Peter Godfrey-Smith (2005), and Shannon Spaulding (2018, chap. 5).[3] The origins of Model Theory can be found in philosophy of science. Traditionally, theories were often thought to be sets of propositions describing laws that govern a target domain. This view has been challenged by authors who think that theories often take the form of models: hypothetical structures that are used to understand target domains by resembling them.

According to Spaulding, social cognition works by "deploying a model psychological profile of a target. (…) We construct and apply simplified model psychological profiles of targets in order to understand complex social interactions" (Spaulding 2018, 68f). According to Maibom (2007), we use models rather than theories about other people's mental states in social interaction. Models, then, are "sets of objects with relations, properties, and functions defined over them" (Maibom, 2007, p. 567). In Maibom's approach, there are three different types of models: "models of behavior, social models, and folk psychological models" (Maibom 2007, 558). In sum, Model Theory commits to the claim that we use models to explain and predict the behavior of others.

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[3] Model Theory is often considered to be a version of Theory Theory (Spaulding 2018); sometimes also considered a pluralistic approach.

Model Theory is said to have some key advantages over standard accounts, specifically Theory Theory. These include: (1) There is no set of general propositions or laws that are supposed to cover all cases; (2) models are not necessarily about truth, so much as useful similarity; (3) Model Theory is not necessarily committed to hidden causes or mechanisms in the classic theory analogy; (4) models can be different for different cases, and they can take all kinds of information into account (stereotypes, social roles, etc.). Point (4) is especially important when comparing models to scripts. According to Maibom (2007), models take social structures into account by way of recognizing the social roles individuals inhabit in a given situation: "If I haggle with a merchant at the market, I need to know something about conventions of exchange" (Maibom, 2007, p. 564). That is, in a specific situation, I need to understand my own social role as well as the social role of the person I'm interacting with in order to be able to have a successful social interaction. By taking social structures into account, Model Theory outperforms standard accounts of social cognition. Models also resemble scripts in that way, as both incorporate social structures.

It remains unclear, however, how models incorporate the complex social knowledge provided in social structures as models do not seem to account for the social norms embedded in social structures and the flexible and complex nature of different normative expectations in a given social situation. Scripts ultimately address social norms via social structures. Think of a father who is irritated at his kid who complains about their father's parenting. The father might get irritated because he tries to understand his kid via a model that represents kids merely as the receivers of parenting rather than as being able to criticize parenting. So, the kid does not conform to the father's model. Reciprocity and resulting flexibility is lacking in models: the modeled system is not modeling the modeler. Scripts, on the other hand, provide for more flexibility: they can describe how the father might update his behavior upon realizing that his kid doesn't conform to an outdated script about how kids behave. Scripts, here, account not only for a fixed set of social roles, but for context: the kid here is a kid and thus fulfills the social role of a kid, but the kid here is also a specific kid – the father's kid, and a kid who is well-known by the father. Models may have difficulties accounting for the flexibility of social interactions fully. Thus, the emphasis on context-sensitivity and the normative

foundations of social interactions the script approach presents in this paper is stronger than that provided by Model Theory.

Models face a further challenge. When we interact with others, our responses are more immediate, and social interactions also seem to require a kind of immediacy. Representing models seems to be a cognitively demanding process, and thus unsuited to the fast and fluid nature of social interaction. Maibom (2007) specifies that, for models to work, they need to be supplemented by theoretical hypotheses in real-world social interactions: "To represent real-world state of affairs, they must be supplemented by so-called theoretical hypotheses, specifying the respects in which and degree to which they fit the world" (Maibom 2007, p. 567). Employing a model plus supplementing it with theoretical hypotheses is more cognitively demanding than employing a script. Scripts can be conceived of as more cognitively efficient since they (1) do not need to be supplemented by theoretical hypotheses and (2) due to their context-sensitivity and resulting flexibility, they work in a more procedural (or tacit) way than models. Earlier, I explained that scripts are flexible while being specific – meaning there are scripts for specific aspects of social situations that can get combined (into a "bar script", for example). Now, I describe that scripts work in a more procedural way than models and say that this is because of the context-sensitivity of scripts. That means, scripts are not fully determined or fixed knowledge structures (such as the sequential scripts Schank & Abelson (1977) were thinking of) but rather context-sensitive knowledge structures. I don't understand my friend's being angry at me because of a generic script about people making angry faces when they feel anger but because of a script that is sensitive to (1) the situation in which the anger appears, and (2) the individual displaying anger – including the individual's social identity, and (3) to the larger cultural context in which the individual is embedded and in which the situation appears.

I will now turn to comparing scripts to approaches that may equal scripts in being identity-sensitive.

4.2 Scripts versus Identity-Sensitive Approaches

The prevalence of norms around social identities and their impact on our behavior is a challenge to most theories of social cognition since they tend to be

ignored. Spaulding makes this point about standard accounts of social cognition, saying they "provide no basis for predicting how one's own social identity and the social identity of the target(s) will affect one's mindreading" (Spaulding 2018, 67). After having explored how scripts account for social identity in section 3.2, I will now compare scripts to other identity-sensitive approaches, specifically to possible identity-sensitive versions of Theory Theory (see, e.g., Westra, 2019). In order to engage in this comparison, let me first very briefly explain Theory Theory, and give an example for a hybrid account of social cognition.

The basic claim of Theory Theory is that we understand others by attributing the commonsense psychology (folk psychological theory) we have in our own minds to other minds (cf. Gopnik & Wellman, 1994). That is, Theory Theory states that we have theories of how minds work, for example, we have a theory of motivation that helps us explain why a person is carrying an umbrella. That explanation features supposed attribution of an underlying belief ("It will rain") and an underlying desire ("I want to stay dry"). In other words, via our own "folk psychological" theories, we make sense of the action of an individual by ascribing mental states to them, in much the way scientific theories explain observables by positing hidden variables (see, e.g., Gopnik, 2003; Gopnik & Wellman, 1994). As with science, such theories aim at generalizations, and the basic principles posited by Theory Theorists are often assumed to be applicable across the board (compare folk physics). On some versions of Theory Theory or hybrid accounts incorporating Theory Theory, the analogy to science is less prominent. For example, Nichols and Stich (2003) say we understand behavior using a third-person mindreading system that incorporates different mechanisms (Nichols & Stich 2003, p.94). Still, there is an emphasis on prediction and explanation.

In order to now explore the issue of identity-sensitivity, let's recall an earlier example: the encounter between a cisgender person (a trainer) and a transgender person (a customer) at a gym. The trainer notices the customer's distracted behavior and might think that it's the customer's first time at the gym. But the customer is actually concerned that someone will notice they are trans. As it was initially formulated, Theory Theory did not seem to provide a clear account of what goes on in such cases. It aimed at very general modes of explanation (belief/desire psychology), implying that the same theoretical tools would work in all cases. So,

in the example, it is not plausible to state that a cisgender person has a theory of how a transgender person feels and behaves in public places like the gym. But one can imagine a sophisticated version of the Theory Theory that would try to account for social identities. It could say that we can have multiple theories—theories for different groups. Perhaps a database view would allow for this. If I am a detective, I may have a theory of how serial killers think in my mental database and use it to do profiling. So, in principle we can generate theories for different kinds of people. Furthermore, when dealing with out-groups, we sometimes do make mistakes. So, Theory Theory defenders can say that our tendency to formulate general theories for all can explain cases where social cognition goes wrong. Theory Theory predicts that we will sometimes overgeneralize and fail (see Westra, 2019 for a discussion of stereotype-driven prediction errors).

But even an identity-sensitive version of Theory Theory would rely on mentalistic explanations and predictions of behavior. There are limitations here. The emphasis on explanation and prediction distracts from the specific factors, such as social norms, that contribute to our social interactions. Rather than trying to explain and predict students' behaviors, a teacher needs to motivate students (usually multiple students with different mental states), deliver content, and carefully engage with sensitive topics. Scripts seem more apt to explain such interactions as they capture the social roles and norms implicit here. Social interactions are structured and driven by social norms. For example, the trans person in the gym is a trans man and he is in the gym for the first time since transitioning and, as a consequence, doesn't have the social norms for how to behave as a (trans) man in a gym readily available, which leads him to be nervous about behaving in the 'correct', expected way. Likewise, when interacting with someone of a different social identity, we don't just interact with someone who is different on a descriptive level but also with someone who faces different normative expectations in social interactions due to their different social identity. This, in turn, also impacts the normative expectations placed on us when interacting with people of different social identities. The social norms for a man interacting with a man in the gym are different than for a man interacting with a woman, for example. We might also harbor bigotry against those who do not conform to our norms, or we may cultivate sensitivity to the norms of others. Theories relying largely on

mentalistic explanation and prediction fail to acknowledge and capture the work social norms do in social interaction. Scripts, in contrast, ultimately depict knowledge of what people with such-and-such identities are normatively expected to do in contexts like this, and what we are expected to do if we are interacting with them, and thus, do a better job at capturing norms (cf. Eickers, 2023). Of course, one might add norms and instructions for action to a theoretical database, but that would be tantamount to adding something like scripts. Scripts, it would seem, can pick up the slack for theories. Once we bring scripts into the equation, we have, at the very least, a hybrid view. But once a hybrid is granted, it's worth seeing how far we can get with scripts alone. I am not arguing here that theories are unnecessary, only that they need to be supplemented, and scripts offer a promising avenue that may also do some of the work that theories have been postulated to explain.

5. Concluding Remarks

In this paper, I presented an under-appreciated resource for explaining how social cognition and social interaction works. I motivate this alternative by pointing to issues standard accounts of social cognition have been criticized for and by drawing on hybrid and pluralistic models that have begun to look at how socio-contextual factors impact our social cognition.

The positive model I offered is called scripted alignment. Scripted Alignment explains social cognition by appealing to scripts. Patterns of social behavior get stored in scripts and are retrieved in order to enable us to interact, to predict the actions or behaviors of others, and eventually also to understand others. Scripts can represent situations, mental states, or even individuals. These scripts are not limited to fixed situations, as some have presumed, but may be flexibly nested and recombined (for more details, see Eickers, 2023, 2019).

One might object that scripts are just a version of Theory Theory, on its broad construal (Nichols & Stich 2003). It is a "knowledge-rich" account of social cognition (see Nichols & Stich 2003, p. 140, 150). But the account pushed by Nichols & Stich (2003) focuses on third-person mindreading, which is at odds with a script account motivated by rejecting the assumption that we approach the social

world from the position of neutral observers. Scripted alignment is closest, perhaps, to Model Theory, but places emphasis on action-guiding scripts rather than models that aim to resemble phenomena of interest. It also places greater emphasis than any of these approaches on norms. Scripted alignment says we use knowledge of what people with such-and-such identities are normatively expected to do in contexts like this, and what we are expected to do if we are interacting with them.

This paper is not intended as a full exposition and defense of how scripted alignment works. My goal here has been to motivate an alternative model of social cognition that focusses on accounting for socio-contextual differences in social cognition. This is in line with more recent approaches to social cognition that criticize standard accounts. Future work is needed to see just how far scripts can go in explaining social cognition. The best theory of social cognition may combine resources from multiple accounts, and I am content here to show that scripts may be a useful addition to a workable hybrid. But scripts need not be relegated to highly stereotyped interactions. By bringing in context and norms, they introduce tools that can help make progress on underappreciated and pervasive aspects of social cognition.

In emphasizing context, identities, and norms, the scripts approach shifts the emphasis from approaches that focus on folk psychology and focuses instead on the skills that allow for social interactions in real-world situations. Standard accounts emphasize cases that are abstract or general in ways that ignore the impact of culturally specific information, norms, and behaviors, such as social roles. In so doing, they leave much social cognition unexplained and unexamined. Such accounts can be, and have been, developed in ways to address these concerns, but, rather than doing so as an addendum, it is worth considering the introduction of an account that makes context, norms, and identities more foundational. The sketch of scripted alignment is intended as an invitation for researchers to explore ways in which social cognition is fundamentally linked to the kinds of social knowledge that guides our activities in everyday life.

As noted throughout, more recent approaches to social interaction and social cognition pay attention to social norms and context-sensitivity (e.g., Spaulding 2018; Andrews 2012, 2020; McGeer 2015; Maibom 2007). These authors touch on scripts in their discussions. I am sympathetic to these approaches and consider this

an extension of their efforts. The task of this paper was to show that scripts are more powerful than sometimes appreciated. Rather than being a minor tool, they may play a central role in social cognition. Further work may show that scripts can carry at least as much explanatory weight as models. We may ultimately want to expand the role of scripts in accounts of social cognition. My goal here was to show that script-based theories provide a serious alternative for explaining contextual and identity factors in social cognition and thus deserve to be more actively developed and explored alongside other recent approaches.

Acknowledgements

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