

## Alma Mater Studiorum Università di Bologna Archivio istituzionale della ricerca

Cognitive Science and the Nature of Law

This is the final peer-reviewed author's accepted manuscript (postprint) of the following publication:

#### Published Version:

Roversi, C. (2021). Cognitive Science and the Nature of Law. Cambridge: Cambridge University Press [10.1017/9781108623056.006].

Availability:

This version is available at: https://hdl.handle.net/11585/790699 since: 2024-07-29

Published:

DOI: http://doi.org/10.1017/9781108623056.006

Terms of use:

Some rights reserved. The terms and conditions for the reuse of this version of the manuscript are specified in the publishing policy. For all terms of use and more information see the publisher's website.

This item was downloaded from IRIS Università di Bologna (https://cris.unibo.it/). When citing, please refer to the published version.

(Article begins on next page)

## Ontology and Epistemology



### Cognitive Science and the Nature of Law

Corrado Roversi

#### 6.1 INTRODUCTION

Law is not simply a matter of rules: it is also a domain of facts and objects. There are professors of legal theory; Parliament enacted a statute; Italy is part of the European Union; that is a traffic light; this is my passport. These facts, and these objects, are complex. They are clearly dependent on rules – rules about universities, normenacting procedures, states, and traffic. Moreover, their existence depends on acts, events and artifacts: a student may receive a grade in legal theory because the professor gave an assessment of his knowledge during an exam; someone acquires the age of majority after reaching a predetermined age; what I have in my pocket is my passport, for it has the makings of one (it is a compact booklet bearing official insignia and a photo of someone who looks like me, along with stamps, signatures, dates, addresses, and other markers of "passportness"). Explaining these facts – their nature and structure, and more in general, the nature of law – is a crucial problem of jurisprudence and is a special case of the general philosophical problem of the metaphysics of social phenomena, discussed by the philosophical discipline that now goes by the name of "social ontology."

There is a relevant and quite intuitive sense in which social facts can be assumed to depend on the mental states of individuals. One could wonder about which individuals – members of the community at large or officials? – or about whether individuals suffice – should we postulate a collective spirit or mind? – and of course about whether other elements are necessary – contextual elements, historical considerations, power, and so on. However, in the end social facts depend necessarily, and at least partly, on mental states. If there were no human beings, or if human beings were incapable of having symbolic representations, legal and social facts could not exist. The features of this dependence, and the kinds of mental states

Throughout the chapter, I will use technical metaphysical terms like "depend" and "ground" purposely in a naïve way, simply to convey an idea of fundamentality. It is not within the scope of this chapter to enter into the difficult metaphysical problems connected with these notions when applied to law. Dedicated discussions can be found in (Epstein, 2015; Chilovi & Pavlakos, 2019; and Plunkett, 2019).

#### Corrado Roversi

involved, are two separate questions – the first metaphysical, the second psychological. The point, however, is that these questions are deeply intertwined. For this reason, legal metaphysics is inevitably an interdisciplinary research connected with cognitive psychology: it is not possible to have a clear idea of the nature of legal facts without understanding the cognitive underpinnings of the mental states those facts depend on.

In this chapter, I will adopt this interdisciplinary approach and try to outline a picture, however tentative and incomplete, of the psychological problems and findings that are relevant for research in the metaphysics of law. This chapter is based on two separate assumptions, which I will put forward as my analytical framework. These assumptions are drawn from research in social and legal metaphysics and will be presented by highlighting that research. The first assumption has already been mentioned: legal facts are a subset of social facts; hence, legal metaphysics is a subset of social metaphysics. For this reason, most of the first part of this chapter will deal with the relation between cognitive-psychological research and social metaphysics in general, not with the metaphysics of law specifically. The second thesis is that legal institutions are peculiar social institutions that put in place a framework consisting of sanctions, along with the authority to define, apply, and enforce shared rules of conduct in a formal way, namely, in terms of legal validity. Here, I provide a definition of legality – of what makes an institution legal. However, as we will see, this definition will be framed in the weakest sense possible, that is, without bringing a specific conception of law into play, or at least, hopefully, without falling into the legal-theoretical pitfalls one can encounter when attempting to formulate a view about the "nature" of law.

The analytical framework presented here will make it possible to distinguish two aspects of law, each corresponding to one of the two theses: one is the law's *root* in collective acceptance, the other is its *structure*, namely, a framework of sanctions and power/authority. Both these aspects ultimately trace back to cognitive mechanisms. The discussion is organized accordingly. Section 6.2 deals with the root of law, Section 6.3 with its structure, and for each of them I will first present its conceptual and theoretical background and then describe the connected cognitive-psychological studies and topics of research. It is important to set up this twofold treatment from the outset – theoretical first, then empirical – because otherwise the reader may find some difficulty in connecting the theoretical discussion with the ensuing presentation of psychological findings. Finally, in Section 6.4, I will summarize the overall picture.

#### 6.2 THE ROOT OF LAW

#### 6.2.1 First Thesis: Legal Facts Are a Subset of Social Facts

The first thesis, here taken as a working assumption, is that legal facts are a subset of social facts. Hence, in order to explain what legal facts are, we need to explain both

the general features of social facts and the special features of law as a social fact. Law regulates interpersonal relationships and thus cannot play a role if not within a social group. I will assume that social facts are themselves grounded, at least partly, in the mental states of human beings. I take these assumptions to be quite intuitive and in a sense conceptual. To be sure, the label "social" could apply to animals that are not capable of having complex mental states, but this is not the kind of society that can insightfully be placed in the background of law such as we find it among human beings. Human society requires human mental states to exist; this is all we have to take for granted. And human mental states have contents: they refer to something and are thus instances of human "intentionality," a term which in philosophy denotes precisely the capacity to have something as object and content. For example, if we believe that it will rain, if we want to be somewhere else, or if we intend to take an exam, all these mental states involve kinds of intentionality.

In what follows, and for analytical purposes, I will make a distinction between ideal-typical layers of complexity in human society based on the kind of intentional states involved and the way in which these states are interrelated. In particular, I will distinguish four levels of sociality, levels o through 3. Level o is the baseline of sociality, that is, acting together; level 1 is a fundamental element, the acceptance of norms; level 2 is a specific thing we can do together, namely, attribute a status; and, finally, level 3 combines levels 1 and 2 in the attribution of a status through social norms. In the passage from level 0 to level 3 the creation of social facts is made possible. I will be using this framework for the entire chapter, so it is important that we bear that in mind. Let us then see how it works in detail.

Intentions, conceived as a specific instance of intentionality, are crucially important in understanding social facts. Consider this example:

#### 1) Yesterday we cooked our dinner together.

This is a case in which an action is ascribed not to an individual but to a group; it is thus a social action. And, just as in the case of individual actions, it makes sense to ask whether the action was intentional, and here it does indeed seem reasonable to suppose that it was. But then another question emerges: is the intention behind a collective action different from an individual intention? There are several reasons to suppose so: Our collective intention to cook our dinner cannot be fruitfully analyzed as a sum of individual intentions. Suppose I walk into the kitchen with the intention of cooking a meal for myself, and my wife does the same for her meal, and then we eat at the same time and in the same place: would this count as "cooking together"? The answer is no: my wife is not cooking together with me; she is simply cooking her meal at the same time as me. Hence, at least a certain degree of interconnection among the participants" intentions and actions is necessary for a collective intention and action to be in place. (A similar example, involving parkgoers, can be found in Searle, 2002.) This collective action, supported by a collective intention, is what I will call "level o sociality": basic joint action.

The actual structure of the interconnections behind level o sociality is much debated in the current literature on collective intentionality. Some authors (among whom Michael Bratman, Seumas Miller, and Kirk Ludwig) believe that collective intentionality can be explained by relying on a minimal framework of individual intentions, *plus* a series of special correlations among them (Bratman, 1992; Miller, 2001), or in any case by relying on notions that are already in use in our understanding of individual intentions and actions (Ludwig, 2016). Others (among whom John Searle and Raimo Tuomela) think instead that a specific mode of intentionality is also needed: Intentions, on this view, can be held either individually or collectively (in the "we-mode," to use Tuomela's expression: Tuomela, 2013). Searle, in particular, maintains that collective intentions, and more generally collective intentionality, are "biological primitives" of human beings (Searle, 1995, 2010).

Apart from collective intentions, there is another kind of collective intentionality that is crucial to understanding social phenomena: collective acceptance. Consider this case:

2) At today's meeting we decided that members of the association should adhere to a formal dress code when attending monthly meetings.

Here a collective intention is at play, as in the case of cooking together, but in this case the collective intention has to do with the creation of a rule that all the members of a given group are made aware of and asked to abide by. This is what I will call "level 1 sociality," namely, a situation where a social norm is introduced. There is an important distinction to be made here between the introduction of a norm and its continuing endorsement. The introduction of a norm can very well be an instance of joint intention and action, and so can be explained at level o. The endorsement of the norm – the process through which the norm is "kept in place" as effective – is instead based on an intentional state that differs from collective intention, namely, collective acceptance. Collective acceptance is weaker than collective intention, because it assumes a weaker sense of cooperation by members of the group. Some members of the association will resent this rule, and certainly will not feel they can heartily endorse it. In some cases, they will even end up "forgetting" the rule, and in those cases the rule will be enforced by others by recourse to soft kinds of sanctioning, like quipping and chuckling or gossiping, or else to formal punishment, like expulsion. Indeed, Searle (2010), Tuomela (1995, 2013), and Gilbert (1989) all clarify that, in the case of acceptance, the we-mode and collective character will allow for a weaker sense of cooperation, and Searle, in particular, maintains that it can be compatible with a set of individual intentions coupled with mutual beliefs.

Consider now this example:

3) At today's meeting we decided that Mr. Pink is the founder of the association.

Here, a more specific kind of collective intention and action is considered: we decide to attribute a status according to which something must be collectively

considered as something else, and this "something else" has relevant normative consequences for the group. This is what I will call "level 2 sociality": the attribution of a status. As in the case of social norms, status attribution involves collective acceptance. In this particular example, members of the association accept that Mr. Pink is the founder and that they should behave accordingly, as by conferring some rights and powers on him. And, as in the case of social norms, these members are not expected to be necessarily enthusiastic about it, or even to know what the status entails in practical detail. They should simply have a disposition to behave according to the attributed status.

Levels 1 and 2 can be combined. Consider this final example:

4) At today's meeting we decided that all presidents of the association who have served in that capacity for at least five years are to be recognized as honorary founders of the association.

Here, too, a status is attributed, but through a general rule. Members of the association do not know who will become honorary founder, but they collectively accept the rule by way of which this status is attributed. This rule does not state who the honorary founders are here and now, but frames the conditions for identifying them in all situations, across different possible worlds so to speak. This is what I will call "level 3 sociality": status attributions through social norms. The distinction between levels 2 and 3 is that in the first case the group simply attributes a status to a specific entity, and people go along with this attribution, whereas in the second case the group accepts a rule, which is constitutive of the concept of a status in defining its conditions of applicability, and that rule assigns the status to different persons depending on circumstances. Moreover, the distinction between levels 1 and 3 is that the latter requires collective endorsement not simply of a social norm, but of a norm that "creates" a new kind of institutional entity. Level 3 includes constitutive rules in Searle's sense, namely, rules under which something "brute" (X) "counts as" something "institutional" (Y) having a status and a normative import, in Searle's (1995, 2010) terms: having a "status function" and "deontic powers."

It should be clear that level 3 plays a particularly important role in the social phenomenon we call "law." Status attribution is a form of attribution of social meaning, and law is one kind of such attribution: In law, internal legal concepts such as "owner" are created by using rules to specify the way in which these statuses can be accorded, on the one hand, and the normative consequences of these statuses, on the other (Hage, 2018, ch. 2). Indeed, this kind of analysis shows how legal facts are connected with the creation of symbolic statuses in general, among which are fictions, games and rituals. Kendall Walton (1990), for example, argues that fictional truths in the context of "games of make-believe" depend on "principles of generation" that determine the coming into being of fictional facts on the basis of "props," and indeed the mechanism is very similar to that of constitutive rules Corrado Roversi

104

connecting "brute" facts with "institutional" facts.<sup>2</sup> As Amie Thomasson (1999) shows, fictions are particular cases of artifacts, and some recent approaches in legal theory have argued that the reality of social institutions can be traced to the general human capacity for building artifacts. According to the so-called "artifact theory of law" (Crowe, 2014; Burazin, 2016, 2018; Ehrenberg, 2016; Roversi, 2016, 2019; Burazin et al., 2018) law is a genre of abstract rule-based artifacts, namely, artifacts built to enable interaction among human agents and that work if the underlying rules are collectively accepted. Legal artifacts in particular are meant by political authority to hold generally and to shape the community members' normative reasons for action.

We now have the theoretical underpinnings of the first thesis, which is that legal facts are a subset of social facts. The overall picture that emerges from this account is that law is ultimately rooted in four distinct and progressively more complex layers of sociality, moving from joint action to symbolic status attributions by way of social norms. Of course, there are significant objections and important alternative views in social ontology and in the social sciences (Epstein, 2018). A game-theoretic approach, for example, will explain institutions without requiring rules or acceptance but rather calling for individual strategic preferences and behavioral regularities (see Lewis, 1969; Ullman-Margalit, 1977; Bicchieri, 2006; among others). A more sociological approach will define institutions as sets of rules aimed at reducing uncertainty by stabilizing the expectations of individuals (see, for example, Parsons, 1935; North, 1990; and Hodgson, 2006). Significant work has also been done to merge these two last accounts (Hindriks & Guala, 2015). One could also object, on a more general note, that the background of sociality as depicted on this approach is too "irenic": overly focused on cooperation, while glossing over the basic conflicts that lie at the core of any society (see, for example, Fittipaldi, in press, with a focus on jural emotions). But I cannot here argue for the merits of the four-level approach: As mentioned in the introduction, the theoretical underpinnings of this chapter are assumed as an analytical framework. Hence, how compelling this systematization of the cognitive-psychological elements will seem as a framework within which to analyze legal reality will depend on the degree to which we share the underlying assumptions. Regardless, however, the approach will at least give us a clearer idea of how we might want to complement the picture.

Incidentally, tracing the roots of law to status attributions similar to fictions is a strategy that finds some common ground with the legal philosophers who have looked most deeply at the way legal institutions emerge from collective psychological processes, namely, the so-called "psychologistic" legal realists traceable to Scandinavian and Polish-Russian legal realism, and none more so than Axel Hägerström, Karl Olivecrona, and Leon Petrażycki (see Hägerström, 1917, 1941; Petrażycki, 1955; Olivecrona, 1971; see also in this regard Pattaro, 2016 and Fittipaldi, 2016).

### 6.2.2 The Cognitive Structure of Collective Intentionality and Acceptance: Ioint Action

Let us focus on level o of sociality: joint action. As mentioned above, there are several different models for the analysis of joint action developed by contemporary social ontology: I will take three of these models as a starting point for discussion. The first model, which is Michael Bratman's (1992) analysis of shared cooperative activities, is exclusively individualistic: It involves only individual intentions (ones that I, as an agent, can have); but these intentions take a "we" as their content ("I intend that we j") and are interconnected by way of mutual knowledge. The second model is that of John Searle's (1995, 2010) collective intentionality. Here we are at the opposite end of the spectrum relative to Bratman's model. In fact, Searle's model assumes that intentions are primitively held in the plural mode, as a "we." On Searle's view, an individual could even have a collective intention on her own, as a "brain-in-a-vat," given that she is biologically and neurologically framed to have intentions in the plural form. But, of course, joint action is possible only when intentions framed in this way are shared among different persons. Finally, the third model combines elements from the last two: this is Raimo Tuomela's (2013) conception. Here, joint action is indeed the outcome of an interconnection of intentions held by individuals - hence collective intentions could not be had by one person alone, as in Searle's case – but these intentions are not framed in the same way as individual intentions are in Bratman's theory. Rather, Tuomela singles out the concept of "we-mode we-intention," which is a slice of a joint intention that someone can have not simply as an individual but rather as the member of a group ("As a member of this group, I intend that *p* like the other members").

The capacity for joint action and joint intention is crucial in accounting for the specificity of human sociality, as opposed to that of other animals, including the great apes. Now, of course, the kind of cognitive abilities required to engage in joint intentional actions depend on which model you take as your starting point, either Bratman's minimalistic model or Searle's strong collectivist view or Tuomela's "middle way." But there is at least a minimal set of progressively stronger cognitive conditions that must be met in all these three models: participants must be able to (1) have intentions, (2) understand the intentions of other participants, and (3) coordinate their own actions with those of others according to a more or less explicitly shared plan geared toward a common goal. Whether the great apes can meet all these conditions is contested. According to some scholars, chimpanzees and bonobos have significant mind-reading abilities and can meet conditions (1) and (2); they can even sympathize with groupmates and help them, and they can keep their own impulses under control when at risk, but they cannot (3) share a plan and cooperate in working toward a common goal (Tomasello et al., 2005, p. 676; Dubreuil, 2010, pp. 55–58; Gallotti, 2012; Tomasello, 2016). In particular, although chimpanzees and bonobos show some kind of cooperation in group hunting for monkeys, they do not

clearly show a capacity to act interdependently, that is, as agents acting under a single plan: They mostly act individually, each doing the same thing, at best taking into account the actions of others (for example, "one individual begins the chase, and then others go to the best remaining locations in anticipation of the monkey's attempted escape" so as to increase their own chance of taking the prey for themselves: Tomasello, 2016, p. 27). And, in case of group defense, the great apes "mob" their enemies, showing no sophisticated forms of cooperation (ibid., p. 23). Other scholars instead argue that there are indeed signs of sophisticated forms of cooperation among chimpanzees, such as supporting the status of others, acting strategically (see de Waal, 1998, pp. 31–32, 197–99), and differentiating roles when group hunting (Boesch, 2002). It is clear, however, that as considerable as the cooperation abilities one can observe in great apes may be, they are magnified and brought to an entirely new level of complexity in humans.

Human children are clearly capable of dyadic interaction and responsiveness with their caregiver since birth. From the age of six months, they can share a goal and do something together with their caregiver to achieve that goal, and from the age of twelve to fifteen months, they can actively interact with their caregiver, coordinating individual plans and actions (Tollefsen, 2004; Tomasello et al., 2005, pp. 681–683). On the one hand, this last capacity involves the ability to interpret the emotions of others and adjust one's behavior on that basis (distinctive capacities for emotional sharing, like emotion detection, mood contagion, and empathy likely play an important role in building joint action; Michael, 2011). On the other hand, it involves a greater ability than primates have to share perceptual space and perceptual attention: a capacity for joint attention, which develops at an earlier stage than joint intention (Tomasello & Carpenter, 2005, ch. 5; Dubreuil, 2010, pp. 57–58). Subsequently, at the age of four to five years, human children on that basis develop full-fledged perspective taking in the background of a robust theory of mind, namely, an understanding of others in terms of their thoughts and beliefs as well as an understanding of the fact that others' beliefs may differ from their own (Tollefsen, 2004, p. 81). In adults, attention sharing is embodied, in the sense that on the basis of gaze direction and head and body orientation, individuals can figure out what another is seeing as if they were seeing it themselves (Becchio et al., 2013). Moreover, the actions of another agent are represented and have an impact on their own actions, even if there is no strict need for coordination (Sebanz, Knoblich, & Prinz, 2003). Finally, it seems that human adults simulate the actions of others on the basis of an understanding of their task, and that they act accordingly, as part of their conceptualization of a given social situation (Sebanz, Knoblich, & Prinz, 2005). Electrophysiological evidence can be found in Sebanz et al. (2006) and in Tsai et al. (2006), but see Vesper et al. (2010, p. 1000).

Some authors conjecture that this set of abilities can be based on the multimodal capacity of mirror neurons, in which motor and sensory properties coexist. See, for example Becchio and Bertone (2004, p. 131), Tollefsen (2004, p. 95), and Sebanz

et al. (2003), but skepticism about this approach has been raised in Pacherie and Dokic (2006). This multimodality makes it possible to understand the action of others in our group on the same cognitive basis we rely on when we engage in that action. Hence, there is a connection here to the idea of roles that (a) are all distinctly necessary in carrying out the plan, (b) are to a significant extent interchangeable, and (c) can be performed by me or my partner depending on the circumstances. Thus, at the core of human cooperation lies the triadic system according to which "I" and "you" act according to a role under the activity that "we" are doing together, a structure of roles that is geared toward a shared goal (Tomasello et al., 2005, 2016).

Whether this interpretation supports Bratman's model or Tuomela's or Searle's is an open question. On the one hand, Bratman's model seems to require a complex set of interrelated intentions along with recursive representations of others' beliefs, a structure that has been argued to entail a cognitive load too great to explain joint actions in small children (Tollefsen, 2004; Michael, 2011; Pacherie, 2011; Butterfill, 2012; Gallotti, 2012). On the other hand, if humans can have representations as if they were in the place of another, and if this capacity is built into our neural structures, our model will have to postulate some hardwired capacity to process actions in a collective, intersubjective modality, thereby at least lending some support to Tuomela's idea of a distinctive, we-oriented way of having mental content, if not to Searle's stronger model of we-intentions as primitive modalities of our brain. The cognitive relevance of "we-representations" is also shown by the so-called "GROOP effect" (Tsai, Sebanz, & Knoblich, 2011), according to which adult human beings increase their capacity to perform an action when they perceive others performing the same action, but only if there is an equal number of performing actors and observed actors. This effect can be interpreted to imply that there is a distinctively "group-oriented" way of representing action when someone is part of a group.

Hence, level o sociality (joint action) can be traced to a distinct ontogenetic process in human individuals, that is, a process that all humans go through in their development. It has been conjectured that this ontogenetic development could map onto a phylogenetic development – an evolutionary development of the human species – and could thus point to an emergence of these cognitive capacities in species under the *Homo* genus, giving them an evolutionary edge over other species. With the emergence of Homo habilis (2 million years ago) came a progressive process of self-regulation: Interpersonal relations grounded in dominance and competition had to change, because cooperation was the only option in competing for food in a natural environment made particularly difficult by climatic changes. In particular, cooperative joint action in its most primitive form was rendered necessary by two activities that secured a competitive advantage for humans in gathering food: the first was cooperative group hunting of big animals by males, which ensured access to large amounts of meat but also required accurate planning; the second was cooperative breeding of children by females, which gave mothers some time to gather resources (Tomasello, 2016, ch. 3). These developments in turn prompted

anatomical and neurological changes, which in further turn led to even greater cooperation: The enlargement of the brain, and in particular of medial prefrontal cortex, which made mind reading and perspective taking possible, meant that it would take longer for the brain to develop in children: this in turn meant that pregnancy and birth would be more painful for the mother (because the child's head is bigger), which strengthened the need for cooperation in giving birth to, raising, and protecting the offspring. Moreover, this kind of cooperative attitude ultimately led to a reduced dimorphism between males and females by comparison with other species, such as chimpanzees or gorillas (Dubreuil, 2010, pp. 80–83). Finally, greater competition in food gathering required greater flexibility in changing context and environments, and thus greater risks, which could be taken only if cooperatively shared within a group (ibid., pp. 68–70). The first migrations out of Africa, which can be attested at least for *Homo erectus* (1.8 million years ago), should therefore be considered in light of an improved capacity for joint action. Level o sociality was a crucial and necessary tool that human animals had to develop in order to survive.

#### 6.2.3 Joint Commitment, Social Norms, Rights, and Duties

There is a further notion we need to take on board if we are to fully understand the structure of joint action and the passage to a fully normative framework, namely, the notion of joint commitment introduced by Margaret Gilbert (1989, 2014). On Gilbert's conception, which can be grouped with Searle's and Tuomela's collectivist conceptions of collective intentionality, the construction of a "plural subject" requires a sort of original communicative (though not necessarily linguistic) act through which the partners agree to undertake a joint activity and commit to acting accordingly. This means, in particular, that they will be mutually supportive in performing the activity the group is to carry out, and that they will not drop their commitment without justification. I will try to show how, from this original sense of commitment, early humans could have evolved full-fledged social norms.

Commitment was a crucial element of cooperative group hunting as early as at the time of *Homo heidelbergensis* (700,000 to 300,000 years ago). In experimental settings, reproducing the features of stag hunting – a game where cooperation is needed to get the best payoff, but a lesser payoff can also be obtained through noncooperative behavior – children solve cooperation problems through communicative gestures, whereas great apes in the same setting do not. Thus, it can be conjectured that this element made possible the "cooperative" leap in early humans. Nonlinguistic communicative offers of cooperation were made on the unspoken understanding that the prey would be shared equally, and if uncooperative members sought to gain a bigger share, they would be excluded from the practice, in such a way that they could no longer exploit the prey (Tomasello, 2016, pp. 65–67, 70–72). Indeed, commitments have a crucial place in ensuring the predictability of others' behavior in cooperative activities and so in stabilizing expectations (Konvalinka

19.12.2020 4:47PM

et al., 2010; Bolt & Loehr, 2017). Through commitments, cooperative agents fulfill roles that are connected with tasks, and it is crucial to joint activity that these tasks be coordinated and that a monitoring process be in place for detecting errors (Vesper et al., 2010).

The element of commitment as part of joint action is understood by human children even as preschoolers. Warneken and Tomasello (2009) show that already at the age of fourteen months, infants who are engaged in a collaborative activity attempt to reengage the partner when the interaction stops abruptly. Three-year-old children engaged in joint activities based on an explicit commitment show particular expectations toward fellow children (Gräfenhain et al., 2009), and they are also less likely to yield to the temptation of giving up (Michael, Sebanz, & Knoblich, 2016a, p. 4). Finally, Hamann, Warneken, and Tomasello (2012) and Gräfenhain, Carpenter, and Tomasello (2013) found evidence to show that three-year-old children are supportive of their partners in activity and help them even when they themselves have already earned their reward.<sup>3</sup>

In early humans, having a reputation for being a cooperative agent could mean having better chances of survival, and of course cooperative agents had access to better support, which in its own turn implied a higher success rate in reproduction: In this sense, human cooperation could be a mechanism of social evolution (Haidt, 2012, ch. 7, quoting Trivers, 1971; cf. Trivers, 1985), an instance of pure biological cooperation, progressively enriched through cultural means in the development of species under the *Homo* genus (see Birch, 2017, p. 34 and ch. 8). At first, commitment was purely instrumental, and it would arise from an *external* source, when a cooperative fellow member would protest the noncompliance of others. Normative notions can in this sense be said to have first emerged as a second-person morality, meaning that they initially took the form of judgments that others would make of our cooperative attitude, and the assurance we would give others of our own cooperative attitude, and this was functional to building the framework for mutual compliance (Tomasello, 2016, pp. 67–70, 73–75; Darwall, 2006). It was basically a matter of mutual expectations.

In a sense, the function of commitments in carrying out joint activities at such an early stage is mysterious from the standpoint of instrumental rationality, because there is nothing to ensure that others will actually live up to the commitment (Michael & Pacherie, 2015). Moreover, some studies show that children under the age of nine have difficulties fully grasping the moral significance of commitments and the conditions under which commissive speech acts give rise to commitments (Astington, 1988; Mant & Perner, 1988). For this reason, some have conjectured that while children at three years of age have only a minimal normative notion of commitment, this normative notion is already at work in joint action starting at the age of two, where it is connected with the emergence of social emotions. Children develop the ability to commit and protest when others fail to comply with a commitment: This is part of their ability to share emotions with others and avoid negative emotions, an ability they exercise without any prudential calculus, that is, without calculating the risk they incur for failing to keep their commitment or for protesting when others do not, and without being able to predict when others might comply or not (Michael & Pacherie, 2015, p. 111).

#### Corrado Roversi

It has been argued by Michael et al. (2016a, p. 9) that at the age of two, children are already sensitive to others' expectations and have expectations about others when trying to achieve a goal. Thus, the default mode at that stage is to expect help and give help if expected. Only in further development do children understand that they should not have expectations in all cases and that commitment in the strict sense arises only under more definite circumstances, and this holds even when humans observe joint action from the outside. When action is highly coordinated, a perception of commitment arises independently of whether an explicit commitment was signaled or otherwise understood to have been made (Michael, Sebanz, & Knoblich, 2016b). Moreover, experimental game theory seems to support the view that there is in humans a default mode that consists in fulfilling others' expectations.<sup>4</sup>

What humans wound up developing with the construction of joint commitments was thus a second-person basic morality based on the actual commitment and expectations of other participants. But, over and above that, they also wound up developing normative notions endowed with a higher degree of objectivity. Agents whose offer to cooperate was accepted deserved their share of prey. At the same time, they had a duty to act according to what had been agreed to, which in turn meant that they had a role that they had to fulfill, failing which they would have been guilty of breaking their commitment. All these elements were connected with expectations and with emotions of aggressiveness if these commitments were to go unfulfilled (Fittipaldi, in press). This coupling of roles and rights – roles with associated duties that had to be fulfilled, and rights to reap the ensuing benefit - thus came to be a crucial coordination-smoother (Vesper et al., 2017): Tasks were structured in the interaction, and errors corrected by other participants in the activity. Personal identity gradually became social, that is, it came to be grounded in a cooperative role. Starting at three years of age, human children feel a responsibility to communicate to the adults they are interacting with that they are willing to give up a joint game and shift to another one. They also make some amends for breaking their commitment to participate in the joint activity they and their fellow participants (their "we") are doing together (Gräfenhain et al., 2009, 1436ff.). This independent feeling of responsibility could thus be imagined to have developed in early humans, perhaps as the result of internalizing others' protests when their expectations were not fulfilled. The idea of a collective notion, we, gave place to the idea that duties

Studies have shown that participants in joint action persist longer when they perceive cues from other participants that they, too, are contributing to the action (Skezely & Michael, 2018). When people are asked to invest in anonymous public good situations (where all participants can contribute to a pool of resources which will then be evenly divided among them), they will be more generous in giving if they see images of eyes (Francey & Bergmüller, 2012). Finally, in anonymous one-shot dictator games (in which one person gets to choose how to split a sum, and the respondent cannot refuse that offer), people tend to give away less money if they find themselves in a "double-blind" setting, namely, when they know that the experimenter will not know how they have chosen to behave (Camerer, 2003, pp. 62–63).

110

were not directly dependent on the protests of others, but were instead grounded in shared, quasi-objective grounds: in what we are doing together. Someone could develop a sense of guilt even when others did not protest (Tomasello, 2016, 73–75).

Roles ultimately came to be detached from particular agents. They could be fulfilled by anyone capable of performing the related tasks and fulfilling the attendant duties, and willing to access the related rights. The plural subject formed by two or more individuals who shared an original agreement gradually evolved into a group, defined by means of imitation and similarity – a shared culture – rather than being defined by actual and personal contact (ibid., pp. 88–90). Second-person morality based on joint commitments and direct contact evolved into a system of fixed moral conventions that applied to all the members of the group (ibid., pp. 96–97). This is where level 0 sociality advanced to level 1: joint action gave place to social norms by way of joint commitments. The development of social norms is commonly taken to be a distinctive feature of humans, though here, too, the assumption is far from uncontested.<sup>5</sup>

Four elements come into play in the progression toward full-fledged normativity in humans: (i) loyalty to the group as motivation for following norms, (ii) legitimation within the group as justification for those norms, (iii) the idea of a normative duty as distinct from a merely prudential reason for action, and hence (iv) an objectivizing of norms as standards that hold good independently of personal interests (Tomasello, 2016, pp. 122–126). Among these elements, a tension between two poles can be identified: at one end is the *strategic* consideration that group membership was necessary to one's own survival; at the opposite end, a *disinterested* recognition of norms as objective entities. The tension was solved through the device of normative identity: I am what I am because I am a member of this group, which means that I abide by those norms because those norms are objective in the same way as I am objective (ibid., pp. 105–107, 111–115).

An important role in this process of normative objectification may have been played by the development of language. First, because language was among the main conventional practices through which the boundaries of a group were defined, and second, because through language it became possible to hypostatize norms in such a way that they could exist independently of any specific personal relationship (ibid., 102–103). This process of objectification was needed as a way to strengthen

<sup>5</sup> See the interesting observations on "animal norms" and on "evolutionary precursors of social norms" in Lorini (2018) and Rohr, Burkart, & van Schaik (2011), respectively, as well as the studies on "natural normativity" in De Waal (2014) and on nonhuman "naïve normativity" in Andrews (2009, 441ff.; 2015, pp. 55, 59–62).

A shared language plays a role in defining normative behavior: There is an important linguistic factor at work in human children when they select someone they will trust (Kinzler, Shutts, DeJesus, & Spelke, 2009; Kinzler, Corriveau, & Harris, 2011), as well as when they learn by imitation (Buttelmann, 2013), and when norms are conveyed to novices as entities endowed with an objective force (Göckeritz, Schmidt, & Tomasello, 2014, pp. 88, 91–92). The role of language, however, should not be overplayed, since it is possible for norms to have been initially conceptualized as "crypto-types," that is, simply as

compliance, and the effectiveness of social norms in ensuring conformity and cooperation was a crucial factor in determining evolutionary success among groups (Richerson & Boyd, 2005).

The same relation between prudential elements and the objectivization of norms can also be appreciated from an ontogenetic point of view. The construction of groups on the basis of behavior patterns and imitation is a crucial factor for the development of norms in children, and indeed human children are much more concerned with the social aspect of imitation than are the great apes (Carpenter, 2006): On the one hand, children tend to imitate actions without appearing to consider the causal efficiency of the relevant behavior (Horner & Whiten, 2005);<sup>7</sup> on the other hand, they are more flexible than chimpanzees in adopting and imitating new techniques, showing an enhanced capacity for cumulative cultural learning (Whiten et al., 2009, pp. 2425–2426; Haun, Rekers, & Tomasello, 2014). 8 Groups define the boundaries of normative imitation: A central aspect of the motivation to comply with social norms in humans lies in the prudential element connected with reputation within the group, as well as in conformity, and reputational concerns in children are already in place by the age of five (Shaw, Li, & Olson, 2013). Experiments in behavioral economics show that personal reputation (along with punishment) is a crucial factor that agents take into account when deciding whether to cooperate, and to what extent, in public-goods games (Rockenbach & Milinski, 2006, p. 722), and this conclusion is supported by neurological data. But normativity does not arise only in connection with a specific preoccupation with our own reputation, but also arises from a disinterested (un-self-centered) perspective: Unlike great apes, as early as the age of three human children intervene to punish others for their deviant behavior, and to protect the rights of others, even when they are not directly affected by that behavior (Rossano, Rakoczy, & Tomasello, 2011; Vaish, Missana, & Tomasello, 2011). Young children can also appreciate the connection between social norms and social cooperation in various contexts, so much so that they grasp quite early how norms are connected with a deeper layer of cooperativeness even in competitive settings (Schmidt, Hardecker, & Tomasello, 2016).

Much work has been done investigating the question of whether social norms are completely culturally determined or whether a core of common cross-cultural traits can be found. Children aged four to five can understand that some norms are more relative, conventional, and culturally determined than others, and they understand

patterns of reaction to the behavior of others (Sacco, 2007, ch. 8), which patterns (or norms) constituted emerging practices of social organization and positioning (Lawson, 2012, 2016, pp. 373ff.).

<sup>7</sup> This leads to an unnecessary over-imitation, which children consider to be normative (Kenward, 2012; Lyons & Keil, 2013; Whiten, 2013), and which may even require them to sacrifice a previously successful strategy (Haun & Tomasello, 2011).

<sup>&</sup>lt;sup>8</sup> On the role of imitation in basic normativity see also Brożek (2013).

It has been shown, in particular, that feelings of guilt and embarrassment (the latter more specifically) activate the medial prefrontal cortex, which is at the core of cognitive social-integration processes (Takahashi et al., 2004, p. 971).

that norms regulating physical assault are less conventional (Turiel, 1983; but see Kelly et al., 2007). In an extensive study Haidt (2012, ch. 7) shows that a set of moral foundations can be identified that is transcultural in essence and is only specified on cultural grounds, two examples being social norms based on taboos connected with a universal sense of disgust (elicited by dangerous or unhealthy behaviors) and norms supporting cooperation through fairness. Studies with children show that a common and transcultural conception of fairness is already present in preschoolers, and that cultural parameters become relevant only thereafter (House et al., 2013, p. 14590; Tomasello, 2016, pp. 116-117). However, studies in behavioral economics have also shown that, conversely, considerations of fairness can be dramatically influenced by specific normative and cultural framings (see Dubreuil, 2010, pp.

So at work in norm-following is a commixture of cultural and cross-cultural factors, and this connection can be hardwired in our brain as a co-activation of emotional and social areas. Typically, norm-following raises the fear of being punished and hence activates areas related to negative emotions (anterior insula), but also cortical areas related to the inhibition of selfish reactions (dorsolateral prefrontal cortex), risk assessment in cooperation (frontal ventro-medial cortex), and social and emotional integration (orbitofrontal cortex) (see Dubreuil, 2010, pp. 46-47). For this reason, it can be conjectured that the development and reorganization of the cortical areas, starting from the prefrontal cortex, was connected with the increase in brain size that can be found in *Homo heidelbergensis*, and that in the mid-Pleistocene this led to long-term cooperative games and then, ultimately, to the emergence of social norms. The normative revolution in humans – level 1 sociality – would on this theory be a result of neurological modifications (see also ibid., pp. 88–90).

#### 6.2.4 Symbolic Artifacts, Status Attribution, and Games of Make-Believe

We have seen how the passage from level o sociality (joint action) to level 1 (social norms) is made cognitively possible by the development of a sense of joint commitment, first from a second-person perspective and then, within a group, from a thirdperson perspective. The next step in sociality is the advancement to level 2, namely, the attribution of statuses. As an example of joint cooperation and commitment, let us consider someone having the status of chief, judge, or king. This passage is made possible by symbolization, under which something or someone (a physical object, an event, a person) can count as, or stand for, something else (an object with normative value, an event in an ideal domain, a role connected with an honorific, religious, or normative status).

From a cognitive point of view, the attribution of statuses has three requirements. First, a capacity to understand that the same thing can be seen in different ways, hence a capacity to understand and perceive in a multimodal way (the relevant

person will be seen both as a person and as the chief). Second, a capacity to understand the mental states of others, hence an ability for perspective taking (others have beliefs; they have the same beliefs as I do about the chief). Third, and connected with the first two, a capacity to understand that different perspectives can entail different, possibly false, beliefs (if others have beliefs, they can act on beliefs that are different from mine and that I take to be false).

It has been conjectured that these three cognitive abilities – multimodality, fullfledged perspective taking, and the capacity to understand false beliefs – were the core elements in the cognitive evolution of Homo sapiens between 300,000 and 100,000 years ago, and are related to the expansion of the temporal and parietal cortices and the resulting structural reshaping and globularization of the human cranium (Dubreuil, 2010, pp. 117–118; see also Lieberman, McBratney, & Krovitz, 2002; Bruner, Manzi, & Arsuaga, 2003). While level 1 sociality (social norms) emerged out of an increase in brain size, as observed in Homo heidelbergensis, level 2 of sociality (status attribution) could have emerged out of a functional reorganization without further expansion in brain size, as observed in Homo sapiens (Dubreuil, 2010, pp. 120–121). The most important behavioral changes that can be connected to this cognitive development lie in the construction and use of signs and artifacts having either an ornamental or a ritual value, a development that took place in the Middle Stone Age, as attested by the presence of red ochre in connection with burial sites, or perforated shells used as ornaments in Northern Africa (ibid., p. 109; see also Hovers et al., 2003; Vanhaeren et al., 2006) or the shell beads with residues of ochre found in the Blombos Cave in South Africa (Dubreuil, 2010, pp. 110–111; see also Henshilwood et al., 2004; d'Errico et al., 2005). The use of bones or shells as objects of symbolic or aesthetic value presupposes an ability to move from the purely concrete substratum to a more abstract level, and also an ability to consider one's own perspective on an object in relation to that of others, for the purpose of sharing that perspective as the background against which to attribute value (Dubreuil, 2010, p. 131, 136).

There is some evidence that the great apes can show a certain degree of multimodality when dealing with objects, for example by using replicas and scale models as sources of information (Kuhlmeier & Boysen, 2002). It is not clear, however, that the great apes have the ability to extend this multimodality on a collective level, considering status attribution as a group factor. This requires a high degree of mindreading capacities, among which that of attributing beliefs to others which can possibly conflict with our own – an attribution, and hence an understanding, of false beliefs.

Studies in human ontogenesis show that the full-fledged perspective taking and mind reading required for level 2 sociality are capacities that emerge in human

Indeed, contemporary studies based on neuroimaging show that the processing of false beliefs is connected with the junction between the temporal and parietal cortices (Dubreuil, 2010, p. 129; see also (Aichorn et al., 2006; Perner et al., 2006; Saxe & Kanwisher, 2003).

children around the age of four or five (but they are based on more primitive forms of attention sharing that, as we have seen, form the background to level o). At that age children can inhibit their own cognition to the point of activating an alternative and conflicting one, and, more in particular, they understand that when they share attention over an object they can have divergent and conflicting perspectives over it (see Carlson & Moses, 2001; Wellman, Cross, & Watson, 2001; Carlson, Mandell, & Williams, 2004; for a cross-cultural perspective, see also Liu, Wellman, & Tardif, 2008). Moreover, even though a full-fledged theory of mind emerges at age four or five, a basic ability to attribute beliefs to others and construct alternative views can be found even in the first year in human infants (Baillargeon et al., 2013, pp. 88-89), and by the age of fifteen months children show signs of surprise if someone's behavior is inconsistent with the belief they have attributed to that person (Onishi & Baillargeon, 2005). Some authors have argued that these are distinctively human abilities that great apes do not share (see Tomasello & Moll, 2013, pp. 81–85), but more recent findings raise many doubts about that conclusion (Krupenye et al., 2016; De Waal, 2016).

These capabilities make it possible for there to be situations in which members of a group share a two-level conception of objects. To use Searle's well-known formula, "let's assume together that this X counts as Y in this context C." The whole mechanism of status attribution from an ontogenetic point of view is connected with the activity of joint pretense, namely, collectively pretending that something is something else. The psychology behind pretend-play is therefore crucial in this regard. We previously saw that, from an ontogenetic perspective, a distinction is to be drawn between a basic capacity for joint attention and intention, which human children develop from twelve to fifteen months of age, and a full-fledged theory of mind, which they develop at the age of four or five. This two-step process finds a parallel in the development of pretend-play. From the time children are two years old, they learn how to engage in these kinds of games on an imitative basis (Rakoczy, Tomasello, & Striano, 2005a, 2005b), and they also show an awareness of the normative structure of pretend-play connected with the notion of joint commitment, as by protesting if others do not act consistently with the shared principles of generation (Rakoczy, 2008; Rakoczy, Warneken, & Tomasello, 2008). Moreover, of course, starting at age two, children learn the most basic system of statuses, namely, language, an "institution" in which things (sounds) count as something else (words with a meaning). At this stage, however, the attribution of a second, symbolic status to objects is practiced but not conceptualized: Young children are not aware of the fact that the dual nature of objects in pretend-play depends on collective beliefs (Kalish, 2005, pp. 249-50; Rakoczy & Tomasello, 2007, p. 131). As mentioned, doing so requires developing the concept of belief as well as the perspective taking abilities entailed by the understanding of false beliefs that children develop at age four to five. This is also the age at which children develop metalinguistic awareness and hence

grasp the structure of status attribution in semantics (Doherty & Perner, 1998). Phylogenetically, behavior innovations typical of *Homo sapiens* can be connected with the development of semantics through an enhancement of phonological working memory, which is instrumental in using recursive syntax and hence in constructing sentences about semantics (Dubreuil, 2010, pp. 124–125).

The passage from joint pretending to understanding the dual, symbolic structure of status attribution – and hence to conceptualizing the "X counts as Y" structure – is conducive to level 3 sociality, where status attribution becomes the content of a norm. It is not just *this* stone that under certain circumstances counts as an apple in this game, but *any* stone will do so as well ("for every X, X will count as Y in context C"). We saw that at least two passages are necessary for the emergence of social norms on level 1: (1) objectivization, namely, the perception of norms as something that can be considered from a third-person perspective (hence independently of our actual involvement), and (2) an earnest appreciation of their "weightiness," namely, an awareness that these norms are constitutive of membership in the group and are thus of fundamental importance in our social setting. At level 3, these two elements result in an understanding of institutional entities as objective artifacts, which can be grouped under categories and that are supported by social norms and collective intentions because the group considers them to be important (they are not "just games").

Artifacts in general come with an in-built normativity and teleology of usage that children learn by imitation and can already make explicit at preschool stage (German & Johnson, 2002; Kemler Nelson, Holt, & Egan, 2004). This exemplifies a phenomenon called "functional fixedness," namely, a difficulty in deviating from normal use, presumably because there is at play a process that categorizes objects into kinds, yielding a system of concepts organized around functional knowledge (Vaesen, 2012, p. 206). Institutional objects having a status function are categorized by children as standard artifacts from the age of four or five, and they are conceptualized as having the same kind of objectivity that ordinary artifacts have. For this reason, the idea that the function of institutional objects can change when intentions in a community change is only understood by older children (eight to nine years old) (Noyes, Keil, & Dunham, 2018). Objectivity is therefore the original cognitive phenomenon in institutional artifacts, despite their mind-dependent nature. A crucial role is played here by the analogy with standard artifacts, because when it comes to other sorts of conventions, children understand their minddependent nature even at preschool age (Noyes & Dunham, 2017). Hence, with institutional objects, the group-dependent objectification in terms of norms merges with a group-independent objectification in terms of kinds of artifacts. Indeed, human adults conceptualize institutional artifacts as being typically opposed to social objects while being more similar to standard artifacts, be they abstract or concrete (Roversi, Borghi, & Tummolini, 2013). This conclusion can find some support even from the phylogenetic point of view. When symbolic artifacts originally emerged in human activities, they were organized in the same way as ordinary, functional artifacts. In the Blombos Cave in South Africa – where the richest collection of bone tools from the Middle Stone Age has been found and the most compelling evidence of the emergence of symbolic behavior in *Homo sapiens* has been gathered – shell beads have been found that were organized in clusters of two to seventeen, and all the elements of each cluster presented similar physical and functional features (Dubreuil, 2010, pp. 110–111).

Even though the pretend-play mechanism finds its cognitive root very early in human children, the passage from pretend-play to more "serious" institutional games occurs later. In this sense, games of make-believe can be interpreted as a bridge between a safe dimension, where the basics are learned in a closed and personally restricted context, to a properly social dimension, where the elements of life within the relevant group are acquired (Rakoczy, 2007, pp. 129–131). Here, the problem of proper interaction among agents shifts from the game-playing setting to the "normal" setting, and this requires an understanding of social roles.

From the perspective of cognitive development, social roles are inherently connected with norms, Young children (aged four to five) preferably connect social roles with normative properties rather than with psychological or behavioral ones, even when these roles are novel for them (Kalish & Lawson, 2008, pp. 588ff.), and preschoolers predict individual behavior by way of norms rather than by way of psychological motives (Kalish & Shiverick, 2004; see also, more in general, Kalish, 2013). Hence, the normative framework connected with roles is the preferred original framework by which to understand social reality, and allegiance within a group has an important impact in attributing social categories (Rhodes, 2013). The first status children take very seriously, and in a cross-cultural way, is gender: preschoolers see gender as a fundamental social category (Rhodes & Gelman, 2009) connected with normative considerations that play a crucial role in their life (though their strength can vary depending on the behavior taken into consideration: see Blakemore, 2003). Another possible bridge between pretend-play and more "serious" games is ownership, which is the first serious institution children engage in. Already at age two, children recognize that owning something goes beyond having it at their disposal; toddlers expect reciprocity in sharing; and young children treat stealing as a violation (Kalish, 2005, p. 256; see also Rossano et al., 2011): Conflicts over property is one of the most fundamental sources of conflict among children, in part because – and this is distinctively human – young children conceive it as something that can change and be contested, which means that they recognize the status-based character of ownership quite early on (Kalish, 2005, p. 256). This complex human understanding of ownership can find a cognitive ground in a more basic instinct of possession, which for evolutionary reasons is present in many animals (Stake, 2006). Other "serious" institutional statuses relevant for law concern authority, responsibility, and punishment, and we will look at their cognitive underpinnings in Section 6.3.2.

Corrado Roversi

### 6.3 THE STRUCTURE OF LAW

# 6.3.1 Second Thesis: Legal Institutions Formally Organize Sanctions and Authority

We have thus far discussed the theoretical and psychological implications of the first thesis about the metaphysics of law, stating that if we are to understand the structure and conceptualization of legal facts, we have to understand basic social facts such as joint action, joint commitment, the emergence of social norms, and the nature of status attribution. The second theoretical thesis elaborates on the first by defining some peculiarities of law within the social domain. It states that law is a normative organization of sanctions and authorities. According to H. L. A. Hart's classic picture, law in its proper sense comes into being when (primary) rules of conduct within a given community are supplemented with (secondary) norms conferring the power to create and apply primary rules as well as specifying their conditions of validity (Hart, 1994). This model finds a parallel in Hans Kelsen's view of legal systems as dynamic systems, namely, systems of norms whose objective validity rests on the fact that they have been produced by an act qualified by a higher-order norm (Kelsen, 1992), or in the more recent view of Scott Shapiro, where norms conceived as plans are created by people empowered by meta-plans (Shapiro, 2011). A possible alternative conceptualization of law is that of Theodor Geiger (1964, p. 168), who insists on regulation under a centralized mechanism for social reaction when social norms are deviated from. But even this conceptualization assumes the creation of an authority to regulate social sanctions. The point is that giving someone the power to modify norms and make decisions, as well as distinguishing between valid and invalid norms, implies conferring a status. Hence, in all these pictures and according to the second thesis, law finds its roots in level 3 of sociality (status attribution through social norms).

Even though this thesis is quite minimal, it finds several possible – and quite traditional – counterarguments. First, it could be argued that organizing sanctions and defining authorities is not peculiar to law. For example, the religious and moral systems adhered to by a sect can define their own kind of sanction and authority without, strictly speaking, being law-making authorities. Second, and conversely, social norms can be enforced within groups without authority, as when in small social groups deviants are excluded from the group or marginalized by way of shared disapproval. So it seems that in assuming this thesis, we are not introducing necessary conditions for something to count as law, nor any sufficient ones: We are not really going after the essential features of law.

There are good reasons for accepting this conclusion and still maintaining that the second thesis can be fruitful. Indeed, one could argue that the very endeavor of trying to define the essential features of law by way of conceptual analysis will inevitably bump up against counterexamples, given the artifactual, historical, and

118

context-dependent nature of its object (Leiter, 2011; Schauer, 2012, 2015; Tamanaha, 2017a). In this sense, the very metaphysics of law would imply that it is impossible to posit a priori essential features. Moreover, given these shifting boundaries, the considerations just made can be considered not as counterexamples but rather as features of the development of law over the course of history. It is true that religious and moral rules can in some contexts bear some legal traits and, indeed, this is one of the main reasons why, from a historical and anthropological point of view, these domains have shown significant overlap in most communities and cultures. On the other hand, it is also true that there can be an informal law without hierarchies. However, apart from bands of hunter-gatherers and small groups, the regulation of social life by way of a legal framework has in most cases required some degree of hierarchy. And where there is hierarchy, there is also status. One could weaken the Hartian requirement of secondary rules of change – rules conferring the power to create other rules – when considering societies based only on customary norms, but even in those cases there will at least be, first, authorities to apply and enforce the customs, and second, an idea of the law, that is, the definition of a set of norms that are valid in a given context or are laid down by a certain authority. We will therefore have both authority and validity.

Notice that legal pluralism is not a counterexample to the second thesis. It has been argued that a state-centric model is too parochial to account for legal domains across different periods and contexts, and that in several contexts – and over significant periods of time, as in the case of Europe before the advent of nation-states – law was grounded not in a single source but rather on several, and possibly competing, sources (Tamanaha, 2017b). The second thesis, however, does not assume a monistic, state-centric perspective in this regard. Even in a pluralistic setting, the different sources of authority have their own normative organization of authority, sanctions, and validity. In these contexts, however, law does not have a single, unified meta-institution claiming supremacy over all others and validating them as legal or extralegal.

In a sense, the second thesis is quite minimal from a functionalist perspective as well. Apart from a generic purpose of social regulation, the most peculiar trait of law lies not in its point but in its structure. In this sense, the second thesis is quite Hartian in its inspiration (it focuses not on the ends which law serves, but on its means; Green, 2010), and here the Nietzschean skepticism about overly comforting, ahistorical functionalistic dreams seems well placed: "Today it is impossible to say precisely why people are actually punished: all concepts in which an entire process is semiotically concentrated defy definition; only something which has no history can be defined" (Nietzsche, *On the Genealogy of Morality*, II, 13, p. 53 in the English edition). Legal structures can serve different purposes depending on the situation, ranging from the very broad objective of social utility or coordination to the specific aim of serving highly technical, and self-referential, bureaucratic needs created by the organizations that law itself makes possible, even passing through the mere

enforcement of needs based on domination (Tamanaha, 2017b, pp. 46ff., ch. 4). Of course, legal institutions can simply be instruments of brute dominion, something that cannot be captured by a view of legal ontology based purely on collective acceptance (Canale, 2014, pp. 310–312). However, despite the Hartian-inspired insistence on structural elements, the second thesis takes coercion to be an important, if not central, feature of legal organizations. This, of course, does not entail a strong view about coercion as the content or background of all legal norms properly so called. It rather entails a point about legal systems and legal institutions considered as a whole. There can be legal norms not supported by sanctions, and of course there can be legal norms that do not have any kind of sanction as their content, but the general phenomenon of law within a given community must regulate sanctions in some way, because this is the way in which legal regulation achieves social organization (Schauer, 2015; Himma, 2018).

Finally, the second thesis is quite neutral when it comes to a legal system's legitimacy and the specific features of a legal system's sources of validity. It will be helpful to qualify the second thesis by taking up Joseph Raz's (1979) view that legal authority claims legitimacy in a way that imparts a sort of peremptory, exclusionary character to the kinds of reasons it provides us with. This qualification, however, does not mean that, on the second thesis, legal authority actually does have legitimacy or that it actually provides exclusionary reasons. Rather, it entails only that there is a claim in place, which means that legal authority typically comes with a story about its ultimate legitimation. The peculiar features of this story depend, once more, on context. Moreover, authority is based on status attribution, but the second thesis makes no claim that a legal system's sources of validity must be organized hierarchically. There can be law even without a formalized and single system of norms, a model that indeed is quite recent in the development of legal history (Tamanaha, 2017b). Accordingly, the second thesis does not commit us to any description of the rule of recognition or of the basic norm at the core of the legal system. It can be that a basic norm transcendentally justified as a precondition for legal science is nothing more than an arbitrary postulate, or that deriving a rule of recognition from the social practice of officials is a category mistake. These legaltheoretical problems have no direct impact on the second thesis. As noted, the thesis is minimal, and it suffices for our purposes.

## 6.3.2 THE PSYCHOLOGY BEHIND LEGALITY: AUTHORITY, SANCTION, VALIDITY

The second thesis makes it possible to draw a map of the possible cognitive-psychological topics that are relevant for the metaphysics of legality – where the term *legality* is used not evaluatively but descriptively, as the domain of things in the world that are legal or pertain to law. The first topic is the *psychology of authority*. As noted, the typical status in the domain of law is the one connected with

empowerment: the power to create and modify, apply and interpret, or simply enforce legal norms. The second topic is the psychology behind punishment and sanction, because coercion is indeed a typical outcome of law enforcement. The third topic is the psychology behind the concept of validity. Even if law is not necessarily connected with the idea of a system based on a highly formalized organization of sources, legal norms - as well as legal entities, legal roles, and legal institutions in general - come with a distinction between valid and invalid, or at least borderline, instances. It is therefore crucial to understand the cognitive process through which these distinctions are made. Clearly, it is here impossible to offer a complete description or even an overview of psychological research in all these fields. What I will do instead is draw a sort of conceptual map: From these general topics, I will extract the problems in relation to which psychological research can give a crucial contribution, thus establishing a set of connections between legal metaphysics and cognitive psychology. In this way, legal theorists will have a picture of which kinds of psychological studies can be relevant in working on the nature of law, and cognitive psychologists will have an idea of where their research can have an impact on our understanding of legality.

Let us then start with authority. From a phylogenetic perspective, institutional structures defining authoritative roles came into play when social groups grew bigger – when bands of hunter-gatherers evolved into tribes, then chiefdoms, then primitive kingdoms (Dubreuil, 2010, pp. 147–157) – and the cognitive costs of sanctioning other members of the group became too high. In this situation, it simply became impossible for every member of the group to have a complete outlook on all the other members. On the one hand, chiefs and leaders became the main representatives of subgroups and guaranteed for the trustworthiness of the less salient members. On the other hand, they acquired a progressively increasing power to coerce and sanction deviant members of their subgroups, this by way of norms that empowered them to do so: norms of competence, secondary norms in Hart's sense, and hence norms for status attribution (Dubreuil, 2010, pp. 164ff.).

Of course, authoritative roles implied hierarchies. In this regard, it has been argued that the evolution of mankind has a distinctively U-shaped trajectory (Boehm, 1999, ch. 6; Dubreuil, 2010, pp. 91–92). Ape-like hierarchies based on dominance and bullyism were reversed as early as with *Homo erectus* and *Homo heidelbergensis* because, as we saw, competition for resources under conditions of survival required joint action, reciprocity, and substantial equality between potential contributors to cooperative group hunting and childrearing. But later, on that basis, more evolved kinds of hierarchies grounded in status attribution and symbolic behavior emerged in *Homo sapiens* – complex formal structures for dominance

Of course, this statement needs to be qualified to the extent that social relationships in great apes are described as based not on "brute" dominance but on a "formal" dominance predicated on acceptance (De Waal, 1998, ch. 2).

which chimpanzees could never have evolved and which are a human universal (a political feature of what has been called the "universal people"; Brown, 1991).

This kind of inequality required justification, and indeed justification was given on the basis of cultural factors, typically on cosmological/magical grounds. The sorcerer justifies the leaders' power as functional to the good of the whole group (Fiske, 1991, pp. 14, 42–49, on "authority ranking"; Sacco, 2007, ch. 6 and 9; Dubreuil, 2010, pp. 181–185; Tamanaha, 2017b, ch. 4) and builds an ideal of purity and holiness whose violation provokes disgust among the group's members (Haidt, 2012, ch. 7; Tomasello, 2016, pp. 131–132). Hence, two necessary elements of the cognitive machinery of authority are suggestion and identification with the group, alongside the mere fear of sanction. The latter is a distinct element that cannot be grouped with the other two, which by contrast required greater cognitive capacities, such as a capacity to take the perspective of the group as a whole, and a stronger episodic memory so as to remember the main narrative the group is acting on (Dubreuil, 2010, pp. 170–174).

Indeed, experiments conducted within the paradigm provided by Stanley Milgram (1974) show that even a weak authoritative nudge has a strong effect on compliance, and this effect is even greater when the request is justified, but not if the request is formulated as an explicit order (Burger, 2009; Karakostas & Zizzo, 2016). In these experiments, subjects were requested to harm someone by delivering potentially lethal electric shocks "for the sake of science." When it comes to the content of these possible justifications, an important role is played by considerations of social identity, which particularly means identifying with a group's endeavor as depicted by those who hold positions of leadership. In Milgram's case, this endeavor is the scientific enterprise (Reicher, Haslam, & Smith, 2012), but considerations of social identity have also been applied to Philip Zimbardo's famous Stanford prison experiment (Haney, Banks, & Zimbardo, 1973a, 1973b), where participants selected to play the role of prison guards showed an impressive escalation in cruelty after only six days of the experiment (Haslam, Reicher & van Bavel, 2019). In obedience to authority, therefore, identification with the group is the active counterpart to passive conformity: Being an active participant in the group's endeavor becomes an integral part of the construction of personal identity (Tomasello, 2016, pp. 62–63, 105–107). Of course, a role is also played by passive elements. Apart from the mere fear of sanction, there is the tendency to submit to a sort of "sacred" superiority that can very well find its ontogenetic roots in paternal/maternal authority, the first, original authority in children experience (Sacco, 2017, pp. 131–133), and one that, as early as 1930, Jerome Frank famously connected with the authority of law (Frank, 1930). Hence, the psychology of deference to adult authority in children, as well as the analysis of the cognitive underpinnings of mere habits – in this case habits of obedience – are topics in developmental psychology that may be relevant to the ontology of legal authority.<sup>12</sup>

For an overview of these questions on a cross-cultural approach, see Harris and Corriveau (2013). See also (Kalish & Cornelius, 2007) arguing that preschool children tend to conflate obligations with an authority's desires; and, of course, Piaget (1997) on how children perceive the authority of adults. From a legal-realistic perspective, see Fittipaldi (2012, ch. 3).

Authority can be interpreted as a high-level and quite recent cognitive phenomenon from a phylogenetic perspective, given its connection to group identification, status attribution, and justification. The disposition to sanction behavior in human agents has much deeper, and more ancient, cognitive roots. These lie in the basic emotions of rage and disgust located in the anterior insula (Sanfey et al., 2003) and in the pleasure of reward located in the caudate nucleus when the punishment is altruistic (De Quervain et al., 2004, p. 1256). 13 Rage is a typical animal reaction to unexpected damage and goal frustration (Haidt, 2003), and humans are no exception, showing an emotional reaction based on outrage when they are directly influenced by the actions of others that can be harmful or violate trust. An important role in supporting cooperation is played by rage and punishment in the form of revenge. Public-goods games with the ability to punish free-riders show that free-riders are heavily punished, and that punishment has a big disciplining effect (Fehr & Gächter, 2000a, 2000b). However, there is a strong psychological tendency to overestimate the damage received in revenge and to underestimate the damage done, for which reason personal revenge will typically result in an escalation of violence (Shergill et al., 2003). Human beings are consequentialist calculators when it comes to crimes in general and in judging punishments in the abstract, but they are emotional deontological retributivists when that crime affects them directly (Greene, 2008). For this reason, delegation of punishment to a third, neutral power can keep the escalation in check, and indeed it will hinder the tendency to react, but this effect will depend on the extent to which the power is perceived to be legitimate (Pinker, 2011, pp. 772–773; Hermann, Thoni, & Gächter, 2008).

Apart from rage, disgust is another emotion that serves as a foundation for punishment or, more in general, for reaction to violations of norms. Of course, the specific conditions that elicit disgust are culturally determined, but it has been argued that disgust as a basis for normative reactions can be seen as a universal and could even serve an evolutionary role (Haidt, 2012, ch. 7, section 5). Moreover, unlike other primates, humans show indignation even when norms are violated in ways that do not directly affect them, though in this case the motivation to exact sanctions is less strong (Fehr & Fischbacher, 2004), and in large groups third-party punishment is necessarily delegated and hence organized around institutions (Hoffman, 2014, ch. 7).

Experiments in behavioral economics show that the degree of punishment in humans is modulated by expectations. Strong punishment is triggered, and moral rage in particular, when the behavior of others exceeds a threshold of unfairness that one can expect. Even if punishment exacted under the threshold will still be considered justifiable, it will typically be weaker and less likely, and its likelihood will decrease over time (see Van Winden, 2007, pp. 43ff. Dubreuil, 2010, pp. 23–27). Anger can in this regard be argued to have a cross-cultural recalibrating effect, that is, a specific evolutionary role in increasing the chances that a conflict will be resolved in favor of the angry individual (Sell et al., 2017), and indeed there is a high degree of cross-culturality both in the propensity to

On the neurological underpinnings of violence in humans, see also Pinker (2011, ch. 8).

punish wrongdoers and in ranking the seriousness of some core crimes and the blameworthiness of those who commit them (see Robinson & Kurzban, 2007; but compare Hermann et al., 2008 on cross-cultural variations).

In law, authority, powers, and sanctions are organized according to conceptual structures. In a typical legal syllogism, the second premise qualifies some fact, act, or event according to a legal concept, and the first premise qualifies a norm as legally valid or applicable. The basic cognitive process that is called for in this kind of reasoning is conceptual qualification, or categorization, understood as the general ability to recognize instances as tokens of a general type (Pattaro, 2005, pp. 13ff.; Ehrenberg, 2016, ch. 2, Section D). Therefore, it is not surprising that, from a phylogenetic point of view, the qualification of legal roles and events by way of statuses emerged only when humans developed an enhanced linguistic working memory capable of formulating and communicating meta-representations, namely, representations about meaning and conceptual content (Coolidge and Wynn, 2007, 2009, ch. 11; Dubreuil, 2010, pp. 123–125). From an ontogenetic perspective, even though young children tend to understand categories in general as natural kinds, they are also capable of understanding that some categories are conventional and that they can be constructed in different ways depending on the goal one is aiming to achieve (Kalish, 1998).

For these reasons, theories of categorization will necessarily have a crucial impact on the metaphysics of law, and the specific kind of theory of categorization that will prove to be useful will depend on the legal-theoretical approach taken. In principle, formalistic normativism seems tied to a rule-based, definitional, and hence classic theory of categorization. Legal concepts are defined through a set of essential features set forth in rules (Winter, 2001, ch. 4). To that classic theory one could also connect Searle's idea of constitutive rules in the form "X counts as Y in C." To the extent that our explanation of legality departs from such a formalistic approach, other theories of categorization can become relevant. These range from prototype theories (Rosch & Mervis, 1975; Rosch, 1978; Lakoff, 1987), in which some features are connected with prototypical exemplars and conceptual boundaries are shaded, to a more extreme exemplar-based view on which concepts are represented through particular instances (Medin & Shaffer, 1978; Nosofsky & Palmeri, 1997; Wills, Inkster, & Milton, 2015).

When dealing with the legal qualification of facts, acts, and events, contextual considerations will be extremely relevant, hence a situated conceptualization theory of categorization like that proposed by Lawrence Barsalou (2016) can provide significant insights into the cognitive underpinnings of this crucial mechanism of legal reasoning. More to the point, a prototype theory seems well suited to explain the process of assessing whether legal acts are typical or atypical (Passerini Glazel, 2005). When it comes to the process of assessing legal validity for the purposes of stating the first, normative premise in legal decisions, the kind of cognitive theory one proceeds from will also depend on the kind of legal system in question. In a common-law system, a theory of categorization in

See also (Fittipaldi, 2013, pp. 78–80) on prototype theory and legal interpretation in general.

terms of prototypical precedents and shaded boundaries seems well suited to account for the typical flexibility that kind of system requires (Winter, 2001, ch. 6). At the same time, civil-law systems, built around a strict system of sources of law, seem to be more adequately explained in terms of a rule-based and definitional model. But, again, much depends, here too, on the kind of theoretical attitude we take to judicial reasoning in general, whether formalistic or antiformalistic. From an antiformalistic perspective, the categorization of a norm as valid is not distinct from an interpretation of textual provisions. A norm is valid if it is the outcome of judicial interpretation, and interpretation depends at least on (a) the content of the norm itself, (b) the content of the norms that make those provisions formally valid, and (c) the content of the principles that make or do not make that norm substantively valid. This process involves a complex interweaving of linguistic categorizations that can call for definitions, rules, prototypes, and exemplars. Indeed, even on a more general level, recent research in the psychology of categorization has advanced hybrid models in which category learning seems to be influenced by both rules and exemplars (Thibaut, Gelaes, & Murphy, 2018).

The problem of legal validity and of legal categorization can also be addressed from the point of view of the "embodied cognition" paradigm, that is, proceeding from the assumption that cognitive processing can be grounded in sensory-motor perception (Lakoff & Johnson, 1980; Barsalou, 1999, 2008; Borghi & Pecher, 2011).<sup>15</sup> From this perspective, the question of how legal concepts are processed becomes an instance of a more general problem of embodiment, namely, the problem of how abstract concepts can be based on sensory-motor patterns or whether they can instead be traced to more linguistic forms of social elaboration (Borghi & Binkofski, 2014). Recent experimental research has been conducted – and is currently ongoing at the University of Bologna – on how to define the peculiar features of legal concepts within the "embodied cognition" paradigm (Roversi, Pasqui & Borghi, 2017). The problem of how theories of embodied cognition can explain legal concepts is particularly relevant because this paradigm makes it possible to assess the weight of subjective, mind-dependent, and social considerations relative to more objective, concrete, and physically determined features (or even spatial, geometric considerations).<sup>16</sup>

#### 6.4 CONCLUSION

In this chapter, I have provided a model for the metaphysics of law and tried to show how studies in cognitive psychology may have a crucial bearing on this topic. In order to do so, I presented two theses about legal metaphysics, the first being that legal facts are a subset of social facts, and hence that legal metaphysics is a special case of social metaphysics, and the second that legal facts are the outcome of rules that organize sanctions and authority in a formal way. I elaborated on the first thesis

An important study that applies extensively the embodied cognition paradigm, and in particular the theory of conceptual metaphors, to legal concepts, and intellectual property is Larsson (2017).

See for example Costa & Bonetti (2016) with regard to religious concepts.

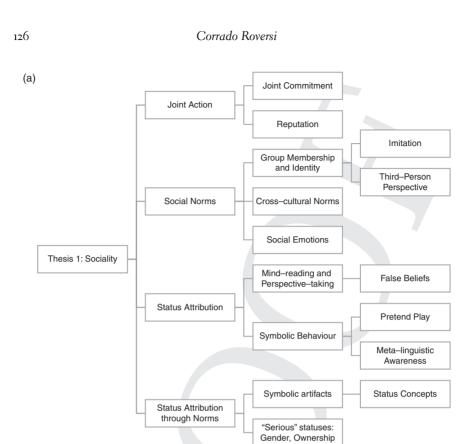


FIGURE 6.1A Sociability

by distinguishing among four different and ideal-typical levels of society (levels o through 3): (o) joint action and joint commitment, (1) social norms, (2) status attribution, (3) status attribution through social norms. For each level, I gave a picture of the relevant cognitive underpinnings, from both a phylogenetic and an ontogenetic point of view. I then proceeded with the second thesis about the nature of legality and I explained how it can be consistent with several legal-theoretical approaches. In general, the second thesis is a very weak thesis about legality, coherent with both source-monism and source-pluralism. It is not aimed at positing essential properties that make legality necessarily peculiar within the social domain. Given this background, I gave some suggestions about the cognitive-psychological research topics that are relevant for the questions of authority, sanctions, and validity. The outcome of this presentation is summarized in the two graphs below (see Figures 6.1a and b).

Obviously, the theses presented here cannot be considered an answer to the question of the nature of law from a psychological point of view. In a sense, the picture I have drawn is not even a presentation of the state of the art in "legal metaphysics and

#### Cognitive Science and the Nature of Law

127

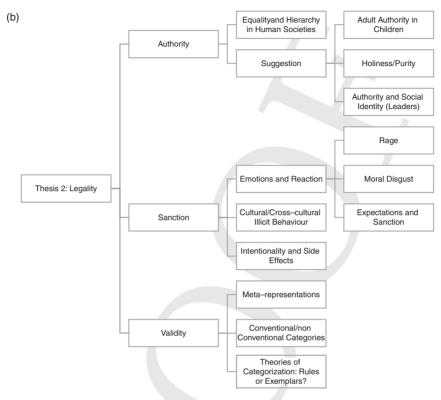


FIGURE 6.1B Legality

cognitive psychology," because a field so described has yet to be established. This is meant to be an initial proposal and an initial picture – tentative, provisional, and certainly incomplete – of the many different topics, problems, and strands of research in legal theory and cognitive psychology that appear to intertwine in the effort to understand the nature of law and of legal entities. My hope is that this classic and millenary endeavor can make further progress by working together conceptualphilosophical theories and empirical-psychological studies, in a way that is not different from what has already happened, and is now happening, in other fields of philosophy.

#### REFERENCES

Aichhorn, M., Perner, J., Kronbichler, M., Staffen, W., & Ladurner, G. (2006). Do Visual Perspective Tasks Need Theory of Mind? NeuroImage 30, 1059-1068.

Andrews, K. (2009). Understanding Norms Without a Theory of Mind. Inquiry 52, 433-448. Andrews, K. (2015). The Folk Psychological Spiral: Explanation, Regulation, and Language. The Southern Journal of Philosophy 53, 50–66.

Corrado Roversi

128

- Astington, J. W. (1988). Children's Understanding of the Speech Act of Promising. *Journal of Child Language* 15, 157–173.
- Baillargeon, R., He, Z., Setoh, P. et al. (2013). False-Belief Understanding and Why It Matters.
  In M. Banaji & S. Gelman (eds.), Navigating the Social World: What Infants, Children,
  and Other Species Can Teach Us. Oxford: Oxford University Press, pp. 88–95.
- Barsalou, L. W. (1999). Perceptual Symbol Systems. Behavioural Brain Sciences 22, 577–660.
- Barsalou, L. W. (2008). Grounded Cognition. Annual Review of Psychology 59, 617–645.
- Barsalou, L. W. (2016). Situated Conceptualization: Theory and Application. In Y. Coello & M. H. Fischer (eds.), Perceptual and Emotional Embodiment. Vol. 1, pp. Foundations of Embodied Cognition. London and New York: Routledge, pp. 11–37.
- Becchio, C., & Bertone, C. (2004). Wittgenstein Running: Neural Mechanisms of Collective Intentionality and We-mode. *Consciousness and Cognition* 13, 123–133.
- Becchio, C., Del Giudice, M., Dal Monte, O., Latini-Corazzini, L., & Pia, L. (2013). In Your Place: Neuropsychological Evidence for Altercentric Remapping in Embodied Perspective Taking. Social Cognitive and Affective Neuroscience 8, 165–170.
- Bicchieri, C. (2006). The Grammar of Society. Cambridge: Cambridge University Press.
- Birch, J. (2017). The Philosophy of Social Evolution. Oxford: Oxford University Press.
- Blakemore, J. E. O. (2003). Children's Beliefs about Violating Gender Norms: Boys Shouldn't Look Like Girls, and Girls Shouldn't Act Like Boys. Sex Roles 48, 411–419.
- Boehm, C. (1999). Hierarchy in the Forest: The Evolution of Egalitarian Behaviour. Cambridge, MA: Harvard University Press.
- Boesch, C. (2002). Cooperative Hunting Roles among Taïe Chimpanzees. *Human Nature* 13, 27–46.
- Bolt, N. K., & Loehr, J. D. (2017). The Predictability of a Partner's Actions Modulates the Sense of Joint Agency. *Cognition* 161, 60–65.
- Borghi, A., & Binkofski, F. (2014). Words as Social Tools: An Embodied View on Abstract Concepts. Berlin: Springer.
- Borghi, A., & Pecher, D. (2011). Introduction to the Special Topic Embodied and Grounded Cognition. *Frontiers in Psychology* 2, 1–3.
- Bratman, M. (1992). Shared Cooperative Activities. The Philosophical Review 101, 327-341.
- Brown, D. E. (1991). Human Universals. New York: McGraw-Hill.
- Brożek, B. (2013). Rule-Following: From Imitation to the Normative Mind. Kraków: Copernicus Center Press.
- Bruner, E., Manzi, G., & Arsuaga, J. L. (2003). Encephalization and Allometric Trajectories in the Genus *Homo*: Evidence from the Neanderthal and Modern Lineages. *Proceedings of the National Academy of Sciences* 100, 15335–40.
- Burazin, L. (2016). Can There Be an Artefact Theory of Law? Ratio Juris 29, 385-401.
- Burazin, L. (2018). Legal Systems as Abstract Institutional Artifacts. In L. Burazin, K. E. Himma, and C. Roversi (eds.), *Law as an Artifact*. 112–35. Oxford: Oxford University Press.
- Burazin, L., Himma, K. E., & Roversi, C. (eds.)(2018). Law as an Artifact. Oxford: Oxford University Press.
- Burger, J. (2009). Replicating Milgram: Would Still People Obey Today? American Psychologist 64, 1–11.
- Buttelmann, D. (2013). Selective Imitation of In-Group Over Out-Group Members in 14-Month-Old Infants. *Child Development* 84, 422–428.
- Butterfill, S. (2012). Joint Action and Development. The Philosophical Quarterly 62, 23-47.
- Camerer, C. (2003). Behavioral Game Theory: Experiments in Strategic Interaction. Princeton, NJ: Princeton University Press.

- Canale, D. (2014). Is Law Grounded in Joint Action? Rechtstheorie 45, 289-312.
- Carlson, S. M., & Moses, L. J. (2001). Individual Differences in Inhibitory Control and Children's Theory of Mind. *Child Development* 72, 1032–1053.
- Carlson, S. M., Mandell, D. J., & Williams, L. (2004). Executive Function and Theory of Mind: Stability and Prediction from Age 2 to 3. *Developmental Psychology* 40, 1105–1122.
- Carpenter, M. (2006). Instrumental, Social, and Shared Goals and Intentions in Imitation. In S. J. Rogers & J. H. G. Williams (eds.), *Imitation and the Social Mind: Autism and Typical Development*. New York and London: The Guilford Press.
- Chilovi, S., & Pavlakos, G. (2019). Law Determination as Grounding: A Common Framework for Jurisprudence. *Legal Theory* 25, 53–76.
- Coolidge, F. L., & Wynn, T. (2007). The Working Memory Account of Neanderthal Cognition: How Phonological Storage Capacity May Be Related to Recursion and the Pragmatics of Modern Speech. *Journal of Human Evolution* 52, 707–10.
- Coolidge, F. L., & Wynn, T. (2009). The Rise of Homo sapiens: The Evolution of Modern Thinking. Chichester: Wiley-Blackwell.
- Costa, M., & Bonetti, L. (2016). Geometrical Factors in the Perception of Sacredness. *Perception* 45(11), 1240–1266.
- Crowe, J. (2014). Law as an Artifact Kind. Monash University Law Review 40, 737-757.
- Darwall, S. L. (2006). The Second-Person Standpoint: Respect, Morality, and Accountability. Cambridge, MA: Harvard University Press.
- de Quervain, D. J. F., Fischbacher, U., Treyer, V., et al. (2004). The Neural Basis of Altruistic Punishment. *Science* 305, 1254–1258.
- De Waal, F. (1998). Chimpanzee Politics: Power and Sex among Apes, 2nd revised ed. Baltimore, MD: Johns Hopkins University Press.
- De Waal, F. (2014). Natural Normativity: The "Is" and "Ought" of Animal Behaviour. Behaviour 151, 185–204.
- De Waal, F. (2016). Apes Know What Others Believe. Science 354, 39-40.
- Doherty, M., & Perner, J. (1998). Metalinguistic Awareness and Theory of Mind: Just Two Words for the Same Thing? *Cognitive Development* 13, 279–305.
- Dubreuil, B. (2010). Human Evolution and the Origins of Hierarchies: The State of Nature. Cambridge: Cambridge University Press.
- d'Errico, F., Henshilwood, C., Vanhaeren, M., & van Niekerk, K. (2005). *Nassarius kraussianus* Shell Beads from Blombos Cave: Evidence for Symbolic Behaviour in the Middle Stone Age. *Journal of Human Evolution* 48, 3–24.
- Ehrenberg, K. (2016). The Functions of Law. Oxford: Oxford University Press.
- Epstein, B. (2015). The Ant Trap: Rebuilding the Foundations of the Social Sciences. Oxford: Oxford University Press.
- Epstein, B. (2018). Social Ontology. The Stanford Encyclopedia of Philosophy. https://plato.stanford.edu/entries/social-ontology/
- Fehr, E., & Fischbacher, U. (2004). Third Party Punishment and Social Norms. *Evolution and Human Behavior* 25, 63–87.
- Fehr, E., & Gächter, S. (2000a). Fairness and Retaliation: The Economics of Reciprocity. *Journal of Economic Perspectives* 14, 159–181.
- Fehr, E., & Gächter, S. (2000b). Cooperation and Punishment in Public Good Experiments. The American Economic Review 90, 980–994.
- Fiske, A. P. (1991). Structures of Social Life: The Four Elementary Forms of Human Relations. New York: Free Press.
- Fittipaldi, E. (2012). Everyday Legal Ontology: A Psychological and Linguistic Investigation within the Framework of Leon Petrażycki's Theory of Law. Milan: LED.

- Fittipaldi, E. (2013). Conoscenza giuridica ed errore: Saggio sullo statuto epistemologico degli asserti prodotti dalla scienza giuridica. Rome: Aracne.
- Fittipaldi, E. (2016). Leon Petrażycki's Theory of Law. In E. Pattaro & C. Roversi (eds.), Legal Philosophy in the Twentieth Century: The Civil Law World. Tome 2, Main Orientations and Topics. Berlin: Springer, pp. 443–503.
- Fittipaldi, E. (in press). Petrażycki's Puzzle of Jural Emotions: Bridging the Psychological Theory of Law with Modern Social and Psychological Sciences. In E. Fittipaldi & A.J. Treviño (eds.), The Living Legacy of Leon Petrażycki. London: Routledge.
- Francey, D., & Bergmüller, R. (2012). Images of Eyes Enhance Investments in a Real-Life Public Good. *PLoS ONE* 7, e37397.
- Frank, J. (1930). Law and the Modern Mind. New York: Brentano's.
- Gallotti, M. (2012). A Naturalistic Argument for the Irreducibility of Collective Intentionality. *Philosophy of the Social Sciences* 42, 3–30.
- Geiger, T. (1964). Vorstudien zu einer Soziologie des Rechts. Neuwied am Rhein & Berlin: Luchterhand. (1st ed. 1947.)
- German, T. P., & Johnson, S. C. (2002). Function and the Origins of the Design Stance. Journal of Cognition and Development 3, 279–300.
- Gilbert, M. (1989). On Social Facts. Princeton: Princeton University Press.
- Gilbert, M. (2014). Joint Commitment: How We Make the Social World. Oxford: Oxford University Press.
- Göckeritz, S., Schmidt, M. F. H., & Tomasello, M. (2014). Young Children's Creation and Transmission of Social Norms. *Cognitive Development* 30, 81–95.
- Gräfenhain, M., Behne, T., Carpenter, M., & Tomasello, M. (2009). Young Children's Understanding of Joint Commitments. *Developmental Psychology* 45, 1430–1443.
- Gräfenhain, M., Carpenter, M., & Tomasello, M. (2013). Three-Year-Olds' Understanding of the Consequences of Joint Commitments. PLoS ONE 8, e73039.
- Green, L. (2010). Law as a Means. In P. Cane (ed.), The Hart-Fuller Debate in the Twenty-First Century. Oxford: Hart Publishing, pp. 169–188.
- Greene, J. D. (2008). The Secret Joke of Kant's Soul. In W. Sinnott-Armstrong (ed.), Moral Psychology. Vol. 3. The Neuroscience of Morality: Emotion, Brain Disorders, and Development. Cambridge, MA: The MIT Press, pp. 35–79.
- Hage, J. (2018). Foundations and Building Blocks of Law. Maastricht: Eleven International Publishing.
- Hägerström, A. (1917). *Till frågan om den objektiva rättens begrepp. I. Viljeteorien*. Uppsala: Akademiska Bokhandeln/Leipzig: Harrassowitz.
- Hägerström, A. (1941). Der römische Obligationsbegriff im Lichte der allgemeinen römischen Rechtsanschauung. II. Uppsala: Alqvist & Wiksell.
- Haidt, J. (2003). The Moral Emotions. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (eds.), *Handbook of Affective Sciences*. Oxford: Oxford University Press, pp. 852–870.
- Haidt, J. (2012). The Righteous Mind: Why Good People Are Divided by Politics and Religion. London: Penguin.
- Hamann, K., Warneken, F., & Tomasello, M. (2012). Children's Developing Commitments to Joint Goals. *Child Development* 83, 137–145.
- Haney, C., Banks, C., & Zimbardo, P. G. (1973a). Interpersonal dynamics in a simulated prison. *International Journal of Criminology and Penology* 1, 69–97.
- Haney, C., Banks, C., & Zimbardo, P. G. (1973b). Naval Research Reviews: A Study of Prisoners and Guards in a Simulated Prison. Washington, DC: Office of Naval Research.

- Harris, P. L., & Corriveau, K. H. (2013). Respectful Deference: Conformity Revisited. In M. Banaji & S. Gelman (eds.), Navigating the Social World: What Infants, Children, and Other Species Can Teach Us. Oxford: Oxford University Press, pp. 230–234.
- Hart, H. L. A. (1994). The Concept of Law, 2nd ed. Oxford: Clarendon. (1st ed. 1961.)
- Haslam, S. A., & Reicher, S. D., & Van Bavel, J. J. (2019.) Rethinking the Nature of Cruelty: The Role of Identity Leadership in the Stanford Prison Experiment. *American Psychologist* 74, 809–822.
- Haun, D. B. M., Rekers, Y., & Tomasello, M. (2014). Children Conform to the Behaviour of Peers; Other Great Apes Stick With What They Know. *Psychological Science* 25, 2160–2167.
- Haun, D. B. M., & Tomasello, M. (2011). Conformity to Peer Pressure in Preschool Children. Child Development 82, 1759–1767.
- Henshilwood, C. S., d'Errico, F., Vanhaeren, M., van Niekerk, K., & Jacobs, Z. (2004). Middle Stone Age Shell Beads from South Africa. *Science* 384, 404.
- Hermann, B., Thoni, C., & Gächter, S. (2008). Antisocial Punishment Across Societies. *Science* 319, 1362–1367.
- Himma, K. E. (2018). The Conceptual Function of Law: Law, Coercion, and Keeping the Peace. In L. Burazin, K. E. Himma, & C. Roversi (eds.), *Law as an Artifact*. Oxford: Oxford University Press, pp. 136–159.
- Hindriks, F., & Guala, F. (2015). Institutions, Rules, and Equilibria: A Unified Theory. *Journal of Institutional Economics* 11, 459–480.
- Hodgson, G. M. (2006). What Are Institutions? Journal of Economic Issues 15, 1–23.
- Hoffman, M. B. (2014). The Punisher's Brain: The Evolution of Judge and Jury. Cambridge: Cambridge University Press.
- Horner, V., & Whiten, A. K. (2005). Causal Knowledge and Imitation/emulation Switching in Chimpanzees (*Pan troglodytes*) and Children. *Animal Cognition* 8, 164–181.
- House, B. R., Silk, J. B., Henrich, J. et al. (2013). Ontogeny of Prosocial Behaviour across Diverse Societies. Proceedings of the National Academy of Sciences of the United States of America 110, 14586–91.
- Hovers, E., Ilani, S., Bar-Yosef, O. & Vandermeersch, B. (2003). An Early Case of Color Symbolism Ocher Use by Modern Humans in Qafzeh Cave. *Current Anthropology* 44, 491–522.
- Jones, O. D., & Kurzban, R. (2010). Intuitions of Punishment. The University of Chicago Law Review 77, 1633–1640.
- Kalish, C. (2005). Becoming Status Conscious: Children's Appreciation of Social Reality. *Philosophical Explorations* 8, pp. 245–262.
- Kalish, C. W. (1998). Natural and Artifactual Kinds: Are Children Realists or Relativists About Categories? *Developmental Psychology* 34, 376–391.
- Kalish, C. W. (2013). Status Seeking: The Importance of Roles in Early Social Cognition. In M. Banaji & S. Gelman (eds.), *Navigating the Social World: What Infants, Children, and Other Species Can Teach Us.* Oxford: Oxford University Press, pp. 216–219.
- Kalish, C. W., & Cornelius, R. (2007). What Is to Be Done? Children's Ascriptions of Conventional Obligations. *Child Development* 78, 859–878.
- Kalish, C. W., & Lawson, C. A. (2008). Development of Social Category Representations: Early Appreciation of Roles and Deontic Relations. *Child Development* 79, 577–593.
- Kalish, C. W., & Shiverick, S. M. (2004). Rules and Preferences: Children's Reasoning about Motives for Behavior. *Cognitive Development* 19, 410–416.
- Karakostas, A., & Zizzo, D. J. (2016). Compliance and the Power of Authority. *Journal of Economic Behaviour and Organization* 124, 67–80.

- Kelly, D., Stich, S., Haley, K., Eng, S., & Fessler, D. (2007). Harm, Affect, and the Moral/conventional Distinction. Mind and Language 22, 117–131.
- Kelsen, H. (1992). *Introduction to the Problems of Legal Theory*. Trans. by S. Paulson and B. L. Paulson. Oxford: Clarendon Press.
- Kemler Nelson, D. G., Holt, M. B., & Egan, L. C. (2004). Two- and Three-Year-Olds Infer and Reason about Design Intentions in Order to Categorize Broken Objects. *Developmental Science* 7, 543–549.
- Kenward, B. (2012). Over-Imitating Preschoolers Believe Unnecessary Actions Are Normative and Enforce Their Performance by a Third Party. *Journal of Experimental Child Psychology* 112, 195–207.
- Kinzler, K. D., Corriveau, K. H., & Harris, P. L. (2011). Children's Selective Trust in Native-Accented Speakers. *Developmental Science* 14(1) (2011), 106–111.
- Kinzler, K. D., Shutts, K., DeJesus, J., & Spelke, E. S. (2009). Accent Trumps Race in Guiding Children's Social Preferences. Social Cognition 27, 623–634.
- Konvalinka, I., Vuust, P., Roepstorff, A., & Frith, C.D. (2010). Follow You, Follow Me: Continuous Mutual Prediction and Adaptation in Joint Tapping. The Quarterly Journal of Experimental Psychology 63, 2220–2230.
- Krupenye, C., Kano, F., Hirata, S., Call, J., & Tomasello, M. (2016). Great Apes Anticipate that Other Individuals Will Act According to False Beliefs. *Science* 354, 110–4.
- Kuhlmeier, V. A., & Boysen, S. T. (2002). Chimpanzees (Pan troglodytes) Recognize Spatial and Object Correspondences Between a Scale Model and Its Referent. Psychological Science 13, 60–63.
- Lakoff, G. (1987). Women, Fire, and Dangerous Things: What Categories Reveal About the Mind. Chicago and London: The University of Chicago Press.
- Lakoff, G., & Johnson, M. (1980). Metaphors We Live By. Chicago: University of Chicago
- Larsson, S. (2017). Conceptions in the Code: How Metaphors Explain Legal Challenges in Digital Times. Oxford: Oxford University Press.
- Lawson, T. (2012). Ontology and the Study of Social Reality: Emergence, Organisation, Community, Power, Social Relations, Corporations, Artefacts and Money. Cambridge Journal of Economics 36, 345–385.
- Lawson, T. (2016). Comparing Conceptions of Social Ontology: Emergent Social Entities and/or Institutional Facts? *Journal for the Theory of Social Behaviour* 46, 359–399.
- Leiter, B. (2011). The Demarcation Problem in Jurisprudence: A New Case for Scepticism. Oxford Journal of Legal Studies 31, 663–677.
- Lewis, D. (1969). Convention: A Philosophical Study. Cambridge, MA: Harvard University Press.
- Lieberman, D. E., McBratney, B. M., & Krovitz, G. (2002). The Evolution and Development of Cranial Form in *Homo sapiens*. *Proceedings of the National Academy of Sciences* 99, 1134–1139.
- Liu, D., Wellman, H. M., & Tardif, T. (2008). Theory of Mind Development in Chinese Children: A Meta-Analysis of False-Belief Understanding Across Cultures and Languages. Developmental Psychology 44, 523–531.
- Lorini, G. (2018). Animal Norms: An Investigation of Normativity in the Non-Human Social World. Law, Culture, and the Humanities 2018, 1–22. https://doi.org/10.1177/1743872118800008
- Ludwig, K. (2016). From Individual to Plural Agency. Collective Action I. Oxford: Oxford University Press.

- Lyons, D. E. & Keil, F. C. (2013). Overimitation and the Development of Causal Understanding. In M. Banaji & S. Gelman (eds.), *Navigating the Social World: What Infants, Children, and Other Species Can Teach Us.* Oxford: Oxford University Press, pp. 145–9.
- Mant, C. M., & Perner, J. (1988). The Child's Understanding of Commitment. Developmental Psychology 24, 343–351.
- Medin, D. L., & Shaffer, M. M. (1978). Context Theory of Classification Learning. *Psychological Review* 85, 207–38.
- Michael, J. (2011). Shared Emotions and Joint Action. Review of Philosophy and Psychology 2, 355–373.
- Michael, J., & Pacherie, E. (2015). On Commitments and Other Uncertainty Reduction Tools in Joint Action. *Journal of Social Ontology* 1, 89–120.
- Michael, J., Sebanz, N., & Knoblich, G. (2016a). The Sense of Commitment: A Minimal Approach. Frontiers in Psychology 6, Article 1968.
- Michael, J., Sebanz, N., & Knoblich, G. (2016b). Observing Joint Action: Coordination Creates Commitment. *Cognition* 157, 106–113.
- Milgram, S. (1974). Obedience to Authority: An Experimental View. London: Harper and Row. Miller, S. (2001). Social Action: A Teleological Account. Cambridge: Cambridge University Press
- Nietzsche, F. (2006). On the Genealogy of Morality, ed. K. Ansell-Pearson. Cambridge: Cambridge University Press.
- North, D. (1990). *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.
- Nosofsky, R. M., & Palmeri, T. J. (1997). An Exemplar-Based Random Walk Model of Speeded Classification. *Psychological Review* 104, 266–300.
- Noyes, A., & Dunham, Y. (2017). Mutual Intentions as a Causal Framework for Social Groups. Cognition 162, 133–142.
- Noyes, A., Keil, F. C., & Dunham, Y. (2018). The Emerging Causal Understanding of Institutional Objects. *Cognition* 170, 83–87.
- Olivecrona, K. (1971). Law as Fact, 2nd ed. London: Stevens.
- Onishi, K. H., & Baillargeon, R. (2005). Do 15-Month-Old Infants Understand False Beliefs? *Science* 308, 255–258.
- Pacherie, E. (2011). Framing Joint Action. Review of Philosophy and Psychology 2, 173–192.
- Pacherie, E., & Dokic, J. (2006). From Mirror Neurons to Joint Actions. Cognitive Systems Research 7, 101–112.
- Parsons, T. (1935). The Place of Ultimate Values in Sociological Theory. *International Journal of Ethics* 45, 282–316.
- Passerini Glazel, L. (2005). La forza normativa del tipo: teoria della categorizzazione e pragmatica dell'atto giuridico. Macerata: Quodlibet.
- Pattaro, E. (2005). A Treatise of Legal Philosophy and General Jurisprudence, Vol. 1, The Law and the Right: A Reappraisal of the Reality that Ought to Be, ed. E. Pattaro. Berlin: Springer.
- Pattaro, E. (2016). Axel Hägerström at the Origins of the Uppsala School. In E. Pattaro and C. Roversi (eds.), Legal Philosophy in the Twentieth Century: The Civil Law World. Tome 2, Main Orientations and Topics. Berlin: Springer, pp. 319–363.
- Perner, J., Aichhorn, M., Kronbichler, M., Staffen, W., & Ladurner, G. (2006). Thinking of Mental and Other Representations: The Roles of Left and Right Temporo-parietal Junction. *Social Neuroscience* 1, 245–258.

- Petrażycki, A. (1955). Law and Morality, ed. N. S. Timasheff. Cambridge, MA: Harvard University Press.
- Piaget, J. (1997). The Moral Judgment of the Child. New York: Free Press. (1st ed. 1932.)
- Pinker, S. (2011). The Better Angels of Our Nature: Why Violence Has Declined. New York: Viking.
- Plunkett, D. (2019). Robust Normativity, Morality, and Legal Positivism. In D. Plunkett, S. J. Shapiro & K. Toh (eds.), Dimensions of Normativity: New Essays on Metaethics and Jurisprudence. Oxford: Oxford University Press, pp. 105-136.
- Rakoczy, H., Tomasello, M., & Striano, T. (2005a). On Tools and Toys: How Children Learn to Act on and Pretend with "Virgin" Objects. *Developmental Science* 8, 57–73.
- Rakoczy, H. (2007.) Play, Games and the Development of Collective Intentionality. New Directions for Child and Adolescent Development 115, 53–67.
- Rakoczy, H. (2008). Taking Fiction Seriously: Young Children Understand the Normative Structure of Joint Pretence Games. *Developmental Psychology* 44, 1191–1205.
- Rakoczy, H., & Tomasello, M. (2007). The Ontogeny of Social Ontology: Steps to Shared Intentionality and Status Functions. In S. L. Tsohatzidis (ed.), *Intentional Acts and Institutional Facts*. Berlin: Springer, 113–137.
- Rakoczy, H., Tomasello, M., & Striano, T. (2005b). How Children Turn Objects into Symbols: A Cultural Learning Account. InL. Namy (ed.), Symbol Use and Symbol Representation. New York: Erlbaum.
- Rakoczy, H., Warneken, F., & Tomasello, M. (2008). The Sources of Normativity: Young Children's Awareness of the Normative Structure of Games. *Developmental Psychology* 44, 875–881.
- Raz, J. (1979). The Authority of Law: Essays on Law and Morality. Oxford: Oxford University Press.
- Reicher, S. D., Haslam, A., & Smith, J. R. (2012). Working Toward the Experimenter: Reconceptualizing Obedience within the Milgram Paradigm as Identification-Based Followership. *Perspectives on Psychological Science* 7, 315–324.
- Rhodes, M. (2013). The Conceptual Structure of Social Categories: The Social Allegiance Hypothesis. In M. Banaji & S. Gelman (eds.), *Navigating the Social World: What Infants, Children, and Other Species Can Teach Us.* Oxford: Oxford University Press, pp. 258–262.
- Rhodes, M., & Gelman, S. A. (2009). A Developmental Examination of the Conceptual Structure of Animal, Artifact, and Human Social Categories across Two Cultural Contexts. *Cognitive Psychology* 59, 244–274.
- Richerson, P. I., & Boyd, R. (2005). Not by Genes Alone. How Culture Transformed Human Evolution. Chicago and London: The University of Chicago Press.
- Robinson, P. H., & Kurzban, R. (2007.) Concordance and Conflict in Intuitions of Justice. Minnesota Law Review 91, 1829–1907.
- Rockenbach, B., & Milinski, M. (2006). The Efficient Interaction of Indirect Reciprocity and Costly Punishment. *Nature* 444, 718–723.
- Rohr, C. R., von, Burkart, J. M., & van Schaik, C. P. (2011). Evolutionary Precursors of Social Norms in Chimpanzees: a New Approach. Biology and Philosophy 26, 1–30.
- Rosch, E. (1978). Principles of Categorization. In E. Rosch & B. B. Lloyd (eds.), Cognition and Categorization. New Jersey: Hillsdale, pp. 27–48.
- Rosch, E., & Mervis, C. B. (1975). Family Resemblances: Studies in the Internal Structure of Categories. Cognitive Psychology 7, 573–605.
- Rossano, F., Rakoczy, H., & Tomasello, M. (2011). Young Children's Understanding of Violations of Property Rights. *Cognition* 121, 219–227.

- Roversi, C. (2016). Legal Metaphoric Artefacts. In J. Stelmach, B. Brozek, & L. Kurek (eds.), *The Emergence of Normative Orders*. Krakow: Copernicus Center Press, pp. 215–280.
- Roversi, C. (2019). Law as an Artefact: Three Questions. Analisi e Diritto 2, 41-68.
- Roversi, C., Borghi, A. M., & Tummolini, L. (2013). A Marriage Is an Artefact and Not a Walk that We Take Together: An Experimental Study on the Categorization of Artefacts. *Review of Philosophy and Psychology* 4, 527–542.
- Roversi, C., Pasqui, L., & Borghi, A. M. (2017). Institutional Mimesis: An Experimental Study on the Grounding of Legal Concepts. In J. Stelmach, B. Brożek, & Ł. Kurek (eds.), *The Province of Jurisprudence Naturalized*. Warsaw: Wolters Kluwer, pp. 130–153.
- Sacco, R. (2007). Antropologia giuridica. Bologna: Il Mulino.
- Sanfey, A. G., Rilling, J. K., Aronson, J. A., Nystrom, L. E., & Cohen, J. D. (2003). The Neural Basis of Economic Decision-making in the Ultimatum Game. *Science* 300, 1755–1758.
- Saxe, R., & Kanwisher, N. (2003). People Thinking About Thinking People: The Role of the Temporoparietal Junction in Theory of Mind. *NeuroImage* 19, 1835–1842.
- Schauer, F. (2012). On the Nature of the Nature of Law. Archiv für Rechts- und Sozialphilosophie 98, 457–467.
- Schauer, F. (2015). The Force of Law. Cambridge, MA: Harvard University Press.
- Schmidt, M., Hardecker, S., & Tomasello, M. (2016). Preschoolers Understand the Normativity of Cooperatively Structured Competition. *Journal of Experimental Child Psychology* 143, 34–47.
- Searle, J. R. (1995). The Construction of Social Reality. New York: The Free Press.
- Searle, J. R. (2002). Collective Intentions and Actions. In J. R. Searle, Consciousness and Language. Cambridge: Cambridge University Press, 90–105. (1st ed. 1990.)
- Searle, J. R. (2010). Making the Social World. Oxford: Oxford University Press.
- Sebanz, N., Knoblich, G., & Prinz, W. (2003). Representing Others' Actions: Just Like One's Own? Cognition 88, 11–21.
- Sebanz, N., Knoblich, G., & Prinz, W. (2005). How to Share a Task: Corepresenting Stimulus-Response Mappings. *Journal of Experimental Psychology* 31, 1234–1246.
- Sebanz, N., Knoblich, G.,. Prinz, W., & Wascher, E. (2006). Twin Peaks: An ERP Study of Action Planning and Control in Coacting Individuals. *Journal of Cognitive Neuroscience* 18, 859–870.
- Sell, A., Sznycer, D., Al-Shawaf, L., et al. (2017). The Grammar of Anger: Mapping the Computational Architecture of a Recalibrational Emotion. *Cognition* 168, 110–128.
- Shapiro, S. (2011). Legality. Cambridge, MA: Harvard University Press.
- Shaw, A. W., Li, W., & Olson, K. R. (2013). Reputation is Everything. In M. Banaji & S. Gelman (eds.), Navigating the Social World: What Infants, Children, and Other Species Can Teach Us. Oxford: Oxford University Press, pp. 220–224.
- Shergill, S. S., Bays, P. M., Frith, C. D., & Wolpert, D. M. (2003). Two Eyes for an Eye: The Neuroscience of Force Escalation. *Science* 301, 187.
- Skezely, M., & Michael, J. (2018). Investing in Commitment: Persistence in a Joint Action Is Enhanced by the Perception of a Partner's Effort. *Cognition* 174, 37–42.
- Stake, J. E. (2006). The Property "Instinct." In S. Zeki and O. Goodenough (eds.), *Law and the Brain*. Oxford: Oxford University Press, pp. 185–204.
- Takahashi, H., Yahata, N., Koeda, M., et al. (2004). Brain Activation Associated with Evaluative Processes of Guilt and Embarrassment: An fMRI Study. *NeuroImage* 23, 967–974.
- Tamanaha, B. (2017a). Necessary and Universal Truths about Law? Ratio Juris 30, 3-24.
- Tamanaha, B. (2017b). A Realistic Theory of Law. Cambridge: Cambridge University Press.

- Thibaut, J.-P., Gelaes, S., & Murphy, G. L. (2018). Does Practice in Category Learning Increase Rule Use or Exemplar Use or Both? *Memory and Cognition* 46, 530–43.
- Thomasson, A. (1999). Fiction and Metaphysics. Cambridge: Cambridge University Press.
- Tollefsen, D. (2004). Let's Pretend! Children and Joint Action. *Philosophy of the Social Sciences* 35, 75–97.
- Tomasello, M. (2016). A Natural History of Human Morality. Cambridge, MA: Harvard University Press.
- Tomasello, M., & Carpenter, M. (2005). The Emergence of Social Cognition in Three Young Chimpanzees. *Monographs of the Society for Research in Child Development* 70, 1–131.
- Tomasello, M., Carpenter, M., Call, J., Behne, T., & Moll, H. (2005). Understanding and Sharing Intentions: The Origins of Cultural Cognition. *Behavioural and Brain Sciences* 28, 675–735.
- Tomasello, M., & Moll, H. (2013). Why Don't Apes Understand False Beliefs? In M. Banaji & S. Gelman (eds.), *Navigating the Social World: What Infants, Children, and Other Species Can Teach Us.* Oxford: Oxford University Press, pp. 81–87.
- Trivers, R. (1971). The Evolution of Reciprocal Altruism. *Quarterly Review of Biology* 46, 35–7. Trivers, R. (1985). *Social Evolution*. Menlo Park: Benjamin/Cummings Pub.
- Tsai, C.-C., Kuo, W.-J., Jing, J.-T., Hung, D. L., & Tzeng, O. J.-L. (2006). A Common Coding Framework in Self-Other Interaction: Evidence from Joint Action Task. *Experimental Brain Research* 175, 353–362.
- Tsai, C.-C., Sebanz, N., & Knoblich, G. (2011). The GROOP Effect: Groups Mimic Group Actions. Cognition 118, 138–143.
- Tuomela, R. (1995). The Importance of Us: A Philosophical Study of Basic Social Notions. Stanford: Stanford University Press.
- Tuomela, R. (2013). Social Ontology. Oxford: Oxford University Press.
- Turiel, E. (1983). The Development of Social Knowledge: Morality and Convention. Cambridge: Cambridge University Press.
- Ullman-Margalit, E. (1977). The Emergence of Norms. Oxford: Clarendon Press.
- Vaesen, K. (2012). The Cognitive Bases of Human Tool Use. Behavioural Brain Sciences 35, 203–262.
- Vaish, A., Missana, M., & Tomasello, M. (2011). Three-Year-Old Children Intervene in Third-Party Moral Transgressions. *British Journal of Developmental Psychology* 29, 124–130.
- Vanhaeren, M., d'Errico, F., Stringer, C. et al. (2006). Middle Paleolithic Shell Beads in Israel and Algeria. *Science* 312, 1785–1788.
- Van Winden, F. (2007). Affect and Fairness in Economics. Social Justice Research 20, 35–52. Vesper, C., Abramova, E., Bütepage, J. et al. (2017). Joint Action: Mental Representations, Shared Information and General Mechanisms for Coordinating with Others. Frontiers in Psychology 7, Article 2039.
- Vesper, C., Butterfill, S., Knoblich, G., Sebanz, N. (2010). A Minimal Architecture for Joint Action. *Neural Networks* 23, 998–1003.
- Walton, K. L. (1990). Mimesis as Make-Believe. Cambridge, MA: Harvard University Press.
- Warneken, F., & Tomasello, M. (2009). Varieties of Altruism in Children and Chimpanzees. Trends in Cognitive Science 13, 397–402.
- Wellman, H. M., Cross, D., & Watson, J. (2001). Meta-Analysis of Theory-of-Mind Development: The Truth about False Belief. *Child Development* 72, 655–684.
- Whiten, A. (2013). Social Cognition: Making Us Smart, or Sometimes Making Us Dumb? Overimitation, Conformity, Nonconformity, and the Transmission of Culture in Ape and Child. In M. Banaji and S. Gelman (eds.), Navigating the Social World: What Infants, Children, and Other Species Can Teach Us. Oxford: Oxford University Press, pp. 151–154.

- Whiten, A., McGuigan, N., Marshall-Pescini, S., & Hopper, L. M. (2009). Emulation, Imitation, Over-imitation and the Scope of Culture for Child and Chimpanzee. *Philosophical Transactions of the Royal Society* 364, 2417–2428.
- Wills, A. J., Inkster, A. B., & Milton, F. (2015). Combination or Differentiation? Two Theories of Processing Order in Classification. *Cognitive Psychology* 80, 1–33.
- Winter, S. L. (2001). A Clearing in the Forest: Law, Life, and Mind. Chicago and London: The University of Chicago Press.