An Experimental Study on the Grounding of Legal Concepts

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1. Legal Artefacts and Conceptions of Nature

Legal institutions, legal systems and the law in general are human artefacts: not only are they human-dependent entities—a lot of things are human-dependent and are not artefacts: pollution, for example—, but they are created by humans as the object and outcome of a specific, intentional process of creation. This is an idea that can be seen as an assumption of both legal positivism and legal realism. Indeed, one could say that these two traditional conceptions frame the same artefactual nature of law in different ways: On the one hand, legal positivism focuses on the fact that law is an artefact created by an authority; on the other hand, legal realism focuses on the fact that law is an artefact whose functioning requires recognition and enforcement, and whose purpose and plan must be continuously adapted through a process of interpretation and re-interpretation.

Of course, these artefacts are not built out of arbitrary considerations: There are a number of value problems, conditions of effectiveness, and even political factors that legal institutions cannot but address. Yet apart from these obvious connections, another possible question is whether the fact that law is an artefact completely rules out its connection with the natural background: Is there a sense in which we can consider legal institutions to be *natural*, other than artefactual? After all, this was the original intuition of the most ancient among the legal-philosophical conceptions, namely, natural law theory: The idea was, at the outset, that the way in which legal institutions work can be linked with the way in which nature works, that *dike* could be linked with *kosmos*, the natural order. Of course, this turns out to be a very general problem when stated in this way, one that can be addressed in several different ways. For example, all the studies that aim at a naturalization of law or at a description of law in evolutionary terms can be conceived as studies that link the content of legal institutions with nature, at least in an objective and scientific sense of nature: and much of the contemporary scholarship

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in legal theory is devoted to this side of the problem. But there is another interpretation of the same problem which has not attracted the same amount of interest and attention: is it possible that the way in which legal artefacts are built and conceptualized is connected with the way in which natural and physical phenomena are conceptualized? Is there a connection between law and conceptions of nature?

As we have already said, this problem has not attracted much interest in the legal-philosophical literature, but there is at least one exception, and luckily one that comes from the most outstanding legal philosopher of the 20th century: Hans Kelsen's book *Society and Nature*, of 1943. In this wonderful work, Kelsen shows how several concepts that are crucial for the growth of Western natural science in ancient Greek thought, among which the Presocratic concept of the first cause, or *arché*, but even more importantly the very concept of causation, were the outcome of a juridification of the natural world that in his view is typical of primitive world views. In these views, Kelsen argues, nature is humanized, and natural events are explained by means of intentions attributed to natural gods and hence in terms of these gods' power and their will to inflict sanctions or attribute rewards: Causation therefore comes from retribution, and the explanation of nature depends on our prior understanding of society[1].

Kelsen's description of the relation between legal artefacts and conceptions of nature—let us call it the "Social Dependence Model"—is supported by an impressive amount of confirmations drawn from the sociological and anthropological literature of that time, to the point that Kelsen himself considered his research to be mainly "a sociological inquiry", which is exactly the subtitle of the book. And one could also say that this empirical support has not found significant criticism in the anthropological literature of the last fifty years (but see Jabloner[2] in light of Garcia-Salmones[3]). Thus, as things stand, Kelsen's Social Dependence model is warranted by empirical confirmation and in general can be considered as a reliable model of how conceptions of nature can emerge from social (and legal) considerations.

Contemporary cognitive psychology, however, adds further elements to the picture. The literature on the so-called "embodied" and "grounded

[1] H. Kelsen, *Society and Nature: A Sociological Inquiry*, Chicago 1943, p. 234 et seq.

[2] C. Jabloner, 1982. Bemerkungen zu Kelsen's "Vergeltung und Kausalität". Besonders zur Naturdeutung der Primitiven [in:] Ideologiekritik und Demokratietheorie bei Hans Kelsen, „Rechtstheorie Beiheft" 1982/4, pp. 47–62.

[3] M. García-Salmones, *On Kelsen's Sein: An Approach to Kelsenian Sociological Themes*, "No Foundations: An Interdisciplinary Journal of Law and Justice" 2011/8, pp. 63–64.

cognition"[4], a paradigm developed in the last thirty years, shows that concepts are grounded in perception, action and emotional systems. An important challenge for these views is to explain how higher-order abstract concepts are represented (for an overview of recent theories, see Borghi et al.[5]). However, even if they differ in ascribing an important role to linguistic, emotional or social experience for abstract concepts, most embodied and grounded views converge in contending that abstract concepts are grounded in our physical interactions with the environment. The most basic experience of the physical world embedded in our perceptual and motor cognitive systems can be at the root of all kinds of abstract concepts, and hence—we could conclude—also of legal institutions. Now, to be sure, Kelsen's model is aimed at drawing a phylogenesis of law, whereas embodied cognition can be used to address the ontogenesis of our institutional concepts: not how they have evolved through history, but rather how they emerge in individual cognition. If legal institutions are artefacts, however, it is reasonable to assume that the evolution of these artefacts is based on common features of the cognitive system of us as individuals and authors/interpreters of those artefacts. Hence, the question becomes: Are there good reasons to update Kelsen's Social Dependence model in light of the embodied and grounded cognition paradigm? One could imagine, for example, a more "dialectical" model, according to which the most abstract and general concepts of natural science are traceable to social mechanisms (as in Kelsen's view), but the concepts of social and legal institutions are in their own turn rooted in a basic conception of physical interactions with the natural world (as in the "embodied cognition" view).

Even from the point of view of embodied cognition, however, it is not necessary to assume this modified, dialectical model. Indeed, the most interesting phenomenon in the literature on abstract concepts adopting an embodied stance consists, in the last years, in the emergence of the so-called "Multiple Representation views," according to which abstract concepts are not only grounded in perception and action systems but also activate emotional[6], linguistic[7] and social experience[8]. Specifically,

[4] L.W. Barsalou, *Grounded cognition*, "Annual Review of Psychology" 2008/59, pp. 617–645; A.M. Glenberg, V. Gallese, *Action-Based Language: A Theory of Language Acquisition, Comprehension, and Production*, "Cortex" 2012/48, pp. 905–22; A.M. Borghi, F. Caruana, Embodiment theories. *International Encyclopedia of the Social and Behavioral Sciences*, Section of Cognitive Neuroscience, Amsterdam 2015.

[5] A.M. Borghi, F. Binkofski, C. Castelfranchi, F. Cimatti, C. Scorolli, L. Tummolini, *The Challenge of Abstract Words*. "Psychol. Bull" 2017, Available at: http://dx.doi.org/10.1037/bul0000089.

[6] S.T. Kousta, G. Vigliocco, D.P. Vinson, M. Andrews, E. Del Campo, *The Representation of Abstract Words: Why Emotion Matters*, "Journal of Experimental Psychology: General", 2011/140; P.I. Newcombe, C. Campbell, P.D., Siakaluk,

according to the Words As Social Tools (WAT) view[9] the conceptualization of abstract concepts can be traced not only to patterns of physical interactions but also to patterns of linguistic, and hence inherently social, interaction: Hence, the wider heterogeneity of the members of abstract concepts makes the social and linguistic input coming from others a fundamental feature of their acquisition and representation in the brain. In this perspective, we find a somewhat modified version of Kelsen's Social Dependence model: not simply a dependence of natural, abstract concepts on more basic, social (and legal) concepts, but rather a general dependence of all kinds of abstract concepts on patterns of social and particularly linguistic interaction. Hence the previous question we have made—whether Kelsen's Social Dependence model should be amended and modified in light of the studies on embodied cognition—leads to another one: If we modify this model, what is the direction we will take? Should we (1) think of a full Dialectical model in which basic physical interaction grounds social (and legal) institutions, which in their own turn grounds a higher-level conceptualization of nature, or should we rather simply (2) modify the Social Dependence model in the sense of linguistic social interaction grounding any abstract conceptualization, be it of society or nature?

In this paper, we present an experiment conceived and carried out to test some conjectures connected with this general problem. Our aim, of

P. M. Pexman, *Effects of Emotional and Sensorimotor Knowledge in Semantic Processing of Concrete and Abstract Nouns*, "Frontiers in Human Neuroscience" 2012/6.

[7] L.W. Barsalou, K. Wiemer-Hastings, *Situating Abstract Concepts* [in:] *Grounding Cognition: The Role of Perception and Action in Memory, Language, and Thought*, R. Zwaan, D. Pecher (eds.), Cambridge 2005, pp. 129–163; A.M. Borghi, F. Binkofski, *Words as Social Tools: An Embodied View on Abstract Words*, New York 2014; A.M. Borghi, E. Zarcone, *Grounding abstractness: Abstract Concepts and the Activation of the Mouth*, "Frontiers in Psychology" 2016/7. Available at: http://dx.doi.org/10.3389/fpsyg.2016.01498; G. Dove, *Beyond Perceptual Symbols: A Call for Representational Pluralism*, "Cognition" 2009/110, pp. 412–31.; G. Dove, *On the Need for Embodied and Dis-Embodied Cognition*, "Frontiers in Psychology" 2010/1.; G. Dove, 2014. *Thinking in Words: Language as an Embodied Medium of Thought*, "Topics in Cognitive Science" 2014/6, pp. 371–89.

[8] L.W. Barsalou, K. Wiemer-Hastings, *Situating abstract concepts…*; A.M. Borghi, F. Binkofski, C. Castelfranchi, F. Cimatti, C. Scorolli, L. Tummolini, *The challenge…*; S.J. Crutch, J. Troche, J. Reilly, G.R. Ridgway, *Abstract conceptual feature ratings: the role of emotion, magnitude, and other cognitive domains in the organization of abstract conceptual knowledge*, "Frontiers in Human Neuroscience" 2013/7.

[9] A.M. Borghi, F. Cimatti, *Words as tools and the problem of abstract words meanings* [in:] "Proceedings of the 31st Annual Conference of the Cognitive Science Society" 2009/31, pp. 2304–09; A.M. Borghi, F. Binkofski, *Words as Social Tools: An Embodied View on Abstract Words*, New York 2014.

course, is not to give a definitive answer to the questions presented above, but rather to provide some experimental results that can be helpful to view these general philosophical problems in a new light. Moreover, this paper is also meant to provide new data for research on the embodiment of abstract concepts, and particularly of those specific abstract concepts that depend on an institutional and legal framework. Our research would thus contribute to an important new trend characterizing the most recent studies on abstract concepts. Until some years ago abstract concepts were conceived of as a unitary class, and only recently researchers have started to investigate the differences among them[10]. This is striking, because clearly abstract concepts come in a great variety, from emotions to numbers to mental states to institutional concepts, and, on the other hand, there is a long tradition of analyses of sub-categories of concrete concepts—for example, the different behavioral patterns and brain representations associated with living and non-living kinds have been widely investigated, since the seminal work by Warrington and Shallice (1984). We will thus contribute to investigating a specific kind of abstract concepts, namely, institutional concepts. Although several studies have been conducted on abstract concepts from the point of view of embodied cognition, so far institutional concepts have not been investigated[11].

The whole study has been conceived as an ideal follow-up to two previous studies that members of our research group have conducted in the past, following both an experimental and a theoretical path. The experimental study[12] focused on the conceptualization of institutions and artefacts: We tried to show on experimental grounds that there are good reasons to describe legal concepts as akin to artefact concepts, by comparing them with physical artefacts, on the one hand, and with more abstract social concepts, on the other hand. The theoretical study[13] was

[10] For examples, see M. Ghio, M.M.S. Vaghi, M. Tettamanti, *Fine-Grained Semantic Categorization across the Abstract and Concrete Domains*, "PLOS ONE" 2013/8: e67090; M. Ghio, M.M.S., Vaghi, D. Perani, D., M. Tettamanti, *Decoding the Neural Representation of Fine-Grained Conceptual Categories*, "NeuroImage" 2016/132, pp. 93–103; A. Setti, N. Caramelli, *Different Domains in Abstract Concepts* [in:] *Proceedings of the XXVII Annual Conference of Cognitive Science Society*. Cognitive Science Society, Inc 2005; S.J. Crutch, J. Troche, J. Reilly, G.R. Ridgway, *Abstract....*

[11] For an exception, see C. Roversi, A. Borghi, L. Tummolini, *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" 2013/4(3), pp. 527–42.

[12] C. Roversi, A. Borghi, L. Tummolini, *A Marriage....*

[13] C. Roversi, *Legal Metaphoric Artefacts* [in:] *The Emergence of Normative Orders*, J. Stelmach, B. Brożek, Ł. Kurek, Kraków 2016, pp. 215–80.

devoted to a theory of legal institutions as metaphoric artefacts, namely, characterized in their evolution by important analogies and metaphoric projections with non-normative, factual regularities and human capabilities (a phenomenon labelled "institutional mimesis"). Here we evaluate whether this evolution of legal artefacts has some cognitive basis, focusing on the question of how, and to what extent, these concepts can be grounded on our conception of more basic, physical interactions or of more basic, social interactions. The structure of the paper is as follows. In Section 2, we will present some of the hypotheses about the embodiment of institutional concepts and "institutional mimesis" that have served as the theoretical basis for this study. In Section 3, we will explain how the experiment was framed and present its results. In Section 4, we will discuss the results and suggest some lines for possible future research.

2. Institutional Mimesis: Conjectures about the Embodiment of Legal Concepts in Terms of Physical Image Schemas

2.1.   Institutional Mimesis: Some Distinctions

As mentioned, our conjectures about a possible grounding of institutional concepts on image schemas of physical interactions, which form the core of this experimental study, were drawn from a previous study[14] devoted to legal metaphorical artefacts and the phenomenon there labelled as "institutional mimesis". Institutional mimesis is the ideal-typical situation in which the constitutive rules defining the interaction plan of a given legal institution "imitate" or mimic patterns of physical regularities or physical interactions embedded in a certain, culture-relative conception of "nature" or physical reality. Institutional mimesis can be *hermeneutic* or *genetic*, depending on its role in the creation of the institution in question, and it can also be *cosmological*, *ecological*, or *ethological*, depending on the kind of physical image schemas it is based on.

Institutional mimesis is *genetic* when it played a role in the creative process of the institution in question, whereas it is *hermeneutic* when it is used as a way to legitimize or interpret an institution which was created on independent grounds. Very often it is difficult to sharply distinguish between genetic and hermeneutic mimesis in practice, because the way in which legal artefacts are interpreted plays a role in their deliberative history, hence in the way in which they are framed. Thus, the distinction between genetic and hermeneutic mimesis is, to a great extent, only ideal-typical. However, the experimental study presented in this paper focuses on genetic institutional mimesis, because it addresses the question of the phylogenesis of legal institutions by studying their ontogenesis in terms of

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[14] C. Roversi, *Legal Metaphoric*....

embodied cognition, hence their rooting in the cognitive processes of human beings.

Institutional mimesis is *cosmological* when the image schema of physical reality represents some sort of "law of nature" or natural regularity in which human interaction does not play any role: for example, the planetary system, the human organism, or a taxonomy of different kinds of physical bodies. Institutional mimesis is instead *ecological* when the relevant image schema represents an interaction between human beings and their physical environment: for example, a human who acts and has a causal impact on the surrounding environment, or one who stands up and follows a path. Finally, institutional mimesis is *ethological* when the image schema it is based on represents a physical or brute interaction among two or more human beings: for example, taking away with violence, or touching another human being.

Let us now give some examples of institutional mimesis relevant for this study[15].

2.2.   The State as an Ordered System of Bodies

One of the conjectures we tried to test in this experimental study is that the concept of State can be connected with an image schema traceable to an ordered system of bodies. This conjecture is based on the cosmological institutional mimesis between the modern concept of State and the Newtonian conception of physics which was described in Stephen Toulmin's 1990 book *Cosmopolis*. In this work, Toulmin maintains that the rise of the modern concept of State as a unified political framework, organized according to an internal rationality and in a sense universal, should be viewed as inextricably intertwined with a specific conception of the natural world: the conception encapsulated by the new, mathematical science which emerged in the same period and whose foremost champion was Isaac Newton. As Toulmin writes:

> Between 1660 and 1720, few thinkers were only interested in accounting for mechanical phenomena in the physical world. For most people, just as much intellectual underpinning was required for the new patterns of social practice, and associated ideas about the *polis*. As a result, enticing new analogies entered social and political thought: if, from now on, "stability" was the chief virtue of social organization, was it not possible to organize political ideas about *Society* along the same lines as scientific ideas about *Nature*?[16]

Elsewhere in the same work he adds:

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[15] See also C. Roversi, *Legal Metaphoric*….

[16] S. Toulmin, *Cosmopolis: The Hidden Agenda of Modernity*, Chicago 1992, p. 107.

From 1700 on, social relations within the nation-state were defined in *horizontal* terms of *superordination* and *subordination*, based on class affiliation: the "lower orders" as a whole were seen as subordinate and inferior to the "better sort" as a whole. Each class had its place in the horizontal system that constituted a nation-state, and at the summit of the structure was the King. Social place was typically defined by the status of the men involved, and was applied to their wives and children by association. As a by-product of the nation-state, class distinction became, as never before, the crucial organizing principle of all society. In France especially, the key force in society was the monarch's "solar" power to control (and illuminate) the state's activities. […] Here, the planetary model of society was explicitly *cosmopolitical*. Without such a justification, the imposition of hierarchy on "the lower orders" by "the better sort" of people would be arbitrary and self-serving. To the extent that this hierarchy *mirrored the structure of nature*, its authority was self-explanatory, self-justifying, and seemingly rational[17]. (Italics mine in the last occurrence)

In the final part of this second passage, Toulmin's idea is put in remarkably clear terms: Since the beginning of the 18th century, the hierarchical structure connected with the modern state could be seen as "mirroring" the structure of nature and thus could be justified by this analogy. But, conversely, the scientific conception of nature that underpinned this analogy was in its own turn strengthened *from its very birth* by its justificatory power: "[T]he world view of modern science—*as it actually came into existence*—won public support around 1700 for the legitimacy it apparently gave to the political system of nation-states as much as for its power to explain the motion of planets"[18].

2.3. Parliament as a Single Body

Another conjecture based on a cosmological institutional mimesis which was tested in this study is that the concept of the Parliament can be grounded on an image schema of a single body, and not of a multitude of bodies working together. This conjecture is based on Karl Olivecrona's studies about the emergence of the concept of corporation (and hence of "collective" legal bodies) in ancient Roman law in terms of a separate entity, not consisting merely of a collection of parts. In his 1928 essay "*Corporations as* universitates," Olivecrona maintains that, in Roman legal thought, the very idea of a corporation having a legal personality separate from that of its individual members depended on its being considered a separate entity, something which can exist not simply as a mere collection of parts. This was possible in light of a specific distinction between three kinds of natural *corpora*, a distinction that can be found in the Stoic

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[17] S. Toulmin, *Cosmopolis…*, p. 133.

[18] S. Toulmin, *Cosmopolis…*, p. 128.

philosophers and that was accepted by the Roman jurists. According to this distinction, which is clearly formulated by Pomponius in a famous passage (*Digest*, 41, 3, 30, pr.) and can be found in Seneca as well, there are three kinds of *corpora* to be found in nature: homogeneous objects of a given species whose parts are melted together and have no separate standing, for example, a statue; objects of a given species whose parts have their own separate species but are connected in a coherent way, for example, a ship (*corpus ex cohaerentibus*); and, finally, objects of a given species whose parts have their own separate species and are also physically independent, for example, a herd of sheep (*corpus ex distantibus*). According to Olivecrona, the *universitates* discussed by the Roman jurists were to be conceived as *corpora ex distantibus*:

> As *corpora* of the third class corporations were similar in nature to other *corpora* belonging to this class. The fundamental rules concerning their rights and duties are only applications of the general theory of *corpora*. The essential thing is that the entity is a *corpus*, distinct from the parts, with an individuality that remains unchanged despite changes in the parts. The rules are inferences drawn from these assumptions[19].

As in the case of Toulmin's hypothesis on the rise of the modern state, here a legal organization is created in such a way that it mirrors natural reality according to a common—we would say "scientific" pursuant to the standards of the period—conception of it:

> The classification of *corpora* refers to their objective nature; it is founded on natural science without consideration of social convenience. In their arguments the jurists assume that the classification is scientifically correct; this is the reason why they use it in their interpretation of law[20].

2.4.   Contract as Contact and Transmission

An example of ethological institutional mimesis tested in this experimental study is the conjecture that the idea of contract can be traced to an image schema of contact and transmission between human beings. This conjecture is based on Axel Hägerström's reconstruction of legal transactions in ancient Roman law and particularly of the Roman concept of *promissio*, an ancestor of our concept of contract. A *promissio* in Roman law was a legal transaction through which persons could undertake an obligation under *ius gentium*, that is, even if they were not Roman citizens (the corresponding transaction for Roman citizens was instead the *sponsio*, as described, for example, by Gaius in *Digest* 1, 3, 93). Now, in the second

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[19] K. Olivecrona, *Corporations as Universitates* [in:] K. Olivecrona, *Three Essays in Roman Law*, 5–42. Copenhagen 1949, p. 35.

[20] K. Olivecrona, *Corporations…,* p. 29.

volume of his 1941 *Der Romische Obligationsbegriff* (the first volume was written in 1927), Axel Hägerström argued that a *promissio* could take place only by offering (literally "putting forward," *pro-mittere*) the right hand, which had to be accepted by the promisee in order for the transaction to be validly performed. In his view, however, such a contact between right hands was necessary for the transaction to happen because some sort of "fluid" or "force" was thought to be transmitted in nature upon contact, and this force in a sense entailed a communion framed in normative terms. Hägerström writes in this regard:

> In the *dextra* there is a particular internal force through which a person's objectives can be achieved. By way of a *dextrarum iunctio*, the respective forces are supernaturally merged [*vereinigt*], and in this way a mystic community is created in what concerns the sources of those forces. Compare this idea with the primitive conceptions about forces enclosed in external objects mystically transmitted by physical contact or more generally by external contiguity [*äusseres Zusammensein*]. These forces are conceived as *fluida*, which are transmitted from one object to another. If the original connection has been organic, a supernatural communion of destinies also arises[21] (our translation).

2.5. President as Something Having a Causal Effect

Another conjecture that we tested concerns a possible case of ecological institutional mimesis underlying the concept of authority. Here, we conjectured that the concept of an authority, like that of President, can be grounded on an image schema representing something having an actual physical impact on other bodies. There are several anthropological and historical studies that could support such a hypothesis. Consider for example kingship, conceived as the highest power within a given political organization. It has been observed in the anthropological literature that in many cultures the normative powers of a king—in essence, his authority—were originally connected with that king's actual ability to produce effects in nature. James George Frazer provides us with many examples of this connection in the chapters of *The Golden Bough* devoted to "magicians as kings." Consider the case of kings as "rainmakers" in African culture:

> [A]mong the Wagogo of East Africa the main power of the chiefs, we are told, is derived from their art of rain-making. If a chief cannot make rain himself, he must procure it from someone who can. Again, among the tribes of the Upper Nile the medicine-men are generally the chiefs. Their authority rests above all upon their supposed power of making rain. […] In Ussukuma, a great district on the southern bank of the Victoria Nyanza, "the rain and locust question is part and parcel of

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[21] A. Hägerström, *Der römische Obligationsbegriff im Lichte der allgemeinen römischen Rechtsanschauung*. II. Uppsala 1941, p. 162.

the Sultan's government. He, too, must know how to make rain and drive away the locusts. If he and his medicine-men are unable to accomplish this, his whole existence is at stake in times of distress. On a certain occasion, when the rain so greatly desired by the people did not come, the Sultan was simply driven out (in Ututwa, near Nassa). The people, in fact, hold that rulers must have power over Nature and her phenomena […]."[22]

This mimetic connection between a king's normative powers and his causal capacities can be found at the root of European culture as well. In *Le vocabulaire des institutions indo-européennes*, of 1969, Émile Benveniste notes, for example, that the verb most used in Greek Homeric tragedy for "rule," namely, *kraínō* (in the Homeric form), is connected with the idea of executing and realizing and signifies an actual effect in the world[23]. Moreover, Pietro De Francisci[24] has described in great detail, and with specific reference to ancient Roman culture, the passage from the recognition of different kinds of actual abilities (among them technical abilities, brute force, and courage) to the attribution of normative powers. Clearly, such an ability to produce effects in the natural world is ultimately connected with the idea that kings must be able to bring about natural effects which are in some sense "good" for their people: An example would be a plentiful harvest and this idea is almost ubiquitous. It can be found in Asian culture:

> Thus the ancient Hindoo law-book called *The Laws of Manu* describes as follows the effects of a good king's reign: "In that country where the king avoids taking the property of mortal sinners, men are born in due time and are long-lived. And the crops of the husbandmen spring up, each as it was sown, and the children die not, and no misshaped offspring is born."[25]

But the same connection can be found in the *Odyssey*, XIX, 110ff. ("Your fame rises to high heaven, like the fame of a peerless king, who, fearing the gods, rules many brave men and upholds the law. The people prosper under his leadership, and the dark soil yields wheat and barley, the trees are heavy with fruit, the ewes never fail to bear, and the sea is full of fish") and, again according to Benveniste, at the etymological roots of the English word *lord*, which is thought to derive from the ancient compound *hláford*, whose first element is *hlaf*, namely, "bread." Hence, the lord would be "he who can bring bread to his people"[26]. Moreover, as Marc Bloch

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[22] J.G. Frazer, *The Golden Bough,* Auckland 2009, pp. 204–209.

[23] See E. Benveniste, *Le vocabulaire des institutions indo-européennes. II. Pouvoir, droit, religion*, Paris 1969, p. 35.

[24] P. De Francisci, *Primordia Civitatis*, Rome 1959, p. 361 et seq.

[25] J.G. Frazer, *The Golden…*, p. 215.

[26] See E. Benveniste, *Le vocabulaire …,* pp. 26–27.

writes in his 1924 *Les Rois Thaumaturges*, this connection eventually produced the idea, widely shared in the Middle Ages and instrumental to the construction of kingly authority in Europe, that "real" kings must have thaumaturgical powers. Bloch provides us with an accurate description of the birth and death of this idea. In particular, he shows in detail how the supposed thaumaturgical power attributed to the kings of the Capetian dynasty is a result of a "blending" between the ancient German conception according to which kings must have an effective ability to manipulate nature and the Christian translation of this idea in terms of the king's "holy powers," akin to those of king-priests such as Melchizedek in *Genesis*[27].

2.6. Marriage as Tearing, Taking Away with Violence

Our conjecture regarding authority is connected with another one regarding marriage, namely that the concept of marriage could be grounded on an image schema representing tearing, or taking something away with violence. Let us show how this connection goes. Legal anthropology shows not only that in many cultures the normative powers of kings mirror their factual powers over nature, but also that as a consequence of this fact kings *had to* be chosen just by evaluating their actual abilities. According to Frazer, Latin kings were originally chosen on an annual basis by way of a race or a fight, this in order to ensure that the candidate did in fact have the actual natural abilities required for the normative powers of a king. And this original procedure survived in a symbolic form in later ceremonies:

> A relic of that test perhaps survived in the ceremony known as the Flight of the King (*regifugium*), which continued to be annually observed at Rome down to imperial times. On the twenty-fourth day of February a sacrifice used to be offered in the Comitium, and when it was over the King of the Sacred Rites fled from the Forum. We may conjecture that the Flight of the King was originally a race for an annual kingship, which may have been awarded as a prize to the fleetest runner. At the end of the year the king might run again for a second term of office; and so on, until he was defeated and deposed or perhaps slain. In this way what had once been a race would tend to assume the character of a flight and a pursuit. The king would be given a start; he ran and his competitors ran after him, and if he were overtaken he had to yield the crown and perhaps his life to the lightest of foot among them. In time a man of masterful character might succeed in seating himself permanently on the throne and reducing the annual race or flight to the

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[27] See M. Bloch, *Les Rois thaumaturges: étude sur le caractère surnaturel attribué a la puissance royale particulièrment en France et en Angleterre*, Paris 1961, p. 57 et seq.

empty form which it seems always to have been within historical times[28].

Now, Frazer notes that the Latin selection of kings on the basis of actual abilities very likely had a precise parallelism with the way in which marriages were celebrated, namely by selecting candidates on the basis of their ability to actually reach their bride in a sort of race. As Frazer notes, this custom was common to many cultures:

> These traditions may very well reflect a real custom of racing for a bride, for such a custom appears to have prevailed among various peoples, though in practice it has degenerated into a mere form or pretence. Thus "there is one race, called the 'Love Chase,' which may be considered a part of the form of marriage among the Kirghiz. In this the bride, armed with a formidable whip, mounts a fleet horse, and is pursued by all the young men who make any pretensions to her hand. She will be given as a prize to the one who catches her, but she has the right, besides urging on her horse to the utmost, to use her whip, often with no mean force, to keep off those lovers who are unwelcome to her, and she will probably favour the one whom she has already chosen in her heart." The race for the bride is found also among the Koryaks of North-eastern Asia. It takes place in a large tent, round which many separate compartments called *pologs* are arranged in a continuous circle. The girl gets a start and is clear of the marriage if she can run through all the compartments without being caught by the bridegroom. The women of the encampment place every obstacle in the man's way, tripping him up, belabouring him with switches, and so forth, so that he has little chance of succeeding unless the girl wishes it and waits for him. Similar customs appear to have been practiced by all the Teutonic peoples; for the German, Anglo- Saxon, and Norse languages possess in common a word for marriage which means simply bride-race. Moreover, traces of the custom survived into modern times[29].

A curious confirmation of this practice can be found in the Greek myth of Atalanta (who agreed to marry only the man who could outrun her in a footrace), as well as in Willem Van Rubruk's *Itinerarium* in the lands of the Mongols, a report written in the 13th century. In the latter, it is quite clear that the procedure through which marriage was celebrated in the Mongolian culture at that time mirrored some sort of brutal act similar to kidnapping:

> Once a marriage has been arranged, the bride's father organizes a banquet and she flees, hiding with her parents. At which point the father will say: "My daughter is yours—find her and take her." And so the bridegroom sets out to search for her with his friends until he finds her. He must then take her by force and bring her home, pretending

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[28] J.G. Frazer, *The Golden…*, p. 375–376.

[29] J.G. Frazer, *The Golden…*, p. 372–373.

that he is forcing her to do so[30]. (Willem Van Rubruk, *Itinerarium*, VII; our translation)

These forms of marriage are examples of ethological institutional mimesis. The idea is that the way in which a woman "binds herself" from a normative point of view, thus entering into a relationship of mutual rights and duties with a man, had to mirror the way in which a woman can be bound in a brutal, merely factual sense. Such a mimetic relation between marriage and kidnap, though also traceable to the roots of European legal culture, is particularly unacceptable from a modern legal perspective, and indeed we could debate about how much of the original "capture model" still lingers in contemporary theories of marriage. Yet even if we concluded that this kind of mimesis plays no such role any longer in contemporary Western legal culture, the mimetic relation here described can become relevant when comparing our legal conceptions with that of other cultures. In the quite famous case *People v. Moua* (Fresno County California Super. Ct. Feb. 7, 1985), for example, institutional mimesis is fundamental to understanding how something which is seen as abduction and rape from our legal perspective can become a marriage from another, and clearly this can have a direct impact on the way we interpret the intentional element of illicit behavior. In a 2002 work on "cultural defense," Martin Golding shows how, in this case,

> cultural evidence was used to reduce a charge of kidnapping and rape to the lesser offense of false imprisonment. Moua belonged to a Hmong tribe from Laos which practices marriage-by-capture. In this ritual a man abducts a woman to his family's home, where the marriage is consummated. The practice calls for the woman to show her virtuousness by protesting the man's advances. Defendant Moua abducted a woman of Laotian descent from the Fresno City College campus, where she was employed, and had sexual relations with her despite her protests. She filed a criminal complaint, charging Moua with kidnapping and rape. At trial, Moua maintained that he did not force sexual relations on the victim because he believed that her protests were in line with the marriage-by-capture ritual. The judge accepted Moua's claim but he also held that the victim had not genuinely consented. Moua's mistake of fact defense was successful in overcoming the kidnapping and rape charges, but he was held guilty of the lesser offense of false imprisonment[31].

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[31] M.P. Golding, *The Cultural Defense,* "Ratio Juris" 2002/15(2), p. 148. See also J.M. Donovan, *Legal Anthropology: An Introduction,* Lanham 2008, ch. 18.

2.7.   Trials as Standing Up and Following a Path

Finally, we tested a conjecture concerning legal procedures, and trials in particular. Here, the idea is that the concept of a trial could be grounded on an image schema representing something that "emerges", or stands up, and that follows a specific path. The rationale for this hypothesis is drawn from a debate on constitutional law in the United States, namely, the idea of one's "standing" before a court. This idea, which incidentally many parallels in other legal cultures (*l'interesse ad agire* in Italy and *die Klagebefugnis* in Germany, among others), means that the plaintiff in a lawsuit must be able to demonstrate that he or she has a sufficiently concrete and personal interest in a dispute as a formal condition for being entitled to have the courts decide the merits of that dispute. Now, according to Steven Winter in his pioneering 1988 article "The Metaphor of Standing and the Problem of Self-Governance," this idea is essentially metaphoric: It basically evokes the several common meanings of "standing" by which we can describe an individual's ordinary behavior:

> The metaphor of "standing" is a myth that has become "the literal truth" and shaped—or misshaped—our thinking about adjudication. It has shaped our thinking about adjudication to conform to two separate "truths" embedded in the metaphor, and to think about them as one. The first is the "truth" of individualism: One stands alone; one stands up; one stands apart; one stands out; one stands head and shoulders above the crowd. […] The second "truth" embodied in the metaphor is that the individual must have a particular kind of relationship to the court whose power he or she is seeking to invoke: A court will only consider what a party has to say if he or she is standing (read: has "standing")[32].

On this interpretation, one of the conditions for accessing the legal artefact "trial" in the United States tacitly mirrors the way in which we can "stand" in ordinary life. And this gives rise to what Winter calls a "private-rights" model of procedural justice, which in its own turn is metaphorical:

> Modern standing law defines this relationship between the individual and the process in terms of a particular cognitive model: the private rights model. We structure this model by means of two metaphors premised on the source-path-goal schema: a causal source-path-goal metaphor and a remedial source-path-goal metaphor. We identify the subject matter of a lawsuit through the elements of the causal schema. The defendant's act is the source, the causal chain is the path, and the plaintiff's injury is the goal. The remedial source-path-goal metaphor is virtually a mirror image of the causal one: The individual's injury is the source of a process that has as its goal an order from the court

[32] S. Winter, *The Metaphor of Standing and the Problem of Self-Governance*, "Stanford Law Review" 1988/40, pp. 1387–1388.

redressing that injury; the path that connects them is the plaintiff's proof that the acts of the defendant caused the injury. The mirror image quality of these two source-path-goal metaphors gives rise to the conception of damages and other forms of legal redress as designed "to put the plaintiff back in the position he occupied" (or as near as possible) before occurrence of the legal wrong[33].

Another metaphor thus emerges here: the idea that a legal trial mimics a causal chain having a source, a path, and a goal. In Winter's words, "[o]ur use of the causal source-path-goal metaphor to conceptualize the subject matter of a lawsuit overlaps with our use of source-path-goal metaphors to structure our view of both purposes and causation"[34]. And this complex example of institutional mimesis has far-reaching consequences on the way in which the scope of the judicial process is thought of and described in current American legal doctrine.

3. The Experimental Study

3.1.   Motivations

The purpose of this study was to test whether (1) the conceptualization of basic legal institutions can be grounded on non-normative image schemas representing physical interactions or is rather more dependent on social factors, and (2) whether in this regard legal institutions are different from abstract concepts and concepts of concrete artefacts.

3.2.   Method and Assumptions

To assess the relevance of the image schemas for the selected concepts we adopted a *priming* paradigm. Participants were presented by images followed by target sentences, and their task consisted in evaluating whether the sentence made sense or not. Two independent variables were manipulated within participants: the variable *kind of concept* (institutional, abstract, concrete) and the variable *kind of animation* (physical, socialized, control). For all the concepts considered, all the participants were requested to see three animations on a laptop computer: one representing the image schema of physical interactions for a few seconds (*experimental condition 1 - physical*), one representing the same image schema presented in (1) but with images eliciting social factors and interactions (*experimental condition 2 - socialized*), one representing a similar image schema but with a different pattern of interaction (*control condition*). After each animation, the participants were presented with a sentence in Italian that included the

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[33] S. Winter, *The Metaphor…,* p. 1388.

[34] S. Winter, *The Metaphor…,* p. 1390.

relevant concept: their task was to decide by pressing a different key on the keyboard whether the sentence was meaningful or not as fast as they could, without however sacrificing accuracy. Five "catch trials" were introduced in order to preserve attention: Participants were instructed specifically not to press any key if they had seen a shape colored in black in the video. The order of presentation of the trials was completely randomized. The test was programmed so as to ensure that participants could not see two animations related with the same concept without first performing at least two other trials related with different concepts. In order to control for the effect of the specific wording of a given sentence, participants were divided into three groups, and the same sentence (both a meaningful or non-meaningful one) was associated with a different animation (1, 2, or control) depending on the group. Reaction times and errors were recorded by the software. All the participants were students from the Law Faculty of the University of Bologna, aged between 19 and 23. Participants were specifically instructed with a presentation at the beginning of the test, and they made four "training" trials in presence of examiners in order to ensure they had understood. All the other trials were submitted to participants in the absence of examiners. 24 students participated on a voluntary basis; the data of 3 participants had to be dropped (2 from Group 3 and 1 from Group 2) because the participants reported misunderstandings and problems.

3.3.   Materials

Taking into account the conjectures summarized above in Section 2, we selected 8 basic legal concepts (contract, state, president, (subjective) right, marriage, parliament, trial, property) and attributed to each of them one corresponding image schema of physical interactions. Two of these eight concepts were added to the list of those discussed above: (subjective) right, connected with the image schema of activating something by touching it, and property, connected with the image schema of touching and transforming. Adopting the same kind of contrast which turned out to be useful in our previous study on artefacts[35], we also selected 8 concepts of concrete artefacts (hammer, wheel, knife, pot, spoon, tower, umbrella, bed) and 8 abstract concepts (friendship, concentration, culture, fantasy, anger, dialogue, reasoning, will). Both for concrete and abstract concepts, the image schemas selected were not identified in the light of historical or anthropological hypotheses but rather in terms of ordinary metaphorical or functional associations: for example, fantasy as creation or hammer as impact. The concepts and corresponding image schemas are summarized as follows:

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[35] C. Roversi, A. Borghi, L. Tummolini, *A Marriage*….

Kind of Concept	Concept	Image Schema
Institutional	Contract	contact and transmission
	State	ordered collection of bodies
	President	causal effect
	Right	activate through an arm
	Marriage	tear, take away
	Parliament	something "comes out" from a single object
	Trial	something "stands" and follows a path
	Property	something is transformed
Abstract	Friendship	balance, harmony
	Concentration	focus, an object enlarges
	Culture	connections between objects, network
	Fantasy	something "comes out" or is produced
	Anger	violent crash
	Dialogue	two objects contact and proceed together
	Reasoning	path
	Will	something resists an impact
Concrete	Hammer	squash
	Wheel	rotation
	Knife	divide
	Pot	hold and modify
	Spoon	hold and raise
	Tower	raise and keep up
	Umbrella	protect from above
	Bed	something lies down

Table 1. Concepts and Corresponding Image Schemas

For each image schema of physical interaction, a separate video was created representing that interaction by way of colored geometrical shapes in animation. Both the colors and shapes were completely random, but the movement and interactions among them were framed according to the image schema. All the movies were produced independently by one of us, and the others reviewed and commented them and asked for revisions. Included below are some snapshots taken from the videos (colors cannot be represented in print, but as said they were completely random). This is the video for "marriage" under experimental condition 1, testing the image schema of tearing and taking away something from something else:

Figure 1. Image Schema for the Concept "Marriage" (Snapshots)

This is the video for "contract" under experimental condition 1, testing the image schema of the contact and transmission of something:
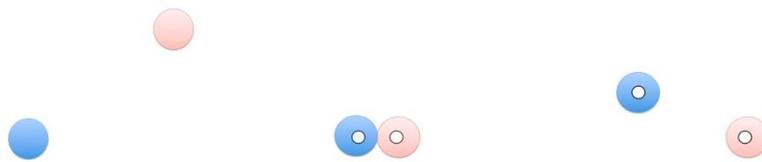
Figure 2. Image Schema for the Concept "Contract" (Snapshots)

This is the video for "will" under experimental condition 1, testing the image schema of resisting an impact:
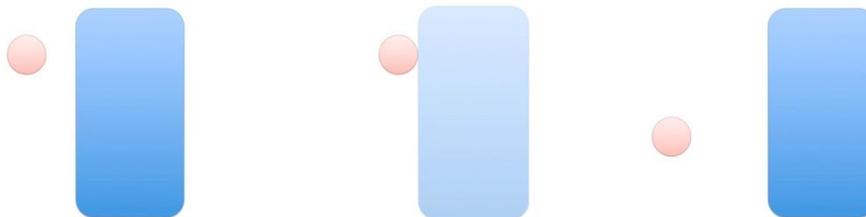

Figure 3. Image Schema for the Concept "Will" (Snapshots)

Finally, this is an example of a socialized video under experimental condition 2, in which face emoticons appear within the same image schema as that proposed under condition 1. This is the video for contract, to be compared with Figure 2 above:
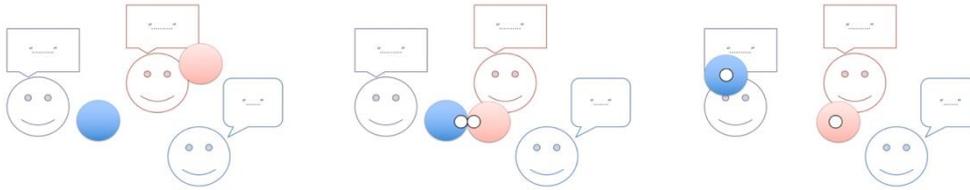
Figure 4. Image Schema for the Concept (Contract) – Socialized (Snapshots)

For each concept we prepared six sentences to be used as tasks: three meaningful and three meaningless. All the sentences were syntactically well-formed, independent clauses in Italian, approximately of the same length. All the sentences were created by one of us and then reviewed and discussed by the others, and several of them were modified in this process. We tried to keep them as simple as possible in order to let the participants focus on the relevant concepts. Below are some examples of sentences we ended up with (translated into English from Italian):

Concept	Meaningful sentence	Meaningless sentence
Contract	This contract is fraudulent. Our contract says that I can do it. They are bound by a contract	They have massaged a contract. They play different variants out of the contract. This contract comes with porridge.
Umbrella	The umbrella is sheltering me. The umbrella is open. The umbrella is protecting me.	The umbrella is mountainous. The umbrella is deductive. This umbrella has the flu.
Anger	Anger never leaves me. Anger is overtaking me. Anger is blinding me.	Anger is a type of dolphin. Your anger measures 12 inches. Your anger is Corinthian.

Table 2. Examples of Sentences Used as Tasks

3.4.   Hypotheses

We predicted a main effect of *kind of concept*, replicating the concreteness effect often found in the literature[36], i.e. the advantage in response times of concrete concepts compared to abstract ones. Further, we hypothesized

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[36] A. Paivio, M. Walsh, T. Bons, *Concreteness Effects on Memory: When And Why?*, "Journal of Experimental Psychology: Learning, Memory, and Cognition" 1994/20.

that the performance of institutional concepts would be more similar to that of other abstract concepts than to concrete ones in terms of cognitive elaboration.

More crucially, we predicted faster reaction times if the image elicited by the video contributed to ground the concept under consideration. Our idea was to test whether institutional concepts and other abstract concepts can be "grounded" in image schemas (a) of physical interaction or rather (b) of social interactions. In the first case we predict that reaction times of trials under experimental condition 1 (physical) will be lower than those under experimental condition 2 (socialized) and control condition; in case (b), reaction times of trials under experimental condition 2 (socialized) will be lower than those under experimental condition 1 (physical) and control.

Finally, we also expected an interaction between *kind of concept* and *kind of animation*: specifically, if abstract and institutional concepts are characterized by the social dimension more than concrete concepts, then the responses with social animations should be faster.

3.5.   Results

Table 3 and 4 show comparisons among the average reaction times depending on the kind of concept (institutional, abstract, concrete):

Kind of concept	Average	Standard Error	Degrees of freedom	95% Confidence Interval	
				Lower Limit	Higher Limit
Abstract	1509,644	51,201	29,377	1404,985	1614,303
Concrete	1488,750	51,206	29,389	1384,081	1593,418
Institutional	1562,469	51,255	29,500	1457,719	1667,219

Table 3. Average Reaction Times by Kind of Concept

Kind of concept (I)	Kind of concept (J)	Difference between Averages (I)-(J)	Standard Error	Degrees of freedom	Significance	95% Confidence Interval for the Difference	
						Lower Limit	Higher Limit
Abstract	Concrete	20,894	18,105	574,252	,747	-22,576	64,364
	Institutional	**-52,825**	18,243	585,047	,012	-96,625	-9,025
Concrete	Abstract	-20,894	18,105	574,252	,747	-64,364	22,576
	Institutional	**-73,719**	18,258	584,153	,000	-117,554	-29,885

Institutional	Abstract	**52,825**	18,243	585,047	,012	9,025	96,625
	Concrete	**73,719**	18,258	584,153	,000	29,885	117,554

Table 4. Comparisons between Average Reaction Times by Kind of Concept (Statistically Significant Ones in Bold)

Tables 3 and 4 show, on the one hand, that reaction times were faster with abstract than with concrete concepts; but also, on the other hand, that reaction times were faster with institutional concepts than with both abstract and concrete concepts—and this last result is supported by statistical significance. These results confirm hypothesis (2) above in an unexpected way: not only do abstract and institutional concepts seem to require a higher degree of cognitive elaboration than concrete ones—a result that is coherent with already-existing research on concreteness effect —, but institutional concepts require an even higher degree of elaboration than other abstract concepts.

Tables 5 and 6 show comparisons among the average reaction times depending on the kind of animation (physical, socialized, control):

Kind of Animation	Average	Standard Error	Degrees of freedom	95% Confidence Interval	
				Lower Limit	Higher Limit
Control	1518,833	51,103	29,153	1414,340	1623,326
Socialized	1522,113	51,162	29,287	1417,520	1626,706
Physical	1519,917	51,141	29,240	1415,359	1624,475

Table 5. Average Reaction Times by Kind of Animation

Kind of Animation (I)	Kind of Animation (J)	Difference between Averages (I)-(J)	Standard Error	Degrees of freedom	Significance	95% Confidence Interval for the Difference	
						Lower Limit	Higher Limit
Control	Socialized	-3,280	17,454	1186,274	1,000	-45,125	38,565
	Physical	-1,084	17,395	1185,068	1,000	-42,787	40,620
Socialized	Control	3,280	17,454	1186,274	1,000	-38,565	45,125
	Physical	2,196	17,550	1178,051	1,000	-39,877	44,270
Physical	Control	1,084	17,395	1185,068	1,000	-40,620	42,787

| | Socialized | -2,196 | 17,550 | 1178,051 | 1,000 | -44,270 | 39,877 |

Table 6. Comparisons between Average Reaction Times by Kind of Animation (Statistically Significant Ones in Bold)

The data presented in Tables 5 and 6 do not support hypothesis (1). On average, reaction times under physical or socialized conditions are *not* lower than under control conditions. On the contrary, reaction times under control conditions are slightly lower than under socialized conditions, but in general reaction times are similar. Anyway, none of these results show statistical significance.

Table 7 shows the average reaction times depending on the kind of animation (physical, socialized, control) *and* the kind of concept (institutional, abstract, concrete).

Kind of concept	Kind of animation	Averages	Standard Error	Degrees of freedom	95% Confidence Interval	
					Lower Limit	Higher Limit
Abstract	Control	1508,125	54,018	36,383	1398,611	1617,639
	Socialized	1529,809	54,243	36,991	1419,901	1639,717
	Physical	1490,998	53,932	36,151	1381,635	1600,360
Concrete	Control	1512,073	53,910	36,095	1402,748	1621,399
	Socialized	1468,713	54,107	36,621	1359,044	1578,382
	Physical	1485,463	54,199	36,871	1375,631	1595,294
Institutional	Control	1536,300	54,149	36,736	1426,556	1646,043
	Socialized	1567,818	54,222	36,934	1457,946	1677,689
	Physical	1583,290	54,265	37,051	1473,343	1693,237

Table 7. Average Reaction Times by Kind of Animation and Kind of Concept

None of these results show statistical significance.

4. Conclusion

We obtained two main results with this experimental study. First, the data we collected show that institutional, legal concepts require a higher degree of cognitive elaboration than other abstract concepts, and both abstract

and institutional concepts a higher one than concrete concepts. This opens up a new conjecture for studies in embodied cognition, namely, that the elaboration of abstract concepts can be subject to levels of complexity, or also degrees of detachment from the more grounded, basic concrete concepts. Specifically, as anticipated in the introduction, it is the first time in which the unique nature of institutional concepts compared to other kinds of abstract concepts has been investigated. The only exception is represented by our previous study[37] in which we did not analyze processing speed but rather investigated the pattern of associated relations using a feature-generation task. Our work widely contributes to recent studies analyzing fine-grained differences among sub-kinds of abstract concepts. Such an investigation is pivotal also because one of the main reasons of the difficulty in creating a unitary theory of abstract concepts lies in their heterogeneity and differences.

Second, the data we collected do not support our conjecture about institutional mimesis, nor do they support a grounding of institutional concepts in socialized situations. When considering how different kinds of animation impact on different kinds of concepts, a rather scattered scenario emerges, one that is difficult to interpret in a coherent way: and, in any case, our data did not achieve statistical significance. Possible reasons underlying this difficulty lay in the kind of stimuli we used – it is namely possible that participants had difficulties inferring the meaning of the concept from the animations. In particular, the data collected in Table 5 show that average reaction times are very similar under the different conditions: This suggests that the animations did not achieve their priming effect. This "irrelevance" effect can perhaps depend on the fact that, in our videos, image schemas were conveyed through geometrical means—geometrical shapes, colors—which can be a too abstract way of evoking physical patterns.

We plan to continue this line of research with further experimental studies. On the one hand, we intend to find further empirical support to the idea that institutional concepts can be more "detached" than abstract concepts from their grounding and thus require a higher degree of cognitive elaboration. On the other hand, we intend to modify our experimental conditions to see whether the grounding of institutional concepts we conjectured can be observed—thus showing different results than the present study—or not, and, if not, what other kind of effect can be conjectured when comparing institutional and abstract concepts. Moreover, in future research we plan to re-frame the videos and insert images from "real" physical situations that evoke the image schema in order to improve the chance of actually getting a priming effect.

[37] C. Roversi, A. Borghi, L. Tummolini, *A Marriage…*.