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Revisiting Constitutive Rules

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Abstract. The paper is an investigation on how behaviour relates to norms, i.e. how a certain conduct acquires *meaning* in institutional terms. The simplest mechanism determining this phenomenon is given by the ‘count-as’ relation, generally associated with constitutive rules, through which an agent has the legal capacity, via performing a certain action, to create, modify or destroy a certain institutional fact. In the analytic literature, however, the ‘count-as’ relation is mostly approached for its classificatory functions, mapping entities to categories whose members carry institutional properties. Besides making explicit this double function, the paper reconsiders the relation between constitutive rules and regulative rules, and introduces a proposal on the ontological status of constitution.

Keywords: Constitutive rules · Institutional rules · Regulative rules
Connotation · Import · Institutional power · Behaviour · Norms
Supervenience

1 Introduction

An important question, still unresolved in legal theory and in analytic literature, concerns the nature (and for certain authors, the very existence) of *constitutive rules*, and their distinction from *regulative rules*. The best known (and discussed) account is the one developed by Searle [1–3]. As their name suggests, regulative rules regulate pre-existing forms of behaviour. For example, eating is an activity introduced well before that any rule of polite table behaviour was introduced. On the contrary, the rules of playing chess are constitutive: actions in accordance with them constitute the very activity of playing chess. Searle then argues that institutions like marriage, money or promise are not different from games such as baseball or chess, in the sense that they are all systems of constitutive rules.

Despite this simple and intuitive presentation, however, many authors have attempted to better define the two types of rules, without reaching a definitive agreement. Understanding *institutional constitution* is in effect a crucial part of the study of *social ontology*, and for this reason it is addressed in linguistics, social sciences, developmental psychology, economics, and information science, as well as in philosophy.

While ontology is the general philosophical study about existence, social ontology focuses on the social reality (distinguished from the physical reality,

and from the individual mental reality), normally by tracking the understanding of properties and functions of *institutions*. As convincingly observed by Roversi in [4] this type of investigation usually takes a *rule-realist view*: “rules constitutive of an institution can exist only as part of the causal (mental or behavioural) process through which the institutional activity they constitute is practiced”. This is the most natural perspective that we could take by reflecting on our experience as social participants: if mankind disappeared from the world, so would its institutions. At the same time, Roversi observes that social ontology is not (yet) a major field of interest for contemporary legal philosophy. Most legal scholars embrace with more ease a *rule-positivist view*: “rules constitutive of an institution can exist before and independently of the causal process through which the institutional activity they constitute is practiced”. This preference can be explained: the rule-realist view undermines a general *tenet* of legal positivism, i.e. the independence of the treatment of elements belonging to the legal-institutional domain from considerations about their effectiveness (in economic, social or psychological terms) in the actual world.

Are the rule-positivist and the rule-realist views irredeemably incompatible? Works on *legal institutions* as those of [5, 6] attempt this quest from a legal philosophical standpoint. From a knowledge engineering point of view, the problem can be put differently: *can a system of norms be aligned—representation-wise—with a system of practices guided by norms?* The investigation of constitutive rules is a necessary requirement to answer to this question. In the present paper, for reasons of space, we will overlook technical details, preferring to give a more exhaustive presentation of the problems at stake and of the solutions presented in the literature (Sect. 2). Exploiting this analysis, we will introduce an integrated account on constitution (Sect. 3), and utilize this to dissect institutional power (Sect. 4). Additionally, we will set up the basis for an investigation of the ontological status of constitution (Sect. 5), preparatory to check the alignment of representational models.

2 Relevant Literature

Searle: Constitutive and Regulative Rules. Searle’s account on constitutive and regulative rules can be plausibly taken as the starting reference on this topic today. Elaborating on considerations by Anscombe and Rawls, he proposes (e.g. in [1, p. 34]) that the underlying structure of *constitutive rules* is in the form of:

$$X \text{ counts as } Y \text{ in context } C. \quad (1)$$

where X and Y are acts. Instead, *regulative* rules can be paraphrased as:

$$\text{Do } X. \quad (2)$$

or in a conditional form:

$$\text{If } Y \text{ do } X. \quad (3)$$

Acts of type X are ‘brute’, i.e. they may occur independently of the rules regulating them, whereas acts of type Y are institutional: they cannot occur if no definite constitutive rule is applicable.

Conte: *Ludus* vs *Lusus*. Revisiting Wittgenstein, Conte [7] starts by observing that there is an ontological difference between the rules *eidetic-constitutive* of a ‘game’ (*ludus*) and the rules perceived from the ‘play’ (*lusus*). The former are necessary for the game to occur.¹ He then identifies different and incongruous uses of the term constitutive rules in Searle’s work:

- X-type of rule: e.g. “*to make a promise is to undertake an obligation*”, which can be rewritten as “a promise counts as the undertaking of an obligation”, with ‘*promise*’ occupying the position X according to the template (1);
- Y-type of rule: e.g. “*a checkmate is made when the king is attacked in such a way that no move will leave it unattacked*”, which can be rewritten to “checks in which the king cannot meet the attack counts as checkmate”, with ‘*checkmate*’ occupying the position Y;
- rules as “*one ought not to steal*”, which seem to fall more under the definition of regulative rules;²
- rules related to (linguistic) performance: e.g. promises should be about future behaviour.

According to Conte, Y-type rules are the only proper *eidetic-constitutive* rules. The issues with the third and fourth case are evident. The argument against the X-type is that the rule given in the example is not necessary to make a promise, either ontologically (i.e. it is not necessary for the conception, the actual possibility or the perception of the promise) or semantically, as it makes only explicit an intension already present in the *speech act* of promising.

Jones and Sergot: “Count-As” as Conditional. According to Jones and Sergot [8], a ‘count-as’ relation establishes that a certain state of affairs or an action of an agent “is a sufficient condition to guarantee that the institution creates some (usually normative) state of affairs”. They start by characterizing this connection as a *logic conditional* calibrated to avoid unsound effects. Consider, for example, a case in which *x*’s declaration ‘I pronounce you man and wife’ “counts in the institution *s* as a means of guaranteeing that *s* sees to it that *a* and *b* are married.” In classic propositional logic, the introduction of an inclusive *or* in the consequent does not change the validity of the rule: if $a \rightarrow b$ holds, then $a \rightarrow b \vee c$ also holds. However, Jones and Sergot correctly observe that it would “be bizarre to conclude that *x*’s utterance act would also count in

¹ We may read the perspective of the legal scholar in this claim. In an actual social setting, this is often not the case: players may play even without knowing any rule, just mirroring what others are doing (*mimesis*) or, more rationally, fabricating their own models of the rules in place.

² In Searle’s words, the prohibition of stealing is “a constitutive rule of the institution of private property”, [1, p. 168].

s as a means of guaranteeing that either Nixon is impeached or s sees to it that a and b are married”.

Going further, they acknowledge that there “will surely be conditionals which describe relations of logical consequence, of causal consequence and of deontic consequence”. Rather than further defining the different types, they propose to translate the conditional underlying the count-as relation as a constraint ‘if A then B’ operative in the institution, or, via the *material implication*³, as the incompatibility with the constraints operative in the institution such that ‘A and not B’.

Boella and Van der Torre: Normative Goals and Belief Rules. Trying to analyze the relation between regulative and constitutive norms, Boella and Van der Torre [9] interpret the normative system via an agent metaphor, applying the *intentional stance* [10]. A normative system promotes *interests* as goals or values shared by some, most or all agents. These *normative goals*, delegated by the individual agents at the collective level, are expressed by regulative rules (obligation, prohibitions, etc.). What, then, are the ‘beliefs’ of the normative system? Boella and Van der Torre identify them as ‘brute’ and institutional facts. The creation of institutional facts (and therefore constitution) is obtained through *belief rules*, which introduce institutional categories abstracting actual situations or other institutional categories.

Grossi: Constitutive, Classificatory, Proper Classificatory Rules. Grossi starts by observing how several authors in the analytic literature have highlighted the classificatory character of non-regulative elements of norms, calling these *determinative rules* [11], *conceptual rules* [12], *qualification norms* [13] and *definitional norms* [14]. This aligns with Searle’s argument about the definitional nature of constitutive rules.⁴ Thus, acknowledging that ‘counts-as’ statements function in practice as classifications, [15] concludes that they could ultimately be modeled as *subsumption* relations.⁵ Constitutive rules would then define an internal ontology, a conceptualization of the domain under regulation, crucial for the operationalization of the regulative components, as in the famous example: “vehicles are not admitted in public parks” (*general norm*), “bicycles are vehicles” (*classification rule*), therefore “bicycles are not admitted in public parks” (*specific norm*). Grossi proposes to discriminate three different components:

- *constitutive rules*: making explicit the extra-institutional conditions under which an institutional term applies, e.g. “In normative system N, conveyances transporting people or goods count as vehicles”

³ The material implication allows to convert a logic conditional into a composition of disjunction and negation: $(a \rightarrow b) \leftrightarrow (\neg a \vee b)$. It makes explicit the ‘constraint’ nature of the operator of implication, rather than (epistemic) ‘production’ aspects.

⁴ “The rules for checkmate or touchdown must ‘define’ checkmate in chess or touchdown in American Football [...]”, [1, p. 34].

⁵ Informally, given two concepts X and Y, ‘X subsumes Y’, or ‘Y is subsumed by X’, means that X (e.g. animal) is an abstraction of Y (e.g. whale).

- *classificatory rules*: making explicit the extra-institutional conditions that specifies an extra-institutional term, e.g. “It is always the case that bikes count as conveyances transporting people or goods”
- *proper classificatory rules*: connecting an extra-institutional term with an institutional term, e.g. “In normative system N, bikes count as vehicles”

The classificatory rule is completely extra-institutional and can be seen as given, while the others follow the XYZ pattern proposed by Searle: the constitutive rule is at a more abstract level and the proper classificatory rule *contextualizes* the general constitutive rule in more specific terms, but they both refer to a ‘middle term’ [16] or ‘intermediate concept’ [17]—*vehicle*, in our example.

Additionally, Grossi observes that, beyond rules constituting institutional facts (i.e. new classificatory rules), there are rules which “constitute” in the sense that they “define the normative system, or institution, to which they pertain”. These rules can be connected to the third type identified by Conte.

Hindriks: Connotation and Import. Following [18], Hindriks [19] distinguishes two aspects of constitutive rules:

- *connotation* defines the conditions which have to be satisfied in order to apply a certain institutional term: it is a descriptive component;
- *import* specifies the institutional consequences which occur once those conditions are satisfied.

He proposes therefore to refine constitutive rules under a XYZ scheme. The first part (XY) corresponds to connotation, which, including context (CXY), takes the form proposed by Searle. Such *constitutive rules* (in a strict sense) link the satisfaction of certain conditions to the applicability of an institutional term. For instance, “In the United States, bills issued by the Federal Reserve (X) count as money (Y)”. The second part (YZ) is a *status rule*, specifying the practical significance of the institutional status constituted by the first. The status rule defines the *function* of the institutional concept. For instance, “one of the functions of money is that it can be used as a means of exchange, which means that it facilitates or enables actions, in particular exchange of goods and services without the use of barter. However, the same idea can be expressed using the term ‘power’: money can be said to give people the power to perform the action mentioned.” Hindriks’s convincing argument for this extension is that without the import, the constitutive rule would not have any concrete role in the institution.

Boer: Institutional Rules, Constituting, Constitutive Acts. All constitutive rules require at least a ‘brute’ fact to create institutional facts. Boer [20, p. 93] proposes that we also consider *institutional rules*: rules that operate on institutional facts, on the basis of other institutional facts. Status rules can be therefore seen as a sub-set of institutional rules. Furthermore, he correctly highlights that ‘brute’ and ‘institutional’ respectively correspond not to physical and social referents, but to extra-institutional and intra-institutional entities. A ‘brute’ fact may be a fact that belongs to another institution.

Additionally, he suggests distinguishing *constitutive acts*, i.e. the acts *intended* to constitute an institutional act, within the more general class of *constituting acts*. This serves as a reminder that “the operative principle behind constitutive rules and institutional facts is that people to a large extent have control over what institutional facts they bring about”. An example of a constituting act is theft: thieves have no intent to be qualified as such. Interestingly, a similar intentional/non-intentional characterization may specified distinguishing *regulative* from *regulating* rules. The second would refer to side-effects that were not intended by the legislator.

Hage: Regulative Rules are Constitutive Rules. A recent article presented by Hage [21] contends that regulative rules *are* constitutive rules. Hage first identifies three types of constitutive rules:

- *dynamic rules*, which create, modify, or remove facts as the consequence of an event, e.g. “making a promise generates an obligation for the promisor”; they may be conditional, e.g. “if it is dark, the occurrence of a car accident obligates the drivers to place a light on the road next to the cars”.
- *fact-to-fact rules*, which (defeasibly) attach a fact to another fact in a *timeless* fashion (not accounting change); e.g. “if P owns O, P is competent to alienate O”; they may also be conditional, e.g. “in case of emergency, the mayor of a city is competent to invoke the state of emergency”.
- *count-as rules*, rules of the type “individuals of type 1 count-as individuals of type 2”, where individuals may be *persons* (e.g. “the parents of a minor count-as the minor’s legal representatives”), or *events* (e.g. “under suitable circumstances, causing a car accident counts-as committing a tort”).

Building upon on these categories, he argues that *constitutive rules* consist in a more general class than count-as rules, and their general characterization is that of rules that eventually affect facts of the world, but that also exhibit some correspondence between their propositional content and what is in the world. If we say, e.g. “criminals are liable to enforcement”, this means that any criminal *is* liable to enforcement. For completeness, Hage includes a categorization of regulative rules:

- *prescriptive rules*, which make a specific conduct obligatory, e.g. “car drivers must drive on the right hand side of the road”;
- *proscriptive rules*, prohibiting a specific conduct, e.g. “it is forbidden to torture sentient beings”;
- rules that specify what should be done, e.g. “if the king is in chess, the threat should immediately be removed”;
- rules about “how something should be done, without imposing a duty or an obligation to do so”, as e.g. rules of *etiquette*.

but argues that they belong to the constitutive category as well, if, in addition to (descriptive) facts, we take into account *deontic facts*. In the traditional sense, a fact is associated with an objective, mind-independent description of what is the case. However, social reality is a domain for which the ontological realist

stance is not (directly) appropriate, as it mostly depends on what people accept or recognize about it. Nevertheless, we do say “He is the owner of...”, just as “It is raining”. Thus, as these (descriptive) institutional facts depend on standards, and are produced by rules, nothing forbids us from considering facts that describe normative directives (e.g. “He has the duty to...”) as deontic facts, also produced by rules.

3 An Integrated Model for Constitutive Rules

3.1 Distinguishing Constitutive-Of and Constitutive-For

We acknowledge two meanings for *constitutive* elements:

- (a) as characteristic regulative drivers (*constitutive-of* the institution),
- (b) as part of an interpretative system (*constitutive-for* the institution).

The former category deals with *what constitutes the institution*, considered as a ‘subject’ acting in the world. As agents are primarily defined—in terms of the impact they are disposed to produce on the world—by their desires, institutions can thus be primarily defined by the requirements they put on the social system.⁶ The latter deals with *how meaning is constituted for the institution*, that is, with the selection of what makes sense for the institution of what occurs in the social environment, and with the processing of such selection. Interestingly, the two components are inseparable, although for different reasons.

Let us imagine an institution consisting only of regulative rules. The operational minimal structure of an obligation consists of two recognition rules, one for violation and one for satisfaction. Therefore, each regulative rule *implicitly* brings at least two constitutive (more precisely, constituting) rules, namely those defining what generates ‘violation’ and ‘satisfaction’ institutional facts related to the given prescription. Thus, extending this observation, we unveil the first function of constitutive rules: they serve to explicitly specify the operating terms of regulative rules, defining not only satisfaction or violation conditions, but also the classes of beneficiaries, of addressees, the initiating conditions, etc. In this sense, they are *participatory to the commitment-related structure* implemented by the institution.

On the other hand, games like chess for instance do not have standardized regulative rules⁷: they are in practice mere systems of constitutive rules used to interpret what counts-as a *valid* move. Therefore, the second function of constitutive rules is at the level of competences or abilities of the social participants. Interestingly, some of these rules may be expressed by referring to deontic

⁶ Considering that regulative norms can be interpreted as goals associated to the normative system [9], they are constitutive in the same sense in which maintenance goals are the *policy* or, in cybernetic terms, the *identity* of an autonomous system, cf. the *viable system model* (VSM) [22].

⁷ Bulygin [12] suggests the following: “a player must make a given number of moves in a given period of time on pain of losing the game”, where losing can be seen as a sort of *punishment*, considering the pragmatics around games.

notions, e.g. “one must play with the piece which has been touched”, or “if the king is in check, the threat should immediately be removed”, but despite what is observed in the literature (e.g. [12,21]) these rules are not regulative as in the previous sense. Invalidity entails nullity of the move, but not ‘breach’, nor ‘violation’, nor ‘offense’ (on these lines, see [23, p.28]). Interpreting the game as *a system of conditional abilities*, players follow the rules to acquire new *abilities* with the purpose of being able to approaching the winning state, also defined within the rules of the game. The ‘must’ made manifest in these rules is a derivation from this individual interest: if you want to win (or at least to play), you need to make valid moves, and to make valid moves, you must follow the procedures.⁸ The regulation of behaviour of two persons playing chess is a consequence of this practical reasoning mechanism and not of regulative rules. Interestingly, this *ability-related structure* can be interpreted as a *soft form of control*, because it is constructed without any reference to coercion.

Thus, if we include the creation, modification, and destruction of potestative positions as a form of regulation (just as Hohfeld brought forward the second potestative square of fundamental legal concepts), we have completed the circle: *Regulative rules always consist of constitutive rules. Constitutive rules always contribute to regulation.* This circularity may explain the analytical difficulty encountered in the literature to come up with consistent definitions of regulative and constitutive rules.

3.2 Constitutive Elements

All constitutive elements play a role in the interplay between institutional and extra-institutional domains. Elements *constitutive-for* the institution map facts, actions, or events from the extra-institutional to the institutional domain. Elements *constitutive-of* the institution are obligative and potestative dispositions that (supposedly) influence the behaviour of the agents, occurring in the extra-institutional domain. Reusing part of the terminology used in the literature we recognize the following elements:

constitutive rule rule mapping extra-institutional facts to institutional facts;
constitutive fact fact captured by the antecedent of a constitutive rule;
institutional rule rule relating institutional facts to other institutional facts;
status rule institutional rule mapping institutional facts (e.g. about roles) to normative positions;

⁸ To reiterate, the ‘must’ that is used in certain normative statements does not refer to a (conditional) duty, but to an institutional power. Consider for instance “in order to perform a real estate transaction, buyers and sellers must sign a written contract”. In this sort of cases, ‘must’ is derived from practical necessity (“to be obliged to”), more than normative aspects (“to have the obligation to”): e.g. if buyer and seller *want* to perform a sale, they don’t have any other way but signing a contract.

Their interaction is visualized in Fig. 1. The *regulation* is the effect of the normative positions currently holding. Note that all *-ive* elements (explicit, intentional) can be replaced by the wider *-ing* class (including implicit and non-intentional mechanisms).

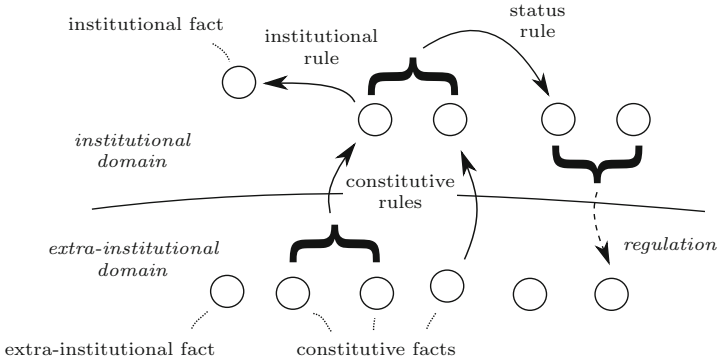


Fig. 1. Coupling between institutional and extra-institutional domains

Sources of Facts. The initial definitions of constitutive and regulative rules given by Searle (1, 2, 3) are centered around *acts*, but later authors soon extended them to *events*, to *states of affairs*, and then to *facts*. Unfortunately, ‘facts’ can be quite different things depending on the tradition upon which the author builds, consciously or not. From an ontological perspective, facts are arrangements of entities, objects, events/actions, or processes. From an epistemic perspective, facts are justified true beliefs about such arrangements or occurrences, and therefore transport propositional content. Which of these perspectives are we referring to when dealing with constitutive rules?

Considering an agentive perspective, the associated philosophical problem would be to settle whether these facts are *directly perceived* facts or *representationally mediated* facts. The distinction between *presentation* and *representation* is a traditional argument in phenomenology, e.g. [24, pp.144–145], but it has recently returned in analytic philosophy with the discussion about the ‘bad argument’ [25]. Entering into the details of this debate is out of scope here; however, observing the reconstruction we have developed so far, illustrated in Fig. 1, we can argue that the *whole mechanism of constitution can be seen as a prototypical mechanism of re-presentation*. In effect, ‘counts-as’ can be interpreted also as ‘stands-for’. Institutional facts are prototypical mediators and therefore represented facts. On the other hand, extra-institutional facts may be perceived (i.e. non-mediated) facts, or representations, if their meaning is built upon other institutions (the use of language nicely fits with the second case). We do not need to specify them further.

3.3 Separating Static and Dynamic Aspects

In general, systems can be divided into two categories (cf. [26]):

- *transformational systems*, characterized mostly by static, timeless, steady aspects, which can be easily represented in functional terms;
- *reactive systems*, characterized by dynamic, temporal, asynchronous aspects, which cannot be easily represented in functional terms;

A similar distinction can be applied to the sub-components of an institutional interpretative system.

Static, Conditional Aspects. In agreement with the literature, conditional classification or *subsumption* is plausibly the most effective relation to capture static extra-institutional aspects of reality charged with institutional meaning. For instance, “bikes counts as vehicles”. The related rule would be in the form of a *classificatory constitutive rule*:

In context C, an entity of type X counts as an entity of type Y. (4)

Within the institutional system, we can also consider rules that are not grounded on extra-institutional facts, but operate only at the institutional level. These may be definitional, for instance “a check in which the king cannot meet the attack counts as checkmate”, or “a formal charge which addresses a public officer counts as an impeachment”. In these specific cases, constitution is rather an *is-a* relation and the associated *definitional institutional rule* would be:

An entity of type Y1 is an entity of type Y2. (5)

However, most of institutional rules are *status rules*, mapping institutional notions (Y) to normative aspects (Z), i.e. deontic and potestative characterizations. Related examples are “a promise counts as an obligation”, “in case of emergency, a mayor has the competence to declare the state of emergency” (considering both promise and emergency as institutional facts, cf. Sect. 5):

An entity of type Y implies the existence of an entity of type Z. (6)

In this case it is not a matter of definition: the two entities are different, a promise *is not* an obligation, and an emergency *is not* a competence. From a logical point of view, these rules function as remapping of the parametric content specifying one entity into the other, e.g. the promise of doing A implies the duty of doing A.

Dynamic, Procedural Aspects. Generally speaking, the term *act* refers both to a performance and to its outcome. However, from the outcome, we can always refer back to the action. For instance, “a promise counts as an obligation” can be rephrased as “positing a promise counts as undertaking an obligation”, i.e. in terms of an initiating event. The result is an *institutional event rule*:

An event of type Y1 implies the occurrence of an event of type Y2. (7)

To consider the relation at the production level (with the creation of the promise) rather than at the outcome level (the settled promise) is, in this example, only a matter of taste. If the promise is removed, so is the obligation. This example does not support the introduction of a new modeling dimension. Let us consider then another example: “raising a hand during an auction counts as making a bid”. This is a *constitutive event rule*:

In context C, an event of type X counts as an event of type Y. (8)

In this case, there is a decoupling from the ‘brute’ result of the hand-raising action and its institutional counterpart: we may let the hand go down, but our bid would remain. These dynamic aspects of reality are not reducible at the level of outcome, and the procedural/event component of the constitution plays a crucial role. For those, the traditional logic notation is problematic, because logic conditionals require an adequate machinery to deal with incremental change.⁹ Similar problems have been studied in *contrary-to-duty* (CTD) obligations [27].

4 Constitutive Dimensions of Institutional Power

Raising a hand to make a bid is an example of action conducted in the physical reality to obtain a result in the institutional domain. If we turn our attention from the action to the agent, we have already observed that what enables the social participant to produce the intended institutional outcome is being disposed, besides the practical ability, with the relevant *institutional power* (also *ability*, *capacity* or *competence*, depending on the tradition). Without this power, the agent would be not able to constitute the outcome. What, then, is the relation between institutional power and constitutive rules? Our proposal elaborates on this notion in terms of dispositions.

In general, a *disposition* is a precondition necessary to reach, at the occurrence of an adequate *stimulus*, a now only potential state. This transformation, and the resulting outcome, count as the *manifestation* of the disposition. Typical examples are being fragile or being soluble.¹⁰ Dispositions are *requirements for change* (e.g. an element can be dissolved in a solution only if the element is soluble). On the other hand, they provide also behavioural *expectations* about the referent entities (a soluble element is expected to dissolve in a solution). Applying this notion to our domain, we can define *institutional power* as a *disposition whose manifestation is the creation, destruction or modification of institutional entities*. This definition is wider than the one usually encountered

⁹ On the other hand, when a relation can be represented between the outcomes, the procedural model requires the introduction of adequate revision mechanism for operational closure, and therefore, it becomes less efficient from a representational perspective.

¹⁰ Disposition is a long-debated notion in philosophy, especially in metaphysics. Lewis provides in [28] a famous critique to the classic account based on logic conditionals, and a reformulation in causation terms, which is compatible with the present proposal.

in legal scholarship. For instance, offering, or infringing the law, are actions usually not considered associated to *legal capabilities*. The first because, differently from accepting an offer, it does not create any obligation. The second because it is not a type of action promoted by the legal system. However, from a formal point of view, they do entail consequences at institutional level.¹¹

Evidently, physical actions performed in a specific context become vectors to *constitute* institutional facts through constitutive event rules. This concerns the *performance* component of institutional power. Other orthogonal components used in specifying institutional power concern the minimal requirements for the *qualification* of the performer to the *role* he is enacting and the *delimitation* of the institutional *subject-matter* on which the power may be exercised. Considering these three dimensions, we organize in Table 1 the examples of legal specifications of power reported by Hart in [23, p. 28]. The case of judicial officer could be extended similarly to other public officers. In dispositional terms, with some approximation, qualification defines the *disposition*, performance defines the *stimulus* and delimitation provides ingredients to specify the *manifestation*. In terms of constitutive rules, the first component can be related to classificatory rules (4), the second to constitutive event rules (8), and the third defines or constrains the *codomain* of status rules (6).

Table 1. Specifications of institutional power defined by law, examples.

	Private persons	Judicial officers	Legislative authority
Qualification	Minimum requirements of personal qualification (<i>capacity</i>)	Manner of appointment, qualifications for and tenure of judicial officer	Qualifications of identity of the members of the legislative body
Performance	Manner and form in which the power is exercised (<i>execution, attestation</i>)	Procedure to be followed in the court	Manner and form of legislation, procedure to be followed
Subject-matter	Variety of rights and duties which may be created	Jurisdiction	Domain over which the power may be exercised

5 On the Ontological Status of Constitution

The previous sections clarify how constitution functions, but we haven't yet investigated what type of relation constitution is. One way to approach this topic is to start by addressing the domains of its terms.

Ontological Stratification of Institutions. Amongst the authors reviewed in Sect. 2, only Hindriks [19] and Boer [20] explicitly elaborate and argue for an *ontological distinction* between institutional and extra-institutional (including 'brute') realms. It is plausible that also the others share, implicitly or tacitly, a similar perspective. In contrast, Searle rejects in several points of his works

¹¹ In a similar spirit, Sartor extends in [29] *action-power* with *generic-power*, that can be associated to natural events as well (e.g. death, timeouts, etc.).

the idea that there are different levels in reality (e.g. [3, p. 1]). However, as connotation is contextual, the *same* extra-institutional facts may yield different institutional outcomes depending on the context, and, therefore, this argument is difficult to maintain: at least from a formal point of view, Searle seems to conflate constitution and identity relations.¹² Secondly, this argument overlooks the existence of a plurality of institutions, and of institutional interpretations, and thus the intrinsic possibility of conflicting institutional outcomes.

Informal and Formal. Interestingly, the ontological distinction between intra- and extra-institutional domains results in a framework affine with the *legal abstract model* proposed by Breuker [30], advancing the idea that institutional layers are built upon a *common-sense* knowledge layer. Consider the analysis of promise given by Conte for the X-type of rule: “a promise counts as the undertaking of an obligation”. His interpretation insists on the fact that the meaning of promise lies already in linguistic practice as a fundamental *speech act*, and consequently, the proposed rule is merely descriptive. In Hindriks’s terms, however, the rule can be interpreted as an import rule, which, in a legal context, would instantiate a legal obligation (thus protected by law). For this reason, it would be a different rule than the one followed in social practice. The nature of the ‘promise’ term is not settled, however. When there is not a definite constitutive rule that specifies the criteria for which a promise can be accepted as a *valid* promise, the institutional system can be seen as relying on the meaning constituted at extra-institutional level. The resulting mechanism can be modeled in two ways:

- by introducing an implicit constitutive rule that remaps the extra-institutional fact in a cloned institutional reference for institutional import;
- by considering connotation and import collapsing into the same link, directly associating the constitutive fact to the normative fact.

The second is evidently simpler, and avoids the introduction of unnecessary links. However, the first solution is interesting, as it prepares for consequent developments. In effect, it is reasonable to expect the enactment of an explicit constitutive rule in all cases in which the original extra-institutional term is acknowledged to introduce non-predictability in the functioning of institutional mechanisms. For instance, in certain contexts, promises are considered valid (the speech act of promising counts effectively as an institutional promise) only when they are in written form, plausibly because in oral form they turned out to be insufficiently reliable. Thus, we may conclude that *explicit constitutive machinery ultimately responds to the requirement of reducing the frictions caused by different interpretations of what moulds the institutional matter*.

Emergence and Supervenience. Strangely enough, the recognition of different *ontological strata*, i.e. a division of reality in domains to be treated for the

¹² The canonic form of constitutive rules (1) implies that when we are not in C, X may not count as Y. This shows that it is impossible that constitution corresponds to identity, as X would be equal to Y in certain cases, and not equal to Y in others.

most part separately, would be, in principle, compatible with Searle’s attempt to provide a *naturalistic* account of language [3, p. 61]. In effect, natural sciences approach reality depending on various factors, such as the dimensional scale in focus (e.g. particle physics vs astrophysics). Theories and accounts associated to these approaches are often so incompatible, that they may be seen as targeting different realities. Maintaining this distinction furnishes a framework compatible with the analysis and treatment of *emergent properties* or *emergent phenomena*, i.e. those arising out of more fundamental ones, but not reducible to them.

In philosophy, several authors have attempted to capture the relation amongst different *ontological strata* working with the notion of *supervenience*. In the simplest form, “we have supervenience when there could be no difference of one sort without differences of another sort” [31, p. 14]. Considering for instance the physical reality, we may say that the macroscopic level *supervenes* the microscopic level because any difference observed at the macroscopic level necessarily implies a difference at the microscopic level. But the notion is applied in other domains as well, e.g. in support of the recognition of “the existence of mental phenomena, and their non-identity with physical phenomena, while maintaining an authentically physicalist world view” [32]. In other words, supervenience makes explicit an intrinsic ontological asymmetry: e.g. mental or institutional states cannot change without having a change occurring at the physical level.

What is Constitution? Why supervenience is relevant for constitutive rules? Even without referring to supervenience, Hindriks [19] expresses a similar intuition, citing Baker’s analogy with aesthetic relations. A painting does not directly ‘define’ its own beauty (determination), nor ‘cause’ it (material production), but it ‘constitutes’ it. The connection of a painting with its beauty is a classical example of the use of supervenience (although more debated than the macro-micro scenario).¹³ The notion of supervenience is compatible with the idea of *constitution* advanced by this work: constitutive (classificatory or event) rules can be seen as reifying the interactions between extra-institutional and institutional domains, with the latter supervening the former.¹⁴ Informally stated, many events (conditions) may occur (hold) in the world which are irrelevant from an institutional point of view. However, if in a certain moment the institutional domain was found to be different, this means that something necessarily changed in the extra-institutional (e.g. ‘brute’) domain as well: i.e. a part of the constitutive base must have triggered such a change at institutional level.

Towards the Operationalization of Alignment. The previous analysis suggests an alternative approach in testing whether two representations are aligned. In the literature, due to the prominent focus on their classificatory function, constitutive rules are usually specified via a *subsumption* relation. Subsumption

¹³ If supervenience holds, it is impossible that there are two paintings that are the same from a physical point of view (e.g. for their distribution of colours), but they are different in respect of how beautiful they are (to respond to relativist critics, we should add for the same observer and in the same mental state).

¹⁴ This idea was briefly presented in [33] as well, but it remains underspecified.

between two prototypical entities is verified when all the properties of one entity match a sub-set of the properties of the other. However, in the previous sections we showed that the classificatory view is not sufficient to capture all the types of constitution. In this context, *supervenience* offers a better frame than subsumption: we do not target the verification of an equal (sub-set of) properties, but of a fit alignment of differences after change. Intuitively, given two behavioural models, when the execution of the supposedly supervenient model exhibits a change, we should verify that some aligned change occurs in the supposedly base model. A preliminary operationalization following this idea has been presented in [34].

6 Conclusion and Further Developments

The paper revisits the notion of *constitutive rules*, attempting an integration and synthesis of previous contributions. The intuition to carefully distinguish declarative components from reactive components came after the examples of conflation in both cognitive and computational domains remarked by Kowalski and Sadri [35]. Our analysis confirms that the nature of constitutive rules is complex, and suggests that this complexity is due to the integration of the different types of interactions that may occur between ‘brute’ (or better, extra-institutional) and institutional domains.

The study is functional to a more general research objective: the alignment of representations of law (norms), of implementations of law (e.g. services), and of intentional characterizations of behaviour (cases) [36]. With respect to representation of law, we presented in [37] a revisit of Hohfeld’s framework in interactional terms; in [27] we investigated the *contrary-to-duty* (CTD) constructs studied in deontic logic. With respect to representation of behaviour, we introduced in [38] an agent architecture based on the notions of *commitment*, *affordance*, *expectation* and *susceptibility*, interpreted in analogy with Hohfeldian notions. This paper focuses on the theoretical aspects about the connection between extra-institutional and institutional components, but, as the other references show, our current efforts are also directed on establishing a unifying formal visual notation (based on Petri Nets), in support to our theoretical proposal.

Evidently, the constitution of institutional meaning follows the sense of constitutive rules (from behaviour to institutional domain) but it also implements a feedback on behaviour through regulation. Furthermore, social systems adapt to institutional mechanisms—a phenomenon observable through the emergence of “nomotropic” behaviours, i.e. of “acting in light of rules” (which is different from “in conformity with rules”) [39]—to which social systems respond again by modifying their own institutional mechanisms. In the full picture, constitutive rules establish a *structural coupling* between the two domains. However, because adaptation mechanisms are much slower than operational mechanisms, on shorter temporal scales the coupling is asymmetrical. This assumption allows to associate constitution to the notion of *supervenience*, thus enabling the verification of alignment, but the analysis of the institutional dynamics accounting for the change of norms remains to be investigated.

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