



Vico's "Scienza Nuova": Sematology and Thirdness in the Law

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Abstract

Is it the task of legal semiotics or the legal philosophers to define legal semiotics? For the philosopher of law, the question recalls the distinction between philosophers' philosophy of law and legal scholars' philosophy of law. The thesis that the paper argues is that a semiotic legal perspective can also be sought from the analysis of anthropological knowledge on the origin of the social bond and society, implying a social and institutional theory of the mind. In the first paragraph, the search for a different kind of rationality emerges from a semiotician, Jürgen Habermas, who analyses semiotically the thought of a rhetorician and philosopher of law, Giambattista Vico. In the second paragraph, the anthropological notion of social bond emerges from the debate on the relationship between the idea of the gift and that of exchange. In the third paragraph, the analysis of the legal notion of thirdness recognizes the central role of myth and fiction in the configuration of the civil world and sign, returning to Vico's critical view of the philosophy of language as an institution of society.

Keywords Sematology · Thirdness · Rationality · Rhetorics · Currency · Justice

1 Introduction

Is it the task of legal semiotics or of the legal philosophers to define legal semiotics? For the philosopher of law, the question recalls the distinction between philosophers' philosophy of law and legal scholars' philosophy of law [8]. It might seem in the contemporary debate that legal semiotics, generally recognized, is that of semiotics and the non-legal, unorthodox, that of legal philosophers' philosophy of law. In effect, the framework of the relationship between semiotics and law is more complex for both semiotics and legal scholars and is rooted in the definition of rationality, of science, and consequently of law. The paper tries to explore some semiotic and legal-anthropological topics where this methodological complexity emerges, asking

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(1) whether a form of non-positivistic and formalistic rationality in the social sciences can be configured and (2) what is the conceivable relationship between language, law, and sign. The thesis that the paper argues is that a legal-semiotic perspective can also be sought from the analysis of anthropological knowledge on the origin of the social bond and society, implying a social and institutional theory of the mind.

In the first section, the search for a different kind of rationality emerges from the notion of prudence proper to the “civil world”, starting from a semiotician, Jürgen Trabant, who analyses semiotically the thought of a rhetorician and philosopher of law, Giambattista Vico, constructing a “non-legal” semiotics (i.e., not a semiotics in the traditional sense or on the main versions). In the second section, the anthropological notion of social bond emerges from the debate on the relationship between the idea of the gift and that of exchange, a debate in which the role of the symbolic appears central. In the third section, the analysis of the legal notion of thirdness shows how, also through the path of anthropological and economic knowledge, it is possible, through the reference to Vico’s thought, a legal rhetorical vision of reasonableness as prudence proper to law. This vision recognizes the central role of myth and fiction in the configuration of the civil world and sign, returning to Vico’s critical view of the philosophy of language as an institution of society.

2 The Sematology of Vico as Philosophical Legal Semiotics

In a dialogue with Jean-Patrice Courtois on the relationship between Vico and Michelet—therefore between Vico’s philosophy and its incorporation into European culture—Jürgen Trabant explains clearly the notion of rationality in Vico:

Je vois Vico comme un chapitre des Lumières... Il y a chez Vico également un ascension de l’humanité vers la rationalité. Mais ce qu’il nous dit, ce qu’il n’y a pas d’enthousiasme du progrès, il y a au contraire une prudence. Vico nous dit: “Attention, nous sommes arrivés à l’apogée du développement humain, mais sous l’asphalte, il y a la sable. Faites attention, n’exagérez pas la rationalité, n’exagérez pas la réflexion sous peine d’arriver à la barbarie de la réflexion. Sachez que vous êtes encore des sauvages, que vous êtes encore des poètes”. Le plus intéressant chez Vico est cette position de prudence, que je perçois, quant à moi, comme une réponse à Descartes. [46]

Trabant’s perspective remarks that Vico conceives the notion of the human being not as *animal rationale*, but as *animal symbolicum* in Cassirer’s terms: we could find at the basis of culture and society, not language and philosophy but the phenomenon of human expression that is the sign. Poetry, myth, and symbols are different forms of signs not unlike mathematical symbols: there are several forms of symbolism, each with its logic [49]. For Trabant, Vico’s theory of the sign is not semiotics or semiology, but a sematology, a different form that is not Peircian semiotics nor Saussurian semiology, but a forerunner of these projects. He’s not Lockean nor Aristotelian but critiques in the Kantian sense [47, p. 3].

Vico's *New Science* (*Scienza Nuova*) opposes the Cartesian conception of reason. While Vico's *Autobiography* is organized along the same lines as the *Discourse of Method*, Descartes' narrative is the antitype of Vico's self-portrait, however inextricably linked to the *Discourses*. The common problem is the search for the certainty of knowledge. Descartes found the answer in the *cogito ergo sum*; Vico's axiom is that the world of gentile nations was certainly made by man. The fixation with the universal and the ignorance of the empirical and historical data leads to the "conceit of the scholars" (*boria de' dotti*), which we might call, today, logocentrism. The fixation on particulars and ignorance of universals leads to the "conceit of the nations" (*boria delle nazioni*), which we might call now ethnocentrism [47, p. 7].

Descartes, in search of certain and scientific knowledge, marks off the civil world, books, and letters, and the realm of customs, as uncertain terrain. With its opposition between body (*res extensa*) and mind (*res cogitans*), Descartes' theory of language is for Trabant a radicalized version of the Aristotelian conception of language.

According to the traditional reading, for Aristotle

in conceiving the material world (*res*), the mind creates mental contents (*conceptus*) through a cognitive process that functions identically in all people. The concepts the mind creates are independent of language. To transmit them to others, we denote them with words (*voces*). These denotations are arbitrary (*ad placitum*), as evidenced by the number and variety of human languages... No particular cognitive value is attributed to languages, which only grant access to the knowledge contained in books [47, p. 14].

This argumentation is precisely the kind of theory that Vico's sematology is directed against:

Like Descartes, Vico gets lost in the dark forest of human erudition. Like Descartes, he despairs and deserts his studies. But unlike Descartes, who studies the book of the world and finally withdraws into himself, Vico returns to the dark forest of erudition holding aloft the light of certainty that the entire civil world is made by human beings, and, consequently, that the world of culture preserved in books and sings is a source of certain knowledge [47, p. 17].

Vico does not derive certainty from thought, but from the civil world and rhetoric (sematology). Vico replaces Descartes' dualism between *res extensa* and *res cogitans* with a triad consisting of body, mind, and language: it adds a third substance (*res linguistica*), that mediates between *res extensa* and *res cogitans*. Following Trabant, this is the first linguistic turn (sematological turn) in the history of philosophy. Vico recognizes that signifiers (language) and signifieds (ideas) form an indivisible entity: this principle is his discovery (*discoverta*). For Vico, the first human thought was a sematological entity in which idea and material signifiers were not separated:

In the beginning, the mind at work inside the poets could hardly be differentiated from the body. The mental power that created the poetic characters—*memoria-fantasia-ingegno*—was still entirely corporeal. And, its creation, the poetic sign, was a corporeal-mental entity. It is only later that the mind emancipates itself from poetic characters. Semiosis becomes increasingly

intellectual, a process that manifests itself in the progressive separation of the idea from the signifier and of the mind from the body. Standing at the end of this developmental process, the conventional sign strives for arbitrariness and rationality even thought, since it is bound to the body, it can never fully achieve them [47, p. 21, 49].

The main difference between Vico and Hobbes in the conceptual use of the principle *verum factum convertuntur* is the idea that arbitrariness and rationality it is not related to a fictional body (like the emblem of Leviathan in Hobbes). At the same moment, *the origins of the law and the sign* are in the real body of the *poets*, not in the fiction of the Leviathan *Body-State*. Vico discovers *mythos* under the *logos*, the image under the reason [25, 34]: he is the founder of the legal aesthetics conceiving the human thought as an incorporated process of semiosis. This difference is the reason why Vico's sematology could be an illegal semiotic, because he opposes the main tradition of legal vision of sign, from Aristoteles to Descartes, and the main tradition of legal positivism starting with Hobbes, trying to create a new science (*Scienza Nuova*). Vico's sematology is, at the same time, an *illegal* theory of the language and of the law.

It is not possible, however, to follow the analysis that Trabant proposes of the historical evolution of Vico's three ages in the gentile peoples' political and linguistic development. The reawakening of the postdiluvian animal-men to their humanity begins with the age of the gods (corresponding to the formation of theocratic clans). The age of heroes succeeded (corresponding to aristocratic societies) and then came the age of men (corresponding to monarchic states).

Each age corresponds to a particular language, divine, heroic, and human. As Trabant notes:

the signifiers of the first language are gestures (*atti, cenni*) and objects (*corpi*). The second language's signifiers are heroic emblems (*imprese eroiche*), the heraldic symbols that Vico also characterizes as images, similes, comparisons, and natural properties. It is not until the third language that signifiers are words (*voci*) [47, p. 25, 48, p. 96].

Not only the gestures of the first language but also the heroic signs of the second language must be poetic. Following Trabant "in the same way that the first Maker made Adam human by breathing a soul into his body, the first human poets transformed physical objects into signs and thoughts (*logos*) by animating them with their ideas and meanings [47, p. 39].

Trabant's following analysis aims to configure the particular universalistic trait of Vico's work and its limits. One cannot find in Vico a coherent and complete theory of law, history, language, or semiotics. However, this critical aspect is of interest here. What is more relevant is the fact that Vico's thought anticipates the critique of logocentrism and ethnocentrism, and also that the history of law and its iconicity prefigures Derrida's deconstructionist theory and Perelman's rhetorical and argumentative turn. Vico opened up a path to the science of sign interpretation that could not be reduced to Cartesian rationalist dualism and Aristotelian theory of sign interpretation, reintroducing legal rhetoric as an interpretative practice beyond the

distinction between rational and non-rational in contemporary linguistic, semiotic and legal theories.

This Vichian approach could be integrated with Pierre Legendre's legal aesthetic and emblems theory [18, 25, 33, 34] starting from a theory of reason as rooted in mythology, and a political-aesthetic theory of the incorporation of the image into the body of the emperor, the medieval pontiff, to culminate in the rationalistic abstraction of the Hobbesian image of Leviathan [25].

The question that we would, therefore, pose in the following part of the paper is whether, as Trabandt points out, a semiotic notion of a thirdness, not Peircean, could be recognizable as internal to the history of legal knowledge. We certainly do not intend to analyze the relationship between the legal vision of thirdness [8] and the Peircean concept, but to pose the hypothesis, semiotically non-legal, of the possible anticipation of semiotic concepts within Vico's legal rhetoric.

3 Legal Thirdness as Rhetoric Reasonableness?

Vico's acute critique of Descartes' conception of reason could indicate with clarity the anthropological and fictional root of this device, but it is necessary to add, as Legendre did [7, 31, 34], that these problems were recognized in law well before the contemporary social sciences and semiotics discovered them.

The reference to the importance of the themes of gift and exchange in social sciences, as well as to the related philosophical debate, for an understanding of legal phenomena shows the importance of a non-reductionist analysis of the notions of rule, institutions, and semiotic theory of rationality and interpretation.

This point is linked to the reappraisal of belief as a form of knowledge relevant to understanding the legal phenomenon of 'credit' and inherent in the form of thirdness. It is a path equivalent to Vico's rehabilitation of *ingenium* and rhetoric methodology in the law [22]. The modern forms in which the economics and the legal have, so to speak, substituted the Maori *hau* [36], the social bond in the form belonging to ancient societies, involve the idea of *institutional thirdness*: whether it is a matter of thirdness of the market—Smith's invisible hand, Hayek's spontaneous order, the very notion of currency [1] which is precisely defined by its temporal anticipation, or the classical legal idea of institutional impartiality. All these *founding notions* in the form of thirdness have a relational and fictional component, as Vico states in his sematology [14]. They do not describe the reality as it presents itself but are aimed at making the social bond possible, establishing the *physiological* side of the relationship between citizens, the possibility of the circulation of credit amongst them, even in the awareness that this credit can be disregarded and unfulfilled.

The impartiality and rationality of the law have precisely this social function. Quite simply, the modern concept of law has indicated only the pathological trait of the device: to define law, as Kelsen and Bobbio did, after Hobbes, starting from the imposition of the sanction certainly has a realistic trait, in indicating a specific and utilitarian quality intrinsic in modern societies, which allowed the building of a scientific theory of legal discourse. However, this definition alone does not seem sufficient to shore up the institutions, to make them stable: it must be accompanied

by a different concept of law, aimed at restoring the circulation of ‘credit’ and social bond within society.

This idea includes the resumption of the consideration of the sacred element and the thirdness that governs law, in the correlation (and in the distinction) necessary to understand also the recovery of the ‘sacred’ element (thirdness) that presides over economics [14].

In modern societies, law and economics are areas of knowledge dominated by the idea of thirdness (of the market, of the law) that must be included in their articulation. If the debate on gift and exchange has anything to teach to the institutional economics debate, it is precisely this: the possibility of a social bond lies in the form of their correlation. Every gift is also an exchange [13, see below and vice versa 21, 35, 44]. Each institution must be represented as potentially eternal in order to be believed [14], introducing the question of representation of the time evolution within the analysis concerning social sciences.

The essential point of the recognition of thirdness’ symbolic nature in legal domain refers to the recovery of the *fiduciary value* of a relationship of dialogue between man and reality. The reference, here, is to the legal and anthropological lexis of relationships of credit and debit, exchanges based on the idea of a *deferred payment* that is the execution of a promise where “the scenic effect generated by the dematerialization of the materiality through the gap that the words produce to make possible the human relationship to self and to the world” [34, p. 223] indicates that *reality presents itself to man always as a deferred payment, guaranteed by a promise, by an operation of credit granted in the world.*

In this sense, reality does not stand alone; it must be accredited. For this reason, man conducts a discourse on reality also when he presents it as a fact, dogmatically: if it were indeed a fact, he would not feel the need to say so. Our commerce with the world is a vast operation of credit [5], which controls the subjective bond of identity/otherness, and the traditions that Westerners have generically designated as “religions” testify to human inventiveness, making this bond a credit and debt relationship, the symbolic space of the halved coin that binds and constrains the parties in a fiduciary and legal relationship of obligation [34].

This fiduciary element, which belongs to the very origin of the legal and the political, has been studied, by Mauss, with regard to the relationship between the social phenomenon of exchange and gift in cultural anthropology, philosophy, and economics. In the legal field, however, with the spread of juspositivism, awareness of the problem has been lost and we have only recently begun to construct a theory of thirdness of the foundation of the social bond seen in its complex historical evolution. Vico’s sematology accurately indicates this institutional function of the sign on an anthropological level. It is similar to the criticism of Derrida’s logocentrism [16, 47]. The French deconstructionist Jacques Derrida [12] has shown how the notion of ‘gift’ can be reduced to the notion of exchange: in the tribal societies, but also contemporary ones and personal relationships, from his standpoint, the purported reality of the ‘gift’ may conceal a merely utilitarian form of exchange. The gift, in other words, is an *ambiguous phenomenon, that can always be transformed into its opposite*. Starting from this observation, Derrida believes that the phenomenon of the gift is “impossible” and contradictory. In order to exist, the gift must not be seen

as such; otherwise, it is reduced to a mere relationship of exchange. The gift is therefore *present*¹ only if it is not present; if it is not available.

However, not even the concept of exchange can avoid a form of inconsistency, based on the critical model through which Derrida sees the gift. The economic concept of exchange is never merely "pure" exchange; in it, there are also non-synallagmatic residues of the relationship, which can never be dual; it is always also ternary. We cannot define any phenomenon such as pure 'gift' or exchange, as the gift's debate, from Mauss to Derrida, shows. Indeed, we cannot even define what a 'pure theory' is [of law, 32, of capital, 19]. The concept of exchange is never referable only to the individual and to his self-reliance but it always refers to the social bond, even where it appears to be wholly utilitarian: the exchange always postulates the existence of a third 'market' in which it is possible to exchange [24]. Can one, therefore, perhaps state that the exchange intrinsically contains in itself 'the gift' of 'grace' (as a form of something that is not deserved)? An interdisciplinary analysis of profit and the grace problem related to currency and gift can be found in Hénaff's work [23].

To return to the French phenomenology, the French Catholic philosopher Jean-Luc Marion radically criticized the theoretical basis proposed by Derrida about the gift [24, 35]. He stated that it is absurd to deny the existence of something like the gift in our societies and our lives. He thus makes the gift (or rather the principle of giving) a phenomenological trait referable to Husserl's phenomenological reduction [38]. Thus, Husserl's call to return to the thing, the founding methodological principle, is replaced by the phenomenological concept of donation "as much reduction as donation" or "what is first shown is given (gives)." The donation thus becomes a sort of first philosophy ("We live in the donation") [35, p. 13–85] and is considered able to replace the 'First Philosophy' of Descartes.

Finally, the Italian theologian Pierangelo Sequeri conceived a critique of both Marion and Derrida, with regard to the relationship between gift and exchange [23]. He notes that it is not possible, in the theological context, to conceive the question of the relationship with the divine in terms of the 'pure gift', understood without reciprocation from the "human" side. If the notion of God is to have any meaning, it cannot fall into the same ambiguity of the notions of gift or exchange (or even of the legal, I would add): a God conceived as ambiguous and unreliable [24], simply cannot be thought of as divine. The conception of the Christian God, on the other hand, is not that of a subject who indifferently observes terrestrial events: he asks man for precise behavior, actions, and faith, within a relationship. On the other hand, the alleged request of God cannot be considered subject to the economic logic of the exchange (even though at times it was understood precisely in this sense in the ecclesiastical context). The logic of the relationship with the divine must respond to a principle not governed by calculation and exchange, but referring to an idea of "exchange" not determined by calculation. Sequeri proposes an idea of exchange

¹ In the two meanings of the term (in Italian, French and English) temporally present, but also 'present' as a gift.

referred to freedom: the exchange is a qualitative and not quantitative concept, governed by the idea of *free reciprocity*.

A figure of exchange that cannot be calculated, but is not a “pure gift” [12, 24, 36], very different from the “utilitarian” notion of economic exchange, calls into question the problem of justice (of exchange and gift). We could define it as the idea of a *non-quantitative but qualitative* exchange [44], questioning reciprocity in the form of human freedom and not the law and introducing the qualitative, relational category of the thirdness in the legal theory.

The introduction of a critical perspective of the traditional notion of modern rationality can, however, lead to an aesthetic legal and anthropological reinterpretation of the Aristotelian theory. The anthropological debate on gift and exchange can then constitute a semiotic legal theory of the thirdness, close to Vico’s theory on the fictional origin of thought and sign. Not only the world of the origin of social and juridical institutions appears sematological. Also, economic knowledge seems to be close to a sematological perspective concerning the notion of currency.

The question of currency is closely linked to the notion of sign [1]. We will try, following Amato’s legendary reading of currency in Aristotle, to extend a Vichian sematological perspective by introducing a third notion of justice in the Aristotelian theory, in order to show how the sematological perspective can complex even notions considered certain (the dichotomous theory of Aristotelian justice). Currency is a sign of state sovereignty. We had probably come to the end of that era when the State assumed the burden of the social bond. While long ago it was the monotheistic idea of the divine that took on this foundational role, in modernity the very assumption of debt by the Leviathan and then by the democratic State has been one of the signs of its sovereignty.

The problems of the public debt, as well as the reappearance of the debate on the social forms of gift and exchange in economics, are signs of a new radical crisis of the social bond’s conception in our society. The social bond “has gone so far below the necessary threshold of cooperation and mutual trust, that it is experienced only as a set of procedural rules, unable to mediate collective forms of meaning” [45, p. 130, 43].

The complex problem of social bonds in Amato’s theory questions the notions of currency and the question of justice as reciprocity, referring to Azzoni’s perspective on Aristotle’s *Nicomachean Ethics* [1, 5]. Azzoni carries out an interesting analysis of the Aristotelian notion of justice, specifying how, alongside the classic distinctions between distributive justice and equalizing justice, there is a third possible meaning, which he depicts as the justice of the Graces [5].

If in fact, classically, distributive justice refers to the activity of distributing honor and wealth among the members of the political community [4, V, 1130 b, 31–32], the Aristotelian so-called equalizing justice is instead referred to reparation in human relations [4, V, 1131 a, 29], distinguishing between human relations in the sphere of civil law (equalizing justice, which defines the aspects of commutative justice, referable to the sale, to the payment and so on) and those of criminal law (the so-called corrective justice, referable to the theft or to the murder etc.).

In the Aristotelian concept of justice, we find the link between gift and exchange, in the terms described by Sequeri as the relationship between a qualitative and a

quantitative element. The 'qualitative' exchange refers to distributive justice according to the merit or the quality of the person, as Giuliani [17] states. In contrast, the 'quantitative' one refers to equalizing justice or the exchange, which, therefore, primarily refers to the intervention of the judge. He observes that Aristotle goes on to consider, immediately after his analysis of the two forms of justice, the Pythagorean doctrine, which is one of the most controversial passages of book V of *Nicomachean Ethics*. However, the Western philosophical tradition has neglected the conception of reciprocation, vacillating between its reduction to corrective or distributive justice [29]. In effect, the main historiographical tradition of justice has evaded [5, p. 309, 17, p. 726] that third sense, *justice as reciprocity*,² linked to the theme of gift and exchange.

Justice as reciprocity indicates precisely how the world of justice is not that of calculation, but of prudential reasoning, in which there is no place for a mathematical reason. The world of justice is, however, the world of rhetoric, the domain of practical or dialectical reasoning. The analysis of discussions is always conducted through a confutative, polemical and controversial process, through the comparison of opinions, linked to a sort of ideal principle of cross-examination that identifies the conception of the judge (mythical, fictional) as a third [17, p. 737]. The trial as cross-examination is useful, however, in giving stability to the institutions. Justice as reciprocity becomes the criterion of solution for all the problems related to finding an equilibrium: in rectifying a tort, in exchange, in political life, and even in friendship [17, p. 738]. Reciprocity understood almost as a sort of 'natural' justice placed beyond legal positivism, presupposes a phenomenology of the 'right' considered in its dynamic aspect, since it considers situations involving movement or exchange.

This is the legal origin of catallactic justice, in a sense that will continue as far as Hayek [20]. Catallactic justice is a notion that Hayek undoubtedly idealizes, but that he methodologically correctly poses as a third category between instinct and reason, aimed at expressing *the symbolic and aesthetic thirdness of the foundation of the social bond in its possible ambivalence. This ambivalence, in terms of the analysis of the paper, characterizes the gift's circle or revenge, establishing a community governed by rules or violence*. Catallactic justice is an aesthetic figure of justice insofar as it is well represented by Aristotle with the image of the Graces, understood as an expression of the continuous circularity of benefits, the idea that the deities *dance in a circle*, circulating the benefits: an element then identified by Seneca, that Azzoni effectively connects to Mauss' circle of gift, observing that the subject is touched on by Godbout too [5, p. 316].

The image of the circle is present in the justice as reciprocity symbolized by the Graces, whereby *the first Grace gives the benefit, the second receives it and the third returns it by taking a new initiative*, and it is not by chance indicated in the part of the book in which Aristotle analyses money as a means of measuring all goods [4, V, 1133 a, 20, 51]. The Graces, who protect the idea of justice as reciprocity,

² See, however, [2, 13] for a discussion of the ambivalence gift/pharmakon.

are represented at the entrance to the *polis* (the Acropolis of Athens).³ To be more precise, they are *publicly* represented, according to the Aristotle of *Nicomachean Ethics*, in the translation by Karl Polanyi: “This is why we set up a shrine of the Graces in a public place to remind men to return a kindness; for that is a special characteristic of Grace, since it is a duty not only to repay a service done once, but another time to take the initiative in doing a service oneself” [40, p. 90]. This *third idea of justice* seems the aesthetic and symbolic figure of justice as that which holds together the other two forms of justice: *a justice as thirdness*, which cannot be captured and stopped in a static dimension, but which represents the same movement of social dynamism, of the crisis and the overcoming of the crisis, of the institution and the dissolution of civilizations and cultures [26].

Aristotle connects proportion to reciprocity (*antipeponthòs*) [4, V, 1133 a, 9]. This connection is already a precise theory of the institution of a community founded on equality and difference, as is immediately specified by Aristotle [4, V, 1133 at, 17]. A community generally arises from the differences, and not from equalities; however, such differences must lead to a level of equality [4, V, 1133 at, 32], and there will be reciprocity when a level of equality has been established.

Precisely the need to return to a level of equality requires an institution guaranteed by the law of a measure of all things, which is currency. It could be, however, necessary to clarify why the inclusion of the question of currency in the analysis of justice is considered cryptic [1]. The reading by Massimo Amato reported here [1] analyses Aristotle’s thinking about the concepts of market and currency conceived by a complex theory of institutions.

In fact, for Amato, money has a dogmatic foundation, in the sense of Legendre’s dogmatic anthropology, a trait that brings the theme of money closer to that of the legal as the foundation of thirdness. In asking what the currency is, Amato states that it is not merely a figure referring to a conventionally established code, but a *symbol* established for a community in the name of an instance of sovereignty [1, p. 95]. ‘Being a symbol established in the name of sovereignty’ refers to the foundation of a legitimacy that cannot be separated from the foundation of truth. The currency thus becomes a symbol in the specific sense that its truth must legitimately appear without the need to resort to demonstrations every time, an element from which the dogmatic trait of its foundation derives. This reading clarifies the link between currency, sovereignty, and justice in the history of Western culture, already glimpsed in its origins in the fifth book of Aristotle’s *Etica Nicomachea*. Amato introduces a very particular reading of the currency whose proper place is the circulation itself as the fulfillment in every instant of the ‘disappearance’ of the currency [1, p. 100]. The relevant point for the conception of justice is that “at stake with the currency is something that is not profit but loss and its sharing among the participants in a working community” [1, p. 105]. It is, therefore, in Aristotelian terms, a question of (distributive) justice—but where the reciprocity can refer to its symbolic foundation in

³ Justice as reciprocity is protected by the Graces and is enacted through the spontaneous initiative of man.” Azzoni [5, p. 325, p. 314].

the theme of sovereignty as a dogmatic institution of truth, in the aesthetic form of a symbol. Reciprocity here is related to the legal aesthetics of thirdness as a theory of institution of the community.

This view of currency as linked to loss and not to gain leads Amato to understand the *polis* "as a *third space* towards which all the *politai* are individually and previously indebted" [1, p. 211]. In this context, reciprocity is a necessary condition for the foundation of a community of exchanges. Therefore, it is an obligation. There is, however, something that cannot exist: currency "*can never be a beginning*" [1, p. 213]. This void is precisely the place and task of justice as reciprocity. It is anthropologically and aesthetically linked to the figure of the temple of the Graces: the establishment of a founded place that allows the circulation of goods. The currency is one of these names, according to Amato, whose institution qualifies the *kháris* as the dimension, the place, in which the exchange can be thought in the form of a response to the original debt of which the community, the *polis*, consists. The *kháris* is the place where the exchange can properly appear as such only within a dimension "that is not identifiable through it, but at the same time is abysmally similar" [1, p. 200]. This dimension involves inequality in the form of a significant difference in exchanges and goods exchanged. The place of justice as thirdness cannot be understood as a mere normative obligation to the reciprocity imposed by the authorities, but as a foundational aesthetic place: the image of the Temple of the Graces placed "in a prominent place" in the city.

The beginning of the economy has—perhaps going beyond Amato's vision, but in an indeed converging line of philosophy of law—the established form of *kháris*. The temple of the Graces is a symbol of an aesthetic-legal foundation of the *polis*. According to Amato, and his inversion in the conception of economy and currency, the starting point of the social bond is not the exchange of possessions, but the exchange of the fundamental void that makes possible the commercial communication for men. Again: the social bond allows the humanization of this debt, established in such a way as to be humanly bearable, where the Temple of Graces is, socially, the representation of giving thanks [1, p. 215], of taking the initiative to make a new favor understood as a form of the circulation of shortage in the community. Such scarcity is the dimension, the place, which holds together every need and every properly human exchange, as a guarantee, the place of thirdness. The currency thus becomes a guarantee for founding social bonds [1, p. 229].

Following Amato and Azzoni, the economy established by the *kháris* in the form of communication and the circulation of shortage in the *polis*, depicted in the Temple of the Graces, constitutes the third place that is the very origin of society, in a legal foundation of sovereignty, becoming also an economic foundation by the currency conceived as guarantee. If it is possible to recognize the impossibility of conceiving the economy without the law and the law without the economy, moreover, it is not possible to constitute a society without referring to *kháris* understood as a human regime of scarcity. The current conception of the rationality of utilitarian exchange that dominates our modern societies does not seem to find place here.

4 The Institution of Language: Vico's Aristotle

The anthropological analysis of the gift and the economic analysis of currency seem to converge in a theory of institutions connected to the idea of symbolic thirdness. Hodgson starts the project of an economic theory of institutions precisely from the reference to Aristotle's thinking. As Hodgson pointed out by referring to Aristotle's *Metaphysics*, "the essence of what an entity *is* cannot be adequately defined in terms of what an entity *does*, or by patterns that it generates" [30, p. 500]. According to Hodgson, the distinction between potentiality or capacity and behavior, or between disposition and outcomes, is a central element for defining the concept of habit and, therefore, for the theory of rules placed at the base of the notion of the institution. In this perspective, habits, formed through the repetition of an action or thought, are the basis of both reflective and non-reflective, rational and not rational behavior. At the same time, Hodgson recognizes that Damasio, realizing Descartes' error in separating emotions and reason, body and mind, implies that mind and reason are inseparable from the natural and social environment, and that, therefore, the environment "includes the institutions within which people act" [27, p. 289]. The point is crucial for the theory of institutions as it leads us to identify the limits of explanations in terms of methodological individualism of economic phenomena [38]. An infinite regress can be identified in methodological individualism, where neither individual nor institutional factors have legitimate explanatory primacy. The new institutionalist project cannot explain the emergence of institutions based on given individuals, and it runs into difficulties, particularly about *the conceptualization of the initial state from which institutions are supposed to emerge*. In this perspective, theories of the spontaneous or custom-based evolution of law also rely on unexplained assumptions:

Reason, deliberation, and calculation emerge only after specific habits have been laid down; their operation depends upon such habits. In turn, the development of habits depends upon prior instincts. Instincts, as typically defined, are inherited. Accordingly, reconstitutive downward causation upon instincts is not possible [28, p. 163].

The hypothesis on which we would like to conclude the article is that the theory of Vico's *New Science* [52] provides another view of the theory of the fictional formation of belief in the stability of the institutions and rationality compatible with the existence of reconstitutive downward causation [10, 41, 42] within the historical explanation of the genesis of the institutions and rationality. For Hodgson, "a strong process of 'downward causation' is not confined to the ordinary routine of everyday life" [28, p. 164–165]. Incidentally, he also recognizes the use of the term "institution" in Vico: "The term has a long history of usage in the social sciences, dating back to at least to Giambattista Vico in his *New Science of 1725*" [27, 29] considered here as a science of history.

Actually, as Trabandt states, Vico's thinking provides a different conceptual framework from Aristotelian and Cartesian philosophy, building a theory that

tries to explain the process of change in language (metaphor) and in institutions (the rhetorical and argumentative method), based on rhetoric, topic and the conception of thirdness [3]. Vico is considered, through his influence on Genovesi, the founder of a conception of the civil economy [9, p. 15, p. 97], but it is above all from his legal and rhetorical knowledge that the theory of institutions and rules develops [37]. The Neapolitan rhetorician, in opposing Grozio, Selden, and Pufendorf's idea of rationalistic natural right, thus inaugurating the methodological distinction between natural and social sciences, intends precisely to produce a *New Science*. Vico tries to give dynamic reality to the flow of history [50, 52, p. 45] anticipating a methodological problem in the theory of institutions, like, following different paths, Legendre and Hodgson [27, 34]. A hypothesis that could be advanced is that this New Science may be intended as a Science of Freedom designed to represent both the subjective and the objective dimension of the foundation of institutions in a synthesis that can be useful for contemporary debate. For Vico, who shares the radical criticism of the Cartesian method, knowledge is divided into metaphysics, based on revelation, deductive knowledge, based on logic and, finally, perceptive knowledge, based on empirical observation. This distinction reveals the emphasis on the subjective thought as *the knowledge that derives from having acted* (*verum factum convertuntur*) [50]. There is an empirical knowledge that differs from deductive logic because it leads to a new knowledge of the facts and the perception of the external world since it informs us of why things happen. Berlin [6, p. 22] calls this a "species of self-knowledge of activities of which we, the knowing subjects, are ourselves the authors, endowed with motives, purposes and a continuous social life, which we understand, as it were, from inside". This *knowledge from within* consists of asking ourselves why people act as they do, not only asking ourselves what their mental states are and which events are followed by certain acts, but attributing to other men a similarity in our action—self-awareness—which we can capture since "man can think of others only as being like themselves" [6, p. 23].

According to Vico, philosophy, and therefore reason considers man as he ought to be and therefore can benefit only very few, whereas legislation considers man as he is, with his vices it is through divine Providence that pragmatism becomes justice. Not, however, in the political (economic) sense of Adam Smith and the (theological) sense of Carl Schmitt, but, precisely, within a dimension of civil economy, founded on the fictional thirdness of the institutions, and yet it is necessary to believe in order to establish language and institution [52]. This difference between philosophy and law means that man, to be good, needs the other man and a story in which legislation can take place. Man is not a good or evil monad, but needs a story in which to manifest his evolution. Vico's theory is already anthropology of complexity, in which man is not good or evil by nature, but *becomes* good or evil.

Ezrahi shows the link between the scientific revolution and the emergence of the new modern democratic order [15]. In a recent study dedicated to the relationship between the imaginary and the politician, the Israeli epistemologist indicates precisely in Vico the forerunner of the imaginary foundation of the civil order [16]. The origin of the civil imaginary for the Neapolitan philosopher of law is poetics, and the poets are the founders of the civil order, which is rooted in

religion and myth, as the first moment in which the ancestors of the man raised their eyes to heaven inventing the gods. Not even modern science and the emergence of reason, however, escapes this founding logic of fictional institutions.

Vico specifies, following Tacitus, that the poets are creators linked to that fictional device that presides over the institution of the law in society at all times: men always “*fingunt simul creduntque*” [believe in what they had just imagined]. In an admirable literary passage, in Vico’s imaginative reconstruction one hundred years after the deluge in Mesopotamia, we read:

Thereupon a few giants, who must have been the most robust, and who were dispersed through the forests on the mountain heights where the strongest beasts have their dens, were frightened and astonished by the great effect whose cause they did not know, and raised their eyes and became aware of the sky. And because in such a case, as stated in the Axioms, the nature of the human mind leads it to attribute its own nature to the effect, and because in that state their nature was that of men all robust bodily strength, who expressed their very violent passions by shouting and grumbling, they pictured the sky to themselves as a great animated body, which in that aspect they called Jove, the first god of the so-called *gentes maiores*, who by the whistling of his bolts and the noise of his thunder was attempting to tell them something [52, p. 105].

In imagining nature as a tremendous animated body dominated by passions and emotions, the first poet-theologians thus invented the first divine fable crystallized in an image, that of Zeus, king and father of men, in the act of hurling lightning and giving rise to religion and civil order. In this reading of the emergence of civil order in the poetic metaphysics, Vico, in Ezrahi’s opinion, anticipates modern political anthropology, inviting to a research program in which the repertoire of collective imagination in poetry, metaphysics, mythology, and science helps man to build society by repressing violence; establishing authority by channeling human fears and emotions into a model very different from the Hobbesian one.

Vico proposes a theory of the origin of the mind starting from the body, in a perspective that completely reverses the Cartesian distinction between *res cogitans* and *res extensa* and which constitutes a different picture of the rationality hypothesis of the *Homo oeconomicus* [6, 29, 37]. The passage from animal instinct to human reason takes place *subjectively* thanks to the mythical and fictional mediation through which man imagines fictitious deities, conferring on them the status of reality and creating a third and fictional space of institutions. The modern Leviathan State is merely a name and a fictional representation of this third space: just like every legal person, to whom the belief of men confers reality. Vico’s theory still appears useful to account for the irrational side of the action of individuals and their social interactions. What Vico allows us to recognize is that the foundational language of human institutions is not only the language of rationality but also, inevitably, the language of myth. The error of modern post-Cartesian theory is that it conceived the world working without irrationality. The Cartesian conception is a theory that to be believed, must be ontologically supposed to be founded on the mythology of constructivism [20]. The interpretation of this system of signs, of this mythical

language present within our supposedly rational and utilitarian societies, is a philosophical problem that must not be forgotten in a theory of institutions.

For Vico, as noted by Cantelli [11, p. 23], men, in the feral state, governed by instinct, are still beasts, who do not speak but express only emotions. Society has not yet appeared, but the genesis of language is coeval with the fictional appearance of the human mind within the process of evolution [52]. The man begins to speak through the experience that the mind makes of the object. A relationship of similarity is established between the image created in the mind and the object and the sign that represents it [52]. The original language that indicates the fictional genesis of the institutions in the poetic and religious narrative is visual and internal to the human mind. The thunderbolt with which Zeus manifests himself is, so to speak, the natural language of a fictional entity posed by man. This is the device that presides over the origin of the institution. It opens the third space of what is situated between instinct and reason, between animality and language. According to Cantelli, Vico states that:

in the language of the first humanity, men, with the acts of their bodies and with their image, did not so much reproduce objects, but rather manifested ideas, the images they had made of objects. It was, therefore, an imitation, not of what it *is*, but of what was imagined to be [52, p. 37].

Lightning is the sign of what man imagines it to be, personifying Zeus, and, whenever it is a question of setting up an institution, the rational man joins the primitive man, attributing the role of the legal person to presupposed, non-existent entities. *Scienza Nuova* thus opposes the philosophy of the language of Aristotle's *De interpretatione*, in the famous foundational passage, providing a theory of the fictive origin of each institution: "Words spoken are symbols or signs of affections or impressions of the soul; written words are the signs of words spoken." [3, p. 115].

The legal experience of the trial repeats this fictional ritual of the emerging of new knowledge from the action, every time it places a judge as a third party above the parties in the trial's cross-examination principle, grounded on topic and referred to a rhetorical truth [39]. It is not an ontological process producing legal knowledge, but only fictionally ontological, yet productive of effects. Aristotle, as noted by Derrida [12], posits a direct and natural relationship between the object and its mental image, and a conventional and arbitrary relationship between the affection of the soul and the sound of the voice [11, p. 22, 48].⁴ While Aristotle recognized the dissimilarity between the affection of the soul and the sound of the voice, he postulated at the same time the naturalness of the relationship between object and affection, placing a direct relationship between being and thinking. Vico's theory of the institutions, on the other hand, moves from the recognition of proximity between the affection of the soul and the linguistic sign, radically distinguishing between the object and the affection of the soul, as specified by Cantelli [11, p. 39, 51, 26]. Alongside an Aristotelian theory [1, 5], law has always preserved an implicit theory

⁴ See, however, the critical perspective by Trabant concerning the reason why Derrida does not read Vico in a serious manner [48].

based on Vico's ideas in the mythical foundation of sociality in its ternary structure of the trial as an institution.

5 Brief Methodological Conclusions

Therefore, in analyzing the relationship between legal knowledge and semiotic knowledge concerning the rationality of the sign interpreter, the distinction between legal semiotics of legal philosophers and legal semiotics of semioticians appears a complex, daring, perhaps unauthorized and maybe “non-legal” line of research regarding the parameters of semiotic science. The project of a Vichian semiotic ‘new science’; as Trabant explicitly recognizes, is far from being complete, just on the point of its character of science (linked to the third Vichian era, that of men). It is more a critical point of view than a formalized, and formalizable, semiotic theory. How to imagine a semiotic theory not able to take a complete and systematic shape? The complex relationship between legal science and semiotic science, if analyzed from Vico's non-positivistic and formalist perspective, still appears to be little explored. However, it is possible to bring new perspectives, if not a real new Science, to contemporary semiotics. The provocation of a notion of a non-Peircean thirdness, sketched in the paper, has tried to testify the interest in the search for a renewed juridical semiotics to be understood as a new Vichian science.

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References

1. Amato, Massimo. 2010. *L'enigma della moneta e l'inizio dell'economia*. Napoli-Salerno 2.: Orthotes.
2. Anspach, Mark. 2002. *A charge de revanche. Figures élémentaires de la réciprocité*. Paris: Seuil.
3. Aristotle. 1938. *The Categories, On Interpretation, Prior Analytics*, London. Cambridge, Ma: Harvard University Press.
4. Aristotle, 2012. *Nicomachean Ethics*. In Robert C. Bartlett, and Susan D. Collins (eds/trans.), Chicago: The University of Chicago Press.
5. Azzoni, Giampaolo. (2008). *L'idea di giustizia tra il relativo e l'universale, in Torressetti, G. (a cura di), Diritto, politica e realtà sociale nell'epoca della globalizzazione*. Atti del XXIII congresso

- nazionale della Società italiana di filosofia politica e giuridica, Macerata, 2–5 ottobre 2002, Macerata: Università di Macerata (EUM).
6. Berlin, Isaiah. 1980. *Vico and Herder. Two Studies in the History of Ideas*. London: Chatto.
 7. Berman, Harold. 1983. *Law and Revolution. The Formation of the Western Legal Tradition*. Cambridge: Harvard University Press.
 8. Bobbio, Norberto. 1965. *Giusnaturalismo e positivismo giuridico*. Milano: Giuffrè.
 9. Bruni, Luigino. 2008. *Reciprocity, Altruism and the Civil Society. In Praise of Heterogeneity*. New York: Routledge.
 10. Campbell, Donald. 1974. Evolutionary Epistemology. In *The Philosophy of Karl Popper*, vol. I, ed. P.A. Schilpp, 412–463. La Salle: Open Court.
 11. Cantelli, Gianfranco. 1986. *Mente corpo linguaggio: Saggio sull'interpretazione vichiana del mito*. Firenze: Sansoni.
 12. Derrida, Jacques. 1967. *De la Grammatologie, Paris: Éditions du Minuit, On Grammatology, 1988*. Baltimore and London: John Hopkins University Press.
 13. Derrida, Jacques. 2001. *Donner le temps: La fausse monnaie*. Paris: Galilée.
 14. Dupuy, Jean-Pierre. 2013. *The Mark of the Sacred*. Stanford: Stanford University Press.
 15. Ezrahi, Yaron. 1990. *The Descent of Icarus: Science and the Transformation of Contemporary Democracies*. Cambridge, MA: Harvard University Press.
 16. Ezrahi, Yaron. 2012. *Imagined Democracies. Necessary Political Fictions*, Cambridge: Cambridge University Press.
 17. Giuliani, Alessandro. 1970. La giustizia come reciprocità (a proposito della controversia aristotelico-pitagorica). *Rivista trimestrale di diritto e procedura civile* 24: 722–756.
 18. Goodrich, Peter. 2014. *Legal Emblems and the Art of Law: Obiter Depicta as the Vision of Governance, 2014*. New York: Cambridge University Press.
 19. Hayek, Friedrich. 1952. *The Pure Theory of Capital*. Chicago: University of Chicago Press.
 20. Hayek, Friedrich. 1973. *Law, Legislation and Liberty: Rules and Order*, vol. 1. London: Routledge.
 21. Hayek, Friedrich. 1976. *Denationalisation of Money*. London: Hobart.
 22. Hayek, Friedrich. 1988. *The Fatal conceit. The Errors of Socialism*, ed. W.W. Bartley. London: Routledge.
 23. Hénaff, Marcel. 2002. *Le prix de la vérité: Le don, l'argent, la philosophie*. Paris: Seuil.
 24. Hénaff, Marcel. 2012. *Le don des Philosophes. Repenser la réciprocité*. Paris: Seuil.
 25. Heritier, Paolo. 2012. *Eстетica giuridica*. Vol. 2, *A partire da Legendre. Il fondamento funzionale del diritto positivo*. Torino: Giappichelli.
 26. Heritier, Paolo. 2018. Provvedenza Vichiana e metodo clinico legale della Terzieta. *Teoria critica della Regolazione sociale* 1: 114–139.
 27. Hodgson, Geoffrey. 2001. *How Economics forgot History: The Problem of historical Specificity in Social Sciences*. London, New York: Routledge.
 28. Hodgson, Geoffrey. 2003. The hidden persuaders: institutions and individuals in economic theory. *Cambridge Journal of Economics* 27: 159–175.
 29. Hodgson, Geoffrey. 2006. What Are Institutions? *Journal of Economic Issues* 40 (1): 1–25.
 30. Hodgson, Geoffrey. 2015. On defining Institutions: Rules versus Equilibria. *Journal of Institutional Economics* 11 (3): 497–505. <https://doi.org/10.1017/s1744137415000028>.
 31. Kantorowicz, Ernst. 1957. *The King's Two Bodies: A Study in Mediaeval Political Theology*. Princeton: Princeton University Press.
 32. Kelsen, Hans. 1967. *Pure Theory of Law*. Berkeley: University of California Press.
 33. Kojève, Alexander. 2000. *Outline of a Phenomenology of Right*. London: Rowman & Littlefield.
 34. Legendre, Pierre. 2009. *Leçons IX. L'autre Bible de L'Occident: le Monument romano-canonique. Étude sur l'architecture dogmatique des sociétés*. Paris: Fayard.
 35. Marion, Jean-Luc. 1997. *Étant donné: Essai d'une phénoménologie de la donation*. Paris: PUF.
 36. Mauss, Marcel. 1950. *Essai sur le don, Paris: P.U.F. The Gift. The Form and Reason for Exchange in Ancient Society*, trans. London, New York: Routledge. 1990.
 37. Mooney, Michael. 1985. *Vico in the Tradition of Rhetoric*. Princeton: Princeton University Press.
 38. Palerm, Gloria. 2002. Discovery versus Creation: Implications of the Austrian View of the Market Process. In *A Modern Reader in Institutional and Evolutionary Economics Key Concepts*, ed. Geoffrey Hodgson, 49–62. Cheltenham, UK Northampton, MA, USA: Edward Elgar.
 39. Perelman, Chaïm. 1973. *New Rhetoric. A Treatise on Argumentation*. Notre Dame: University of Notre Dame Press.

40. Polanyi, Karl. 1957. Aristotle Discovers the Economy. In *Trade and Market in the Early Empires: Economies in History and Theory*, ed. K. Polanyi, C.M. Arensberg, and H.W. Pearson, 64–94. Glencoe, IL: Free Press.
41. Popper, Karl. 1972. *Objective Knowledge. An evolutionary Approach*. Oxford: Clarendon.
42. Popper, Karl, and John Eccles. 1977. *The Self and its Brain. An Argument for Interactionism*. Berlin: Springer.
43. Sequeri, Pierangelo. 1996. *Il Dio affidabile*. Saggio di teologia fondamentale, Brescia: Queriniana.
44. Sequeri, Pierangelo. 1999. Dono verticale e orizzontale: fra teologia, filosofia e antropologia. *Il dono*, 107–155. Edizioni Lavoro: Tra etica e scienze sociali, Roma.
45. Sequeri, Pierangelo. 2002. *L'umano alla prova: Soggetto, identità, limite*. Milano: Vita e Pensiero.
46. Trabant, Jürgen. Vico. 2005. Mére et maître de Michelet. Introduzione di Jean-Patrice Courtois. In *Donner à penser*. Jean Starobinski, Jean-Luc Marion, Marian Hobson, Roger Pol Droit, Jürgen Trabant, Pascal Quignard, Giorgio Agamben, 3524, EBook. Paris: Seuil, Centre Roland Barthes.
47. Trabant, Jürgen. 2004. *Vico's New Science of Ancient Sign*. London: Routledge.
48. Trabant, Jürgen. 2019. *Giambattista Vico. Poetische Charaktere*. Berlin, Boston: De Gruyter.
49. Verene, Donald P. 2004. Foreword, in Trabant, Jürgen. *Vico's New Science of Ancient Sign*. London: Routledge.
50. Vico, Giambattista. 1708. *On the Study Method in our Time*, trans. T. Gianturco. Ithaca, N. Y.: Cornell University Press (1970).
51. Vico, Giambattista. 1720. *Opere giuridiche. Il diritto universale*, a cura di P. Cristofolini. Firenze: Sansoni (1974).
52. Vico, Giambattista. 1744. *La scienza nuova. Le tre edizioni del 1725, 1730, e 1744*, a cura di V. Vitiello e M. Sanna, Milano 2012, (The New Science. Translated from the third edition by T.G. Bergin, M.H. Fisch, Ithaca, N. Y.: Cornell University Press, 1968).

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