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“Identity-Based” and “Diversity-based” Evidence between Linear and Fractal Rationality

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Abstract: I identify two types of evidence: one based on “linear” rationality (LR) and the other based on “fractal” rationality (FR). For LR, evidence depends only on systematic coherence, and all other sources of knowledge (intuitive, perceptive, symbolic, poetic, moral, etc.) are marginalized. For FR, evidence requires an approach more adherent to the “irregularities” of life. LR philosophically entails a Neoplatonist and Cartesian account on identity, whereas FR entails Plato’s account on identity *and* diversity as coessential.

Keywords: Cartesianism, diversity, fractality, identity, legal argumentation, legal reasoning, Neoplatonism

1. Starting with an anthropology rather than a theory

What do we talk about when we talk about argumentation? It would be easy to start a discussion on evidence and persuasion by taking into account some “grand narratives”, to quote J. F. Lyotard (1984) on the role of reasoning and speech in finding an agreement about the evidence of an object of proof, both privately and publicly. But this is exactly what we should not do when talking about evidence and persuasion in contexts characterized by inevitable diversities. I mean, the risk is to look at the state of the art always from a dominantly theoretical point of view, when the previous choices regarding the reference theory have already been made. These choices imply, in fact, an argumentative commitment which should in turn be justified, pushing us into the closed alley of a regress to infinity. For this reason it would instead be more profitable to take into consideration the *anthropological* conditions in which individuals act and theorize.

When we consider whatsoever issue, we always consider it from a here-and-now, concrete situation characterized by an overlapping of individuals’ beliefs, which are produced by inner activities, and are expressed by reasonings, feelings, and ethical standards. Thus, when we maintain that the relation between evidence and persuasion depends on the underlying theory of knowledge, we should clarify what kind of anthropology we are dealing with in regard to space, time and conditions.

Something could be assumed as ‘evident’: (i) either as a proposition which is valid according to a certain account on logic – typically, as a coherent deduction from some premises; or, (ii) as a fact ascertained by empirical tools (from the Latin *evidens = ex + videre*, [knowing by seeing]) – as occurs with the so-called scientific evidence. Both (i) and (ii) are current interpretations dating back to the origins of the modern age, and both fit very well with a rationalist anthropology. But in the light of a different anthropology – as the one common to Plato and Aristotle – evidence could also be provided (iii) by some speech procedures connected to *pistis* (and not only to *episteme*), as it is the case with dialectics, whose premises are neither axioms nor experimental standards (“protocols”) but widely influential arguments well known to all experts in the matter (*endoxa*).

In cases (i), (ii), and (iii) persuasion is *not* necessary or, at most, it is a character intrinsic to truth itself (a point I will explain better, shortly). Persuasion becomes necessary when such means (analytical demonstrations, experimental tests, and dialectical – “critical” – discussions) cannot work. This happens when no stipulative conditions are available or when agreement on premises is

lacking for various reasons. In those moments, the floor is open to the “likely” (*eikos*) – that is, for Aristotle, what can be otherwise than it is – and the appeal to effective (i.e. persuasive) grounds for evidence is strictly required (*Rhet.* I.2,1357b).

What changes in this case, in comparison to the previous (i), (ii), and (iii) cases, is the presence of a concrete (and *therefore* possibly unskilled or slightly interactive) audience: an audience who does not share stipulations, empirical knowledge, or the expert’s commonplaces (*endoxa*). This is a typically *rhetorical* situation – case (iv) –, which was familiar to a non-individualist and non-rationalist anthropology like the one of the Greek *polis* with its *agora*.

2. A reasoning for the irregularity of life

In a recent article, C. Tindale alludes to “linear rationality” as something that “isolates actions into points in a sequence and fails to treat them as issuing from lives in which values and beliefs are integrated in complex webs” (p. 15).¹ In other words, a kind of rationality claiming for neutrality and impartiality, (i.e. absence of valuable choices), that is taken, contradictorily, as a valuable choice. This has always been the line for modernity, which broke out with Cartesianism, and known well by Plato and Aristotle.

Of the two, especially the first criticized, such choice-not-to-choose if intended as the only authentic form of knowledge. In his dialogue with Meno, for instance, the Athenian makes possible for a young slave to demonstrate (a version of) the Pythagorean theorem, giving him only some simple axioms and a minimum method. Plato’s intention was to show how geometry, which does not seem to imply discussion on values, is an elementary (though useful, of course) form of knowledge as well to show how dialectics is, conversely, a higher form of knowledge, capable of sustaining epistemic demonstrations like the Pythagorean, even with uneducated people. Interestingly, in his *Republic*, Plato (according to Heidegger) deals with two meanings of truth: as *orthotes* (linearity) and as *aletheia* (revelation),² implying another means, apart from deductive coherence, through which to provide evidence.

We can therefore assume that in classical theories, analytical demonstrations (*apodeixis*), which are described as linear (*orthos*), do not exclude or marginalize other kinds of reasoning which are not linear. The nonlinear reasonings – as it has been specified by Aristotle in some of his works³ – are the ones coming from *pistis* (trust), like dialectics and rhetoric (Piazza, 2011). Trust then depends on the concrete *Lebensform* (Wittgenstein, 1958; Boncompagni, 2011) in which a discussion takes place. According to Tindale, nonlinear rationality springs from “a system of managed diversity” (as he defines the “form of life”) (p. 16). We could say that nonlinear rationality fits with situations in which stipulations and expert knowledge are not on hand, whereas linear rationality works only with abstract objects in abstract contexts.

My intention is to use a term (and a concept) antagonistic to that of Tindale, to designate an intellectual activity capable of capturing the roughness of *Lebensformen* with all their possible diversities and disagreements. The term I would like to propose here is “fractal rationality.”

According to the *Encyclopaedia Britannica*,

Fractal, in mathematics, [is] any of a class of complex geometric shapes that commonly have “fractional dimension,” a concept first introduced by the mathematician Felix Hausdorff in 1918. Fractals are distinct from the simple figures of classical, or Euclidean, geometry – the square, the circle, the sphere, and so forth. They are capable of describing many irregularly

¹ To be published in the proceedings of *ECA Groningen 2019 Conference*. Quotations are from the paper presented on the occasion of the conference.

² A distinction somewhat stressed also by Augustin of Hippo (1995), when talking about *veritas connexionum* and *veritas sententiarum* (II.34).

³ I owe much of my knowledge about Aristotelian logic and practical philosophy to the influential studies of E. Berti. For a first overview on them (in English) see Natali, 2011.

shaped objects or spatially nonuniform phenomena in nature such as coastlines and mountain ranges. The term *fractal*, derived from the Latin word *fractus* (“fragmented,” or “broken”), was coined by the Polish-born mathematician Benoit B. Mandelbrot etc.

This divide between an Euclidean perspective that conceives only regular shapes, and a fractal one that manages all irregularly shaped objects,⁴ is precisely the turning point of my argument on rationality and its connection with evidence and persuasion, which I try to clear up in the following section.

3. The privilege of regularity: A short history

Once distinguished and named, these two species of rationality, i.e. linear and fractal – or to say better these two different attitudes towards reasoning – I would like to refer to previous studies of mine focused on the origin of “systematic thought” in Western legal philosophy (Manzin, 2008). I do this because the exclusive preference for linear rationality (*episteme*) and the subsidiary contempt for reasoning based on trust (*pistis*) is deeply rooted in the history of Western thought. This section of my paper will therefore provide a (necessarily) brief overview on how the privilege of linearity broke off the fractal tradition of dialectics and rhetoric that dated back to the ancient *paideia*.

The privilege of “systematic thought” is a consequence of the success gained by the later developments of Platonism (so-called Neoplatonism), due to the reception of Plotinus’ theories (203/205 - 270 AD) and the drafting of *The Enneads* made by his favorite pupil, Porphyrius (233/4 - ?305 AD).⁵ According to the philosophical accounts, which were worked out by the many scholars who followed Neoplatonic teachings, *identity* and *unity* should be considered the golden standard for knowledge. All visible and invisible things, which seem *prima facie* to be different and many, should be regarded as parts of a whole that, in its being, forms an absolute and perfect “One.” The search for identity and unity – maybe a counterpart of the real historical situation, characterized by the fracture of Roman political and civil institutions and by a growing sense of incertitude – became the way to the supreme ideal for a great number of philosophers.

In the fifth century AD, when joining the Neoplatonic Academy of Athens, Proclus (412 - 485 AD) picked up the inheritance of the *diadochoi* (“successors” – as the Neoplatonists called themselves) and developed it in his most influential work: *Elements of Theology*, where the One (*en*) stays at the top of a universal hierarchical triadic system that incorporates, under the pure essence of God (identity of the One to itself), all the other ranks of being (“elements”), either visible or invisible. In “systematic thought,” each element is linked to the other according to a continuous ascending or descending line, leaving no room for interruptions or fractality – an expression of a sort of *horror vacui*.

After the closing of the Academy of Athens (529 AD), ruled by Christian emperor Justinian the Great, the privilege of linearity and identity did not cease; it was simply translated into orthodox Christian terms, thanks to the work of a mysterious writer who named himself Dionysius the Aeropagite, pseudonym of a Syrian author of the fifth or maybe sixth century AD. The *Corpus Dionysianum* (or *Corpus Aeropagiticum*) spread widely throughout the byzantine empire, but it was “discovered” in Western Europe only after its translation into Latin by John Scotus Eriugena in the eighth century AD. Thanks to Scotus’ translation (and much later thanks to the *Liber de causis*), Dionysian paradigm of hierarchical order gradually became a normative one in philosophy, theology, and law, as it can easily be ascertained looking at the Scholastic tradition – once again, maybe as a counterpart of the real historical situation, dominated by the struggle between ecclesiastical and political powers.

⁴ On “non-Euclidean” reasonings in legal argumentation: Manzin, 2018.

⁵ In my book (2008) I have pointed out to what extent and fidelity Porphyrius did so.

Such obsession for linearity and order in a world of diversities and conflicts is symptomatic, and let us suppose whenever an era is felt as one of dramatic change and discontinuity, people (it does not matter if learned or not) are inclined to prefer a thought capable of reassuring against the unpredictability of events.

This is the case of Descartes (1596 - 1650), who maintains that the rising of doubts (discontinuity) must be the starting point of a process of analytical decomposition of the complex elements into simpler ones, and of their successive composition into a deductive *linear* chain (continuity). Descartes' *grand récit* pushed dialectics and rhetoric (i.e. fractal rationality) out of the stage of 'authentic' knowledge, relegating them to mere literature. After Descartes, and until quite recent times, notwithstanding the fierce opposition of some isolated authors (the Neapolitan G. B. Vico [1668 - 1744] first and above all), Cartesian narrative and the paradigm of linear rationality dominated the epistemological landscape of Western thought for centuries, creating a gap between the "two cultures" (Snow, 2012) – in my terms, the linear ("Science" with capital initial) and the fractal (the humanities).

4. Identity vs difference (and a third way)

It could now be of some interest to know that the authors in favor of what I have called fractal rationality – starting with Plato himself – did not oppose difference and multiplicity to identity and unity. This point is delicate and deserving of further depth.

It is notorious that Plato put logic based on *pistis* (and especially dialectics) alongside science based on *episteme*, depending on the premises provided for the discussion. This option for complementarity, which avoids an absolute divide between linear rationality and other kinds of speech activities, is rooted in Plato's account against dualism, as reported in his *Sophist*. In this dialogue, the Athenian criticizes his juvenile preference for a strict separation between being and not being, that he had inherited from Parmenides' traditional doctrine, by saying that "in a certain sense not-being is, and being, on the other hand, is not" (*Soph.* 241d). Plato establishes the coessentiality of identity and difference as a basis for his metaphysics, a basis that turns out to be the very antidote to every form of radical dualism (as Gnosticism, for instance), and specifically to the separation between *episteme* (based on deduction from 'self-evident' premises) and *pistis* (based on confrontation between opinions).⁶

To give a fairly trivial example, saying that A is not B (difference) helps to determine that A is A (identity or sameness). In other words, after Plato's "parricide," not being *pros eteron* (compared to the other) will no longer be a matter of absolute opposition among A and B, C, or those following but, rather, a matter of confrontation finalized to the best determination of what A really is. With the appreciable consequence that, instead of building walls between identities we can face all possible opinions about A without fear of negation, saves this way to value of relation.

The Platonic crucial idea of the coessentiality of identity and difference can also be understood in the light of the contradictory account of the 'two principles' (*archai*), typical of every dualism, according to which there are two opposite principles: the one of being and the one of not being, both to be intended as separate and incomparable among each other. The contradiction lays in the evidence that, if each of them is principle of something, none is actually *the* principle: there would, in fact, be a principle by virtue of which A is A (being), and another principle by virtue of which A is not A (not being), whereas a principle is a principle if by virtue of it *all* things – and not only *some* – are. Then to be *the* principle it must take into one either

⁶ According to this kind of dualism, knowledge based on *episteme* is always true, while the one coming from opinions is always false. In this sense, whatsoever act of persuasion is irredeemably deceptive.

identity (of A to A) or difference (of A from $\neg A$).⁷ This is the reason Plato rejects the supremacy of identity without rejecting identity itself.

An idea which will be broadly – and under many aspects better – developed by his pupil Aristotle, who would assign a very particular role to the principle of non-contradiction and put dialectics and rhetoric (both coming from *pistis*) alongside analytics (coming from *episteme*) is a means capable of managing the difference of opinions in dialogical situations and public discourse.

What is relevant for me at this point of my discussion is to stress the existence of two different accounts on rationality – the linear and the fractal – which have remote origins in the history of philosophy. The linear is based upon the overestimation of mere identity ($A=A$), while the fractal is based upon the appreciation of the coessentiality of identity and difference ($A=A$ and $A\neq\neg A$). To be shorter, I will hereinafter refer to the latter as the one of “diversity.”

5. Identity-Based and diversity-based evidence, and the role of persuasion

The approach based on diversity and the one based on identity coexisted in Western thought for centuries, although with fluctuating luck. The first one – the fractal – which is outlined above, was consciously or unconsciously rooted in a classic trend deriving from Plato and Aristotle, declined with modernity and survived only in a literary guise. The second – the linear – which is well represented by Cartesianism, ended up occupying the whole scene of ‘authentic’ knowledge, rapidly assisted by the power of technique (that it made possible).

If we accept this account on a divided rationality we should then also distinguish between “identity-based” and “diversity-based” evidence, as I mentioned in Section 1.

The identity-based evidence has a *concrete* nature, while diversity-based evidence is more *abstract* – abstract in the sense that the object of proof has to be ‘extracted’ from the living situation of the here-and-now, characterized by “a variety of forms of life that overlap and crisscross in a variety of ways” (Tindale 2019, p. 13), and shifted in a mental order where every shape is conceived as regular (to recall one of the founders of modern scientific thought, the Italian G. Galilei [1564 - 1642], an order in which we assume that “[the] great book [of nature] is written in mathematical language, and its characters are triangles, circles and other geometric figures”) (1957, p. 3).

“Identity-based” evidence, which is grounded on mere formal consistency of conclusions with respect to the premises, could hardly be intended, within a classical perspective, as something that implies persuasion in the proper sense of the word. According to Plato and Aristotle, it is possible to speak of persuasion only in relation with truth⁸ (it is notorious that they fought against Sophists’ relativism and their inappropriate use of speech techniques aimed at convincing people about every sort of opinion). For them, persuasion without truth is simply a deception – a “pseudo-persuasion” (Zadro, 1983) (Plato and Aristotle, for instance, complain the eristic use of syllogisms – *eristike technē* – by which an argument is presented as logic only to hide its propagandistic purpose [Plato, *Taeth.* 165d; Aristotle, *Soph. Ref.* 33.183b]).

As underlined by A. Zadro (1983), to understand the relation between persuasion and truth we should first take into account the two forms of Greek genitive – the subjective and the objective. In the case of subjective genitive, persuasion *of* truth means: the persuasion that spreads from truth itself, as it happens with mathematical demonstrations. In this case, evidence is a character of the premises (it comes *before*) that is “preserved” in the conclusions, if they are coherently deducted. This kind of persuasion can work only with expert people, for whom

⁷ Such an idea of *coessentiality* is well represented by the symbol of Tao, in which the white and the black areas are not rigorously separated; rather, a part of the one is inside the other.

⁸ On that recently, also see Rocci, 2017.

premises are clear by themselves ('self-evident'). In the case of objective genitive, persuasion of truth means "proper": persuasion *to* truth, in the sense that evidence is the outcome of an argumentative process (it comes *after*) and – consequently – the floor is open to the means of persuasion suitable for different types of audience (*psycagogia*).

This is exactly the purpose of rhetoric and implies that evidence on things can be achieved "in many ways" (*pollachos legetai*) (Arist., *Phys.* I.2, 185a; *Met.* IV, 1003a), and not exclusively through the demonstrations of experts. In other words, if "evidence" comes from the Latin *videre* (seeing), an object of proof can be seen differently with different eyes, as it occurs when more people discuss something in concrete situations, particularly in public contexts. There may be some who see above all with the eyes of the heart (*pathos*), others who are sensitive to the moral attitude of the speaker (*ethos*), and others who look more at the logical frame (*logos*). Thus persuasion has to be differently declined.

It is precisely the concreteness of the situations that brings into play the variety of means by which an object of proof can be assumed, given that every stimulus coming from outside is processed by individuals according to logic, feelings, and moral values interacting with each other (no need here to take out some recent neuroscientific discoveries about the so-called "system 1" and "system 2") (Kahneman, 2011; Damasio, 1994). With extreme care for the diversity of *psychai*, the pioneers of the fractal account deepened on the role of *ethos*, *pathos*, and *logos* in building arguments, providing a set of intuitive, perceptive, symbolic, poetic, and moral tools. Their guiding idea was that reasoning consists of a continuous adaptation to concrete situations and that nothing is more reasonable than the inevitable clashes among different opinions, especially when deciding what to do. In fact, they maintained that if reasoning needs to ascertain what counts as evident under the contextual aspect, it is not in order to 'neutrally' establish how things go on but to move from a certain state of affairs to another. This means that according to the fractal diversity-based account, knowing and making (quiet and motion, in Platonic terms) mutually implicate one another, and an agreement on something as 'evident' – provided by persuasion – is always oriented by some need to act, regardless of modern Hume's guillotine.

For the supporters of fractal rationality, evidence is often problematic and requires recourse as to what is defined today a "meta-analytical" approach. It is problematic because disagreements are *physiological* and not *pathological* (as they are considered in a linear mentality). Since the time of Heraclitus, *eris* (disagreement) has been interpreted as the *arche* (principle, origin) of *dike* (justice) (Fragm. 22b; 80 DK) meaning that difference of opinions is the basis on which people discuss what would be right or not right to do. No disagreement means, no search for truth, no reasonable interactions between individuals or groups of individuals, no need for persuasion, means, in the end, no *polis*.

We might wonder at this point what room would be left for persuasion, if not the only one guaranteed by the subjective genitive – the 'necessity' to admit as evident what spreads from truth itself in the eyes of undisputed experts. No need to say how undesirable it would be to live in a 'Perfect City' where all doubts were resolved by 'linear' experts like these.

6. Conclusion

I was wondering at the beginning what it meant, from the point of view of a theory of argumentation, to refer to evidence. It seems clear that something is evident when we are convinced that it is ultimately justified by a series of criteria (that also) we do share. These criteria do not belong to a hyperuranic dimension (we could only *claim* that they do), and their shareability depends on the concrete situation in which we operate and on the purposes on which we use these criteria to check if something is evident.

In this complex process of selection and application, rationality obviously plays a key role, together with other concurrent factors (perceptive, intuitive, aesthetic, moral, etc.) that integrate human knowledge. The relationship between these factors is, of course, not without its problems.

The thesis I have tried to argue here is that the rationality supporting evidence has been interpreted in the history of Western Philosophy in two different and opposing ways: The oldest is what I have defined as “fractal” and the modern is what C. Tindale (2019) effectively defined as “linear.”

According to my studies, they are not simply two equal and opposite kinds of rationality (the linear one based on the noetic supremacy of identity or sameness; the fractal one based on the noetic supremacy of difference). Instead, the linear one is a kind of rationality that assumes identity – and *only* it – as the unique and exclusive standard of perfection; whereas fractal rationality assumes *both* identity and diversity as co-essential. As I explained earlier (Section 4), fractal rationality was perfectly formulated by Plato when he committed his “parricide.” Linear rationality also has precedents in ancient Greek thought, but it triumphed on the world stage only with Descartes and his successors, becoming the dominant form of thought in the West.

The purely linear rationality eliminates the need for persuasion (and, therefore, the argumentation itself), and reduces evidence to the ‘self-evidence’ of formal demonstrations, which, however, have a totally abstract character. On the contrary, fractal rationality implies the need for persuasion since it organizes the most diverse discourses without presuming to have a ‘geometrically’ perfect model. It does not deny that argumentation must also proceed through simplifications, that is, reductions of multiplicity (diversity) to unity (identity); but it does deny that the unity achieved implies the definitive elimination of differences. In fact, fractal rationality admits the possibility of different forms of complexity reduction and, thus, admits different possibilities for reaching evidence, variable according to the concrete situation (which exists as a *fact* or, better, as a set of facts, and not only as mere interpretation).

Personally, I believe that it is necessary to overcome the rigid division between an exclusive linear rationality (science) and a fractal rationality that is, after all, very little rational (the humanities), since this *summa divisio* is totally internal to modern and Cartesian linear rationality. I believe, instead, that it is appropriate to cultivate the model of fractality in order to combine persuasion and rationality.

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