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RETHINKING THE HUMAN—THING RELATIONSHIP A CONVIVENCIA TOWARDS INTERDISCIPLINARY RESEARCH *

ABSTRACT: This article offers a critical re-examination of the human–thing relationship through an interdisciplinary lens, tracing the anthropocentric and deterministic assumptions that have shaped Western legal and scientific thought since the rise of modernity. The first part reconstructs the epistemological foundations of this worldview, rooted in seventeenth-century mechanistic science, which positioned the human subject as external to and sovereign over a passive, fully knowable world. This logic deeply informed the legal architecture of modernity, particularly through the doctrines of sovereignty and private property, which became central tools for asserting human control over the material world. The second part explores how this paradigm has been challenged by developments in contemporary physics—especially the relational ontology of quantum theory—as well as by anthropological and ethnographic research that reveals the co-constitutive nature of human and non-human agency. These shifts call into question the presumed neutrality and universality of legal categories. Drawing on the methodology of comparative law, the final part argues for a reorientation of legal thinking: away from abstraction and control, and toward a plural, situated, and relational model of normativity. In this light, law is no longer a neutral framework imposed from above, but a cultural practice embedded in material, ecological, and symbolic relations. The article concludes by proposing the notion of a convivencia of things as a heuristic for reimagining legal institutions capable of responding to the complexity of a shared, entangled world.

KEYWORDS: Epistemology of Modernity, Subject, Object Dualism, Quantum Paradigm Shift, Relational Ontologies, Comparative Law and Interdisciplinarity

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I. INTRODUCTION

The dominant narrative of modernity has long placed the human being at the center of the universe. In this vision, nature and society alike are seen as external realms over which humans, through knowledge and will, exercise control in pursuit of material ends and desires. This anthropocentric perspective has not only shaped the epistemological frameworks of modern science but has also deeply informed the structure of legal systems. However, a growing body of interdisciplinary research—from quantum physics to comparative law—is beginning to dismantle this narrative. What emerges from the process is a vision of the world, and of the legal order, as a dynamic, plural, and relational reality.

II. MODERNITY AS AN ANTHROPOCENTRIC ORDER

Modernity has been characterised by a narrative in which the relationship between humans and things is fundamentally hierarchical. At the heart of this configuration lies the presumption that the human subject stands outside and above the natural and social order, as the only being capable of quantifying, observing, understanding, measuring and ultimately mastering reality. This perspective has served as the conceptual cornerstone for an order premised on predictability, mastery, and control. The intellectual roots of this paradigm lie in the scientific revolution of the seventeenth century and its consequent understanding of reality. In the cosmology of Newton and Descartes, the universe was conceived as a vast and perfectly intelligible and deterministic machine[1]. This mechanistic worldview entailed a sharp epistemological division between the subject and the object: the observer and the observed. From Descartes' dualism and Newtonian physics, a model of reality emerged in which all phenomena were seen as determined, measurable, mechanistic, and reducible to causal chains.

This model did not remain confined to natural sciences but spread to knowledge at large. In the era defined as" modernity", it permeated all domains of scientific investigation, extending its influence on the social sciences as well. The result was an epistemic environment that favoured progressive domination of the human over the non-human: an order of

[1] René Descartes, *Discourse on the Method of Rightly Conducting One's Reason and of Seeking Truth in the Sciences* (first published 1637, Ian Maclean tr, Penguin Classics 2003). Originally written as an introduction to his scientific treatises (Dioptrics, Meteorology, and Geometry), the Discourse aimed to present a new rational method for attaining certain knowledge and to provide a philosophical foundation for the emerging modern sciences.

things emerged around the sovereign capacity of human agency to direct, shape, and govern reality. [2]

However, it was not a merely metaphorical extension. The very language of science—its metaphors of force, equilibrium, causation, and system—was transplanted into analyses of society and human behaviour. Human collectives came to be viewed as systems; their behaviours as determined by laws; their outcomes as predictable if properly measured. In this context, the idea of the autonomous, rational subject gained institutional form: the subject who, standing apart from the world, could model it, control it, and render it intelligible through increasingly sophisticated tools of measurement and administration[3].

Thus, the paradigm of the machine extended far beyond its original terrain. In its path, it reconfigured the status of things—not as interlocutors or participants in human life, but as neutral substrates to be acted upon. And it redefined the role of knowledge—not as situated or relational, but as the cumulative mastery of an external reality through abstract principles. The modern sciences, both natural and social, were thereby enlisted in a larger project: the rationalization of the world under the sign of human control.

III. LEGAL TRANSPOSITIONS: POSITIVISM, SOVEREIGNTY, AND PROPERTY

The diffusion of the mechanistic and deterministic model across the sciences did not spare legal thought. As disciplines internalised the epistemic grammar of modernity—founded on observation, classification, and control—law too redefined its relationship with reality. It did so by adopting a rationalist model of normativity grounded in clarity, systematisation, and formal coherence. Within this paradigm, the separation of humans and things—epistemologically inherited from Cartesian dualism—became the conceptual device that enabled jurists to transpose into the institutional framework of modernity the positivistic vision of the world as fully knowable, and thus fully governable.

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[2] As Michel Foucault explains, each historical period is governed by a specific episteme—a shared set of underlying assumptions that determine what can be known, how knowledge is structured, and what counts as valid explanation across all disciplines. See Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (Vintage Books 1970) 168.

[3] Émile Durkheim, *The Rules of Sociological Method* (William David Halls tr, Free Press 1982) 50. In this pioneering work, Durkheim explicitly argued that social facts should be studied "as things," applying the model of natural science to social phenomena. He sought objective, generalisable laws—mirroring Newtonian ideals of system, causality, and external observation.

Legal scholars actively contributed to the construction of a normative architecture capable of transforming things into objects. In this framework, private property emerged as the privileged device for structuring the relationship between humans and the material world—no longer a plural and historically embedded institution, but a relationship reimagined as one of dominion, use, and exclusion.[4]

This vision reached its most emblematic codification in the Napoleonic Code—particularly article 544—and was later systematised by the Pandectist tradition, which elevated private property to the apex of subjective rights.[5] Anchored in natural law justifications, especially Locke's labour theory, property was conceived as a natural extension of personhood and productivity[6], becoming the juridical expression of human sovereignty over the non-human.[7]

Its structural simplicity and its conceptual abstraction have determined the success of the property rights paradigm and the seeds of its rapid diffusion.[8] Detached from specific social or material contexts, the proprietary form could circulate across legal traditions, cultures, and economies, becoming the backbone of the market economy along which an impressive number of new situations were transformed by law into commodities[9]

Thus, private property—constructed as an exclusive, absolute right—became the dominant legal device through which modernity mediated the human–thing relationship. And in so doing, it prepared the ground for an unprecedented expansion of commodification: a process that extended property regimes to domains such as air, water, culture, genetic resources, and personal identity—realms which, by their very nature, resist being owned.[10]

IV. THE BIAS OF ANTHROPOCENTRISM

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[4] Antonio Gambaro, 'Ownership and Modern Legal Systems' in Antonio Gambaro and Alfredo Mordechai Rabello (eds), Essays on Italian Law (Giuffrè 2003) 23.

[5] James Gordley, 'Myths of the French Civil Code' (1994) 42(3) *American Journal of Comparative Law* 459.

[6] John Locke, *Two Treatises of Government* (Peter Laslett ed, Cambridge University Press 1988).

[7] Paolo Grossi, *La proprietà e le proprietà nell'officina dello storico* (Editoriale Scientifica 2006).

[8] Duncan Kennedy, 'Two Globalizations of Law and Legal Thought: 1850–1968' (2003) 36 (3) S*uffolk University Law Review* 631, 648 ff.

[9] Charles A Reich, 'The New Property' (1964) 73(5) *Yale Law Journal* 733.

[10] Ugo Mattei and Andrea Pradi, 'Property Rights: A Comparative Law and Economics Perspective in the Global Era' in Donatella Porrini and Giovanni Battista Ramello (eds), *Property Rights Dynamics: A Law and Economics Perspectiv*e (Routledge 2007).

Despite its pervasiveness, the anthropocentric stance that underpins modern legal and scientific rationality is far from neutral. It is a historical construct, rooted in the epistemological and political paradigms of early modernity, and carries with it a set of biases that limit its explanatory and normative reach.

On the one hand, this perspective fails to account for the paradigmatic transformation introduced by developments in contemporary physics—particularly the quantum turn of the twentieth century—which has fundamentally challenged the Newtonian worldview on which the anthropocentric order was built. In the classical model, the human subject stands outside of and above the natural world, capable of observing and determining it without interference. The insights of quantum mechanics have unsettled this position: reality is no longer conceived as fixed, linear, and separable, but as relational, indeterminate, and shaped by the very act of observation. In this framework, the observer is no longer detached but entangled with the system observed, undermining the metaphysical foundations of the subject-object divide.[11]

On the other hand, the anthropocentric model obscures the co-constitutive relationship between humans and things that characterised much of human history. It imposes a retrospective illusion of separation and mastery, ignoring that for millennia human agency has developed through mutual adaptation with the material environment. Recent advances in anthropology, ethnography, archaeology, and genetics[12] have revealed that human identity and social organisation are not pre-existing and autonomous, but rather emergent properties of situated relations with things—tools, land, animals, and built environments.[13]

From the earliest forms of collective appropriation and ritualised land use to the technical and symbolic infrastructures of agrarian and urban societies, the human has always been shaped by the non-human. Material culture is not a passive backdrop to human history, but an active force in its production, conditioning forms of perception, memory, cooperation, and conflict.[14]

V. THE QUANTUM TURN: FROM MECHANISM TO NETWORK

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[11] Werner Heisenberg, *Physics and Philosophy: The Revolution in Modern Science* (Harper & Row 1958).

[12] Luigi Luca Cavalli-Sforza, *Genes, Peoples and Languages* (Penguin Books 2000).

[13] Ian Hodder, *Entangled: An Archaeology of the Relationships between Humans and Things* (Wiley-Blackwell 2012).

[14] Tim Ingold, *The Perception of the Environment: Essays on Livelihood*, Dwelling and Skill (Routledge 2000).

Quantum physics and relativity are cornerstones of what is often termed modern physics[15]. The effects of both theories can be very weird compared to our everyday understanding of the world around us – as beautifully illustrated by G. Gamow's Mr Tompkins series[16]. Simply put everything is relative. The weirdness introduced is that of a perspective, that of probability, of extreme observer subjectivity in interactions and lack of objectivity, and that change is observed, not stasis. These all cry out against naive expectations for how things work, like Einsteins "god does not play dice"[17] protest against the randomness of quantum mechanics and its wave mechanics implying probability fields describing objects, until they are observed.

In the well-known thought experiment of Schrödinger's cat[18] conceived in a time more permissive of animal cruelty, the cat in the box is considered neither alive nor dead until it is observed: instead, the interpretation is that the cat exists in a superimposed state—both dead and alive simultaneously—until observation resolves its state. A less frequently considered perspective is that the cat likely believes it is alive until it is not, after which it's unlikely to think.

This scenario vividly illustrates the stark contrast between quantum physics concepts and our everyday experiences. The analogy aims to convey that the quantum world is best described as a series of probability fields, indicating the likelihood of an entity being in one place or another. These probability fields can be represented by wavefunctions, which "collapse" into a discrete solution upon observation, manifesting as a particle or object. This collapse implies a discrete interaction, suggesting that we perceive interactions or changes rather than stability; we observe only change.

This focus on observing change offers an interesting perspective on the classic philosophical question: "If a tree falls in a forest and no one is around to hear it, does it make a sound?"[19]

This wave-particle duality pervades the quantum physics description. The Standard Model, our most comprehensive fundamental description

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[15] Richard Phillips Feynman, Robert Benjamin Leighton and Matthew Sands, *The Feynman Lectures on Physics: Volumes I, II, III* (New Millennium edn, Pearson/Addison-Wesley 2006).

[16] George Gamow, *Mr Tompkins in Wonderland* (Cambridge University Press 1940).

[17] Max Born, *The Born–Einstein Letters: Correspondence between Albert Einstein and Max and Hedwig Born from 1916–1955, with Commentaries by Max Born* (Macmillan 1971).

[18] Erwin Schrödinger, 'Die gegenwärtige Situation in der Quantenmechanik' (1935) 23 *Die Naturwissenschaften* 807–812, 823–828, 844–849.

[19] George Berkeley, *A Treatise Concerning the Principles of Human Knowledge* (Oxford University Press 1998).

of the universe—encompassing the strong, weak, and electromagnetic forces but not yet including gravity—exhibits both wave and particle characteristics. It includes a quantum field theory description—the Standard Model equation, which could be viewed as our current best attempt at an equation of "life, the universe, and everything"[20]—and a particle description, consisting of 12 particles, their corresponding antiparticles, and 5 force-carriers.

In this framework, the field defines the probability of a particle being at a certain point. A particle is essentially a collapsed wave function. The field materializes into a particle upon interaction, i.e., when it is observed. Thus, what you observe depends on your perspective.
Moreover, the manner and energy with which you observe the field can reveal finer details[21]. Again, observation is subjective.

This underscores the centrality and significance of observation, a subjective process that influences the system. Without affecting the system, even slightly, there can be no observation. We inhabit a subjective world.

It has been noted that this perspective might represent a return to the centrality of humans in the world—not as the center of the universe, but as the center of a subjective universe based on observation[22].

This complementary reframing offers opportunities for new perspectives[23]. Can this centrality and language be useful from an anthropological or legal perspective, not just a physical one?

While the scientific revolution inaugurated by Descartes and Newton introduced a mechanistic worldview grounded in determinism and separability, it also entrenched a sharp epistemological divide between subject and object—between the observer and the observed. This division enabled the human subject to place itself outside the system, assuming the role of a neutral observer capable of decoding and mastering the universe conceived as a vast, intelligible machine. Reality, under this paradigm, was presumed to be composed of discrete, stable "things," governed by universal laws and independent of perspective.

The quantum turn dismantles this edifice. At its core lies a radical

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[20] Douglas Adams, *Life, the Universe and Everything* (BBC Books 1982).

[21] Richard Hall-Wilton, *Diffractive and Non-Diffractive Charm Production in Deep Inelastic Scattering at HERA* (PhD thesis, University of Bristol 1999).

[22] Sara Hejazi, 'Awe of Displacement: Recentering Humans in a Post-Quantum Era' (2025) 26 *Annali di Studi Religiosi* 237.

[23] Sara Hejazi, Richard Hall-Wilton and Massimo Leone, 'Introduzione' (2025) in Richard Hall-Wilton, Sara Hejazi and Massimo Leone (eds), *La rivoluzione quantistica. Fisica, antropologia, religione* (2025) 80(1-2) *Humanitas*.

shift of metaphor: from understanding the world as a machine to conceiving it as a network of relations, interdependencies, and probabilities. In this new paradigm, the very question "what is a thing?" becomes destabilized. Quantum physics reveals that matter is not fixed, and that the identity of "things" is contingent on how, and at what scale, we observe them. The closer we look, the less solid our objects become. Instead of discrete entities, we encounter wave functions, fields of potentiality, and thresholds of probability. What appears as a "thing" at one scale dissolves into interactivity at another. This shift undermines the illusion of objectivity. Observation is no longer a passive act, but an event that collapses potential into actuality; the observer and the observed are entangled in the emergence of the phenomenon itself. We do not observe things—we observe change. What becomes visible is not an inherent property of the object but a consequence of the act of observation, shaped by position, energy, and intention. In this sense, the universe is not a static tableau of facts waiting to be discovered but a dynamic unfolding in which the observer plays a constitutive role. Subjectivity, far from being a flaw in knowledge, is revealed as its necessary condition.

This paradigm shift does not simply return the human subject to the center—it repositions them within a subjective universe, where perception, entanglement, and relationality become the core principles of intelligibility marking a radical departure from the anthropocentric illusion of mastery.

VI. THE CONVIVENCIA OF THINGS

Continuing with the physics perspective, and thinking about the description of things: is "A rose is a rose is a rose"[24], i.e. the law of identity or "are things what they are"?[25] Looking at the world around us, where materials and objects seem rigid, solid and well-defined, it might seem simple to concur with this statement as self-evident. Let's challenge this by taking different perspectives on objects[26], and seeing whether the scale of observation defines the thing observed.

To carry out this exercise - let's start with an object - that exemplar

[24] Gertrude Stein, 'Sacred Emily' in *Geography and Plays* (Four Seas Company 1922).

[25] Plato, *Theaetetus* (Robin Waterfield tr, Oxford University Press 2004); Gottfried Wilhelm Leibniz, *New Essays on Human Understanding* (Peter Remnant and Jonathan Bennett trs, Cambridge University Press 1981).

[26] Richard Hall-Wilton, 'What Can Quantum Physics Offer the Humanities?' in Richard Hall-Wilton, Sara Hejazi and Massimo Leone (eds), *La rivoluzione quantistica. Fisica, antropologia, religione (Humanitas* 80(1–2) 2025) at 11 ff.

rose of Gertrude Stein. The perspective can then be changed on this object by both zooming out and zooming in from the original perspective and see how the description of the key features of the object under observation changes with that change of perspective of scale.

Starting with zooming out from the scale of a rose - maybe 10 cm in size, to then observe it at the scale of the earth (diameter ca. 12740km), and the scale of the galaxy (87000 light years diameter) and the scale of the universe (observable universe ca. 93 giga light years).

At the scale of the rose itself (10cm), it is a living flowering plant[27]. It grows by obtaining energy from sunlight to produce sugars from carbon dioxide and water. Below ground it has roots; above ground, there is the thorny stem, leaves, and the attractive colourful flower which led to it being the example selected. Chemically, it contains a high fraction of water, is made of mainly carbon, hydrogen and oxygen, with a requirement for many other organic and inorganic nutrients to thrive, including nitrogen and potassium.

At the scale of the earth (ca. 13000km), there is the "blue planet", with about 70% of the surface covered by saltwater oceans[28]. The planet itself is a rocky planet with an iron (89%) and nickel (6%) core. The crust has a quite different elemental composition, by order of decreasing composition: oxygen (46%), silicon (28%), aluminium (8.3%), iron (5,6%), sodium (2.5%), magnesium (2.4%), potassium (2.0%), titanium (0.61%), everything else being <0.15%. This is strikingly different from the core elemental components for life.

Arriving at the scale of our galaxy (87000 light years diameter[29]), the Milky Way, it is a spiral galaxy. The thickness of the milky way is 1000 light years in the arms. At the centre of the galaxy is a supermassive black hole of 4 million solar masses (the mass of the sun). The chemical composition of the milky way is 74% hydrogen and 24% helium. This leaves 4% for all the other elements[30]. Also surprising is that the ordinary matter that can be observed seems to compose only 15% of the mass of the milky way. The other 85% of the mass cannot be observed - so called dark matter as it is invisible to light. It is a matter of great research interest to find and understand the nature of this dark matter[31].

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[27] Jennifer Potter, *The Rose: A True History* (Atlantic Books 2010).

[28] Tjeerd H van Andel, *New Views on an Old Planet: A History of Global Change* (2nd edn, Cambridge University Press 1994).

[29] A Light Year is the distance light travels in 1 year. It is 10 million million km (10^13 km).

[30] Malcolm S Longair, *Galaxy Formation* (3rd edn, Springer 2023).

[31] Matthias Bauer and Tilman Plehn, *Yet Another Introduction to Dark Matter* (Springer 2019)

The size of the observable universe is defined by the physical limit created by the speed of light, and the particle horizon created by this light. Beyond this nothing could be detected as the light could not have reached us yet. This size is about 93 giga light years. The median of the universe is empty; it is punctuated by massive galaxies and clusters of galaxies. Taking the overall properties of the universe, in the same way as was done for the milky way, about 5% of the universe is composed of the ordinary matter that we observe, another 25% is the dark matter of missing matter that is not observed. The remaining 70% is termed dark energy - it is energy, which our understanding of how the universe works tells us must be there, but we do not understand the nature of it yet. It is surprising that the vast majority of the universe is not understood as to what it is composed of [32].

Looking at the edge of this observable universe, on the particle horizon, is the cosmic microwave background. This is the first light that we can observe in the universe, 380000 years after the big bang. This light is at -3K which is -270 C. This is currently as far back as we can observe at the moment[33]. What we see when we observe a map of the temperature fluctuations in the cosmic microwave background is the fluctuations at this stage of the universe's development.

From the above, it can be seen that the description and view of the rose varies wildly as the scale is zoomed out. Performing this zooming in the opposite direction is similarly enlightening. In doing this, the exercise is nicely summarised by Jonatham Swift:

> *So, Nat'ralists observe, a Flea*
> *Hath smaller Fleas that on him prey,*
> *And these have smaller yet to bite 'em,*
> *And so proceed ad infinitum*[34]

Here again, starting from the scale of the rose (10cm), one can zoom down to the cell level (1-100um), observe life and death, DNA (6um), molecules and atoms (1A-10nm), subatomic (1A), subnuclear (1-10fm) and finally vacuum fluctuations.

The cell (1-100um) is the basic structure and functional division of life. It only becomes visible under a microscope. There are many different types of cells. There are 2 billion cells in a rose; 30 trillion in a human.

Life itself is a change of perspective! Looking at something alive or

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[32] Jorge Cham and Daniel Whiteson, *We Have No Idea: A Guide to the Unknown Universe* (Penguin 2017).

[33] Alessandra Balbi, *The Music of the Big Bang* (Springer 2007).

[34] Jonathan Swift, 'On Poetry: A Rhapsody' in Temple Scott (ed), *The Works of Jonathan Swift*, vol X (Blackwell 1902); Augustus De Morgan, A Budget of Paradoxes (Longmans, Green & Co 1872).

dead seems obvious as to its state - think of a beautiful full tree in a park in contrast to firewood or furniture. However, what is the breath of life is complex: defining life is difficult. Recently it was determined that there are>120 definitions of life[35]; none of them all encompassing or perfect.

DNA is often described as the genetic code for life. It is a double helix of identical information. It acts as long term genetic information storage. It is a few nm wide, but if stretched out would be very long - for a human 2m long. Inside a cell, it might be distributed across 6um in the nucleus of the cell. One of the key features of DNA is its replication; this is done by unwinding strands using molecular machines and using each strand as a template for the copy[36]. The fidelity of this replication is extremely accurate, with only a 1 in 10 million error rate. This error rate is key - too high, and successful competition and survival is endangered, but a finite error rate is what allows for the application of natural selection and evolution[37].

The atomic level (0.1nm or 1A) is the basic unit of the chemical elements. There are 118 chemical elements, 94 of which occur naturally on earth, the rest synthesised. The atom is a nucleus, with electrons circulating in bands around it. The typical cartoon image of the electrons in planetary orbits around a balls like nucleus is slightly misleading; the size of the nucleus is much smaller, and the electrons behaviour is better described by quantum mechanics; this can be thought of as probability bands for their wave formalism. Of these 118 chemical elements, life as understood thus far requires carbon, hydrogen, nitrogen, oxygen phosphorus and sulphur.

At the subatomic level, all common matter that is observed "everyday" is composed of protons and neutrons in the atomic nucleus, and electronics orbiting around that nucleus.

The protons and neutrons are themselves composite entities. The proton is composed of 2 up quarks and 1 down quark. The neutron conversely has two down quarks and 1 up quark. These quarks are "glued" together in the atomic nucleus by gluons, which are the force carriers or mediators of the strong nuclear force. These are believed to be fundamental particles in the standard model of elementary particles, which in its particle description contains 6 "flavours" of quarks, 3 leptons (electron, muon and tau) and their corresponding flavour of neutrinos.

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[35] Edward Nikolayevich Trifonov, 'Vocabulary of Definitions of Life Suggests a Definition'(2011) 29 (2) Journal of Biomolecular Structure and Dynamics 259.

[36] Peter M Hoffmann, *Life's Ratchet: How Molecular Machines Extract Order from Chaos* (Basic Books 2012).

[37] Richard Dawkins, *The Selfish Gene* (30th anniversary edn, Oxford University Press 2006).

All of the particles have corresponding opposite antiparticles. Interacting between the elementary particles are the force carriers of each of the fundamental forces: photon (electromagnetic force), gluon (strong force), Z and W boson (weak force) and Higgs (higgs field). The standard model is at the same time both simple (the number of fundamental particles fits on 1 page) and complicated in terms of a fundamental description of the universe. It is perhaps surprising that the everyday world observed contains only a small number of the total everyday particles[38].

The quantum nature means that what you observe depends upon how you look at it. For example, if you observe a proton, the energy of the particle interrogating it will determine what you "see" inside the proton. At the lowest energies it might just be the two up and one down quarks; at higher energies, it might be the gluons as well; at the highest energies, it is possible to resolve yet more gluons and fluctuations into other quark-antiquark pairs, such as charm quarks. It has been observed that at the highest energies, and with the shortest dimensions of the probes, there is up to 30% chances that the probe might interact with a charm quark[39]: a quark that does not natively exist inside the proton. This shows that at the quantum level, the observation is highly subjective and dependent upon the observer.

The above observation comes about due to Heisenberg's uncertainty principle: that you cannot know the position and momentum perfectly, and this allows gluons and quark-antiquark pairs to exist for short periods of time, borrowing energy from the vacuum. These quantum and vacuum fluctuations are what is observed at the smallest scale: temporary random fluctuation of energy at a point in space as allowed by Heisenberg's uncertainty principle. The shorter the time, the larger the energy fluctuation allowed. This means at the smallest scales of space there are particle-antiparticle pairs popping in and out of existence all the time[40].

That completes our quick tour of a rose by changing the perspective of the viewer. What is to be learnt? It matters how you view things: by taking various perspectives on things, the initial description of those things changes enormously. There is a joke describing that theoretical physicists

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[38] Brian Robert Martin and Graham Shaw, *Particle Physics* (4th edn, Wiley 2013); Jonathan Allday, *Quarks, Leptons and the Big Bang* (3rd edn, Taylor & Francis 2017).

[39] ZEUS Collaboration, 'Measurement of D*± Production and the Charm Contribution to F_2 in Deep Inelastic Scattering at HERA' (2000) 12 *European Physical Journal C* 35(DESY Preprint 99–101); Richard Hall-Wilton, *Diffractive and Non-Diffractive Charm Production in Deep Inelastic Scattering at HERA*(PhD thesis, University of Bristol 1999).

[40] Tony Hey and Patrick Walters, *The Quantum Universe* (Cambridge University Press 2003).

approach the world by approximating for example a cow as spherical[41]: here the nature of that rough description really changes the spherical description, depending upon the perspective and scale of the observation made. There is a degree of subjectivity to each observation.

This means that the scale of the observation matters. In turn so does the definition of things: that definition and the details matter. In terms of the scale of the observation, the scale of the perspective taken might be in space, time, energy or its state of life. Different perspectives and scales give different information on the same thing.

In summary - a rose is not a rose is not a rose. The identity that you observe is a function of the perspective taken on that thing or object. That means that the thing in question is from a physical point of view very much a "convivencia" of different descriptions based on different perspectives that it is possible to take towards that object. A fundamental singular description of an object is not possible; the perspective taken must be part of that description. This is a convivencia of things.

VII. FROM CHAOS TO COSMOS

Anthropological perspectives reveal that, from the very beginning, the human relationship with things has been animated by the drive to bring order to disorder—a cultural gesture through which rituals, myths, and material forms have given shape to shared worlds, turning chaos into cosmos.

Since ancient times, the concept of chaos has been used by humans to describe the primordial soup from which life emerged. Etymologically, the term derives from the Greek *Xaínō* / *Xáskō*, meaning "to be open wide," evoking an image of openness, multiplicity, and potentiality. Chaos has thus been associated with indeterminacy, the coexistence of parallel realities, and the raw, unstructured matter that preceded the emergence of its opposite: the kosmos—the ordered universe. In many cosmologies and foundational myths, chaos marks the beginning of time, the initial condition from which human existence departs in the direction of increasing order, structure, and civilization.[42]

This narrative—from chaos to cosmos—recurs across cultures and epochs. Anthropologically, human societies and religious traditions have

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[41] Albert O Williams Jr, 'Normal-Mode Methods in Propagation of Underwater Sound' in Vernon M Albers (ed), *Underwater Acoustics* (Wiley-Interscience 1970).

[42] Emilios Christodoulidis, 'Kosmos, Nomos, Physis, and the Concept of Liberal Democratic Law' (2021) 23(2) *Etica & Politica / Ethics & Politics* 481.

consistently performed the function of bringing order to chaos, not only externally, in the natural or social world, but also internally, within the human psyche. The myth of Gilgamesh, for instance, begins with a hero engulfed by tumultuous emotions and existential confusion.[43] Through trials and encounters with death, Gilgamesh gradually learns to accept mortality—embracing limitation, and thereby order—and eventually becomes a wise and just ruler. Similarly, in the Chinese creation myth of Pangu[44], the primordial chaos is imagined as an egg within which opposing forces are entangled. The giant Pangu separates these forces—Yin from Yang—thus creating the foundational distinction between heaven and earth and establishing the order of the universe according to cosmic time.

The impulse to structure, separate, and define—to impose a legible order upon an ambiguous, entropic beginning—has animated human symbolic systems throughout history. Across myth, ritual, philosophy, and social organization, the humanities and social sciences have long studied these cultural efforts to confront and domesticate chaos. Whether through cosmological narratives, ritual enactments, legal rules, or moral systems, the ordering of chaos remains a central axis in the formation of cultural meaning.

In this light, the entire human symbolic universe—institutions, knowledge systems, technologies, social formations—can be understood as a long attempt to impose order on the chaos of existence. For over 300,000 years, humanity has pursued the conviction that the universe, though initially obscure, could be rendered intelligible through discovery, error, sacrifice, and transmission. This belief has animated scientific endeavours as well, grounded in the assumption that reality, if sufficiently scrutinized, would yield to mastery. It promised that human beings might ultimately govern the forces that once threatened them, bending nature to will and designing futures with precision. These have been the foundational myths of modernity as well.[45]

But with the quantum revolution, this arc of human confidence encountered a fold in space-time. What was once imagined as the linear distance from chaos to order now appears as a loop: the chaos we believed to have overcome is no longer behind us, but before us. The age of

[43] Ajay Kumar Gangopadhyay, 'The Epic of Gilgamesh: A Saga of Humanism Mythified' (2020) 1(1) *New Literaria: An International Journal of Interdisciplinary Studies in Humanities* 96.

[44] Paul R Goldin, 'The Myth That China Has No Creation Myth' (2008) 56 *Monumenta Serica* 1.

[45] Sara Hejazi, 'Dal disordine all "ordine, e viceversa. L" antropologia incontra la fisica delle particelle' in R Hall-Wilton, S Hejazi e M Leone (eds), *La rivoluzione quantistica. Fisica, antropologia, religione* (Humanitas 80(1–2), 2025) 20ff.

determinism—where nature was predictable, time linear, and observation objective—has given way to an age of radical indeterminacy, non-locality, and entanglement. Suddenly, *chaínō*—the openness of chaos—returns not as origin but as horizon.

As physicists Leon M. Lederman and Christopher T. Hills put it in *Quantum Physics for Poets*[46], observers in the classical era were like aliens hovering above Earth, perceiving only the predictable motions of large crowds. Yet, when attention shifted to the level of the individual, unpredictability reigned—people laughed, loved, created things. What could not be deduced from the mass became visible only at the scale of the individual.

Sticking to the alien metaphor, early anthropologists, heirs to evolutionary hierarchies, approached other cultures as if traveling back in time. Primitive cultures did not represent the infinite variables of solutions that humans provided to the same universal questions. Rather, they were living pictures of the past, of how human communities were before great civilizations eventually occurred. So anthropologists were outsiders, observers from a more "advanced" stage of humanity studying the "primitive other." Like the physicists of their time, they believed in a subject who could observe a clearly defined object from a position of detachment. This alienation was not accidental—it was the foundation of the ethnographic method, of objectivity, of science itself.

For that type of anthropology, in short, going to study "the other" was not only a journey into the space of the exotic, but it was also a real journey back in time.[47] Anthropologists who travelled in space-time as astronauts without spacecraft were, after all, alien to the humanity they went to observe. This same alienation procedure was also familiar to physicists of the same period. For scholars of both disciplines, it was necessary and inevitable to place themselves "outside" their object of study, a process of alienation that was based on the observation of a clear and defined object by an equally delimited subject: if anthropologists observed a given humanity from the outside, so physicists observed a given nature from the outside.

And yet, this was one of modernity's great illusions: that the observer could be separated from the observed, that the subject and object were ontologically separate. The quantum turn has dissolved that boundary. As Lederman and Hills write again: "Because everything is made of

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[46] Leon M Lederman and Christopher T Hill, *Quantum Physics for Poets* (Prometheus Books 2011).

[47] Bronisław Malinowski, Argonauts of the Western Pacific: An Account of Native Enterprise and Adventure in the Archipelagos of Melanesian New Guinea (Dutton 1961).

atoms, including human beings, it is virtually impossible to escape the consequences of what happens at the atomic level. We have discovered an alien world, and that world is inside us." In this vision, the observer is no longer a distant alien—but part of the very field she observes.

Quantum mechanics has replaced certainty with probability, substance with relation, and the object with interaction.[48] At the subatomic level, distinctions between human, things, plant, and object dissolve; what remains is a web of interactions, a reality shaped by observation, perspective, and scale. The classical confidence in cause and effect, in linear history, in objective knowledge, has been displaced by an understanding that different rules may apply at different levels of reality—and that those rules are not simply hierarchical but entangled.

This shift resonates deeply across disciplines. Just as quantum physics undermines physical determinism, so too have anthropology, sociology, psychology, and law reached the limits of their own universalist ambitions. No single theory can exhaust the complexity of cultural variation, of individual behaviour, of human meaning-making. Reality is no longer a fixed object seen from a stable point, but a constantly shifting field, refracted through countless lenses.

Quantum mechanics has described reality as a field of interactions. At the subatomic level, there is no distinction between a human being, a plant and a table.[49] Quantum physics thus disillusioned a cultural apparatus that was based on certain certainties: for example, that the subject and the object could be distant and clearly separated; or, that the principle of cause and effect worked universally, in one hundred percent of cases. Scientific, cultural and historical determinism, on the other hand, has proved insufficient to describe reality, just as the great anthropological, sociological and psychological theories have never exhausted the profound reasons that explain cultural differences and the infinite variety in the behaviours, inclinations and choices of individual people.

In this sense, quantum physics has opened new openings in disparate areas: we have begun to consider that reality was a matter of scales, but no longer evolutionary, but perspective: reality changes depending on the point of observation. Cultural illusions of the possibility that an observation can be objective and universal have decayed along with a new awareness: different rules for different scales not only coexist, but

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[48] Leon M Lederman and Christopher T Hill, *Symmetry and the Beautiful Universe* (Prometheus Books 2004).

[49] Eric J Squires, *The Mystery of the Quantum World* (Taylor & Francis 1994).

constantly interact, as if the alien mentioned above took off a layer of green skin and showed its true face underneath. It is not a human face: it is human and alien at the same time and walks quietly on earth carrying with it a multiple nature.

Quantum physics has not only changed our scientific models; it has begun to reorient the humanities in considering the interaction between humans and objects and between humans and humans, as fields of energies[50]. From a quantum perspective, the universe exists only as a set of probabilistic states, which actualize within the limits imposed by the relationship between the observer and the observed phenomenon[51]. As such, the human-things relationship has undergone a profound metamorphosis: from a solid feeling of touch and objectivity, it shifted into the realm of probability and uncertainty.

For centuries, human cultures sought to tame disorder, shaping the world through systems of meaning. Within those systems lay not only an explanation of human existence but also of all that exists. The bond that tied humans and things had multiple strata: from practical aims to aesthetics, from power relations to social statuses. A knife was a tool, yes—but also a surface for signs, for memory, for care and for war. Things were never neutral—they were part of a constant process stemming from the coproduction between our species and its living or non-living, material and immaterial surroundings.

Today, as we are immersed in a continuum between online and offline, virtual and real, our relationship with things is being redefined. The objects we once mastered through knowledge of their mechanisms are now opaque, embedded in hidden infrastructures. Their logic is no longer visible. Their processes are distant. What once offered tactile intimacy now speaks in abstraction, through signals and protocols we don't fully grasp. This is not a novelty that shall be considered exclusively by anthropology and the social sciences.

Quantum thinking reveals why. Reality itself is no longer made of fixed units, but of relational fields, energy, and indeterminacy. Objects are not what they seem—they emerge through interaction. And the observer is no longer outside: we are inside the system, part of what we try to understand. This undermines the modern distance between subject and object, and with it, the old forms of control.

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[50] Radek Trnka and Radmila Lorencová, *Quantum Anthropology: Man, Cultures, and Groups in a Quantum Perspective* (Charles University Karolinum Press 2016).

[51] Arkady Plotnitsky, *Reality Without Realism: Matter, Thought, and Technology in Quantum Physics* (Springer 2021).

In this new landscape, the human-thing relationship must be reimagined from the anthropological perspective. We no longer stand before things—we are entangled with them. And so the humanities, too, must shift toward perspectival thinking, toward relational ethics, toward an imagination that sees in uncertainty not chaos, but potential.

Things are no longer what we use. They are what we become with. In the face of this transformation, we are called not simply to recover lost materiality, but to rethink the essence of the human in light of the matter and energy that underlie all things. If objects are fields of possibility shaped by observation, are we not the same? Is the human not also an unstable constellation of relationships, in constant becoming?

Such questions compel the humanities and social sciences to move beyond critique and toward ontological innovation. They demand new interpretive strategies—capable not only of navigating the politics and ethics of technology, but of imagining a renewed relationality, where understanding things might become, once again, a way of understanding ourselves.

VIII. LAW BEYOND MECHANISM: COMPARATIVE LAW AND LEGAL PLURALISM

As in other fields of knowledge, legal thought has not evolved in isolation. It has long mirrored the dominant epistemological paradigms of its time, absorbing and internalizing the assumptions embedded in wider scientific, philosophical, and cultural worldviews. Through the "tacit rules of discourse"[52] an implicit continuity has long been drawn between the natural order—as the structure of what exists—and the legal order—as the normative framework through which human coexistence takes shape. Law, in this sense, has served not merely as a tool of governance but as a cultural technology for translating prevailing visions of reality into institutional form.

The separation of humans and things has been the conceptual device that enabled jurists to transpose into the institutional framework of modernity the positivistic vision largely derived from Cartesio. This vision supplied the epistemic grammar through which legal order could be conceived and enforced. By turning the ideal of rational order into

[52] See Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (2nd edn, Routeledge 2001) at 183. 'In any given culture and at any given moment, there is always only one episteme that defines the conditions of possibility of all knowledge, whether expressed in theory or silently invested in a practice.'

a systematic and coherent body of norms, jurists came to believe that social reality could, and should, be reduced to an abstract and internally consistent framework. Over time, this approach solidified into a legal structure regarded as almost immutable—one that reflects the core ideology of positivism: the belief that law forms a hierarchical, self-contained order against which real-life situations can be objectively measured simply by knowing ex ante "what the law is." [53]

Such a construction rested on the claim that law was, or ought to be, a neutral and objective device for regulating social reality, grounded in scientific rationality and in the universal applicability of its categories, irrespective of historical contingency[54]. In this way, modern law came to present itself as an order legitimised by its own internal coherence: a conceptual grid that purports to interpret the world without being shaped by it, projecting onto society the image of a necessary and universal system governed by the laws of reason.

Just as the deterministic universe of classical physics was profoundly destabilized by the advent of quantum theory, so too this legal worldview has begun to unravel. The shift from Newtonian to quantum paradigms marks not merely a move from certainty to complexity, but a genuine epistemological rupture. The classical image of the universe as a deterministic machine, fully knowable from the outside by a detached observer, gives way to a relational and indeterminate cosmos.

Within this new frame, human agents are embedded in the very fabric of the systems they interpret; meaning emerges not from external description but from participation. Identity is no longer stable and universal, but contingent upon the position and scale from which the world is observed. The reality to which law responds is not a flat and neutral terrain but a multidimensional, shifting landscape shaped by historical, cultural, and institutional forces.[55]

This epistemological transformation undermines the very foundations of modern legal thought. Law does not appear as a fixed structure of abstract norms, but as a dynamic practice—an evolving form of social knowledge enacted through the lived experience of those who engage with it. From this perspective, it can no longer be seen as a sovereign

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[53] See P G Monateri, 'Black Gaius: A Quest for the Multicultural Origins of the "Western Legal Tradition"' (2000) 51 *Hastings LJ* 479, who shows how the canonical narrative of European law reflects a specific intellectual construction shaped by Cartesian rationalism and nineteenth-century scientific paradigms.

[54] Paolo Grossi, *A History of European Law* (Wiley-Blackwell 2010) 77ff.

[55] R George Wright, 'Should the Law Reflect the World? Lessons for Legal Theory from Quantum Mechanics' (1991) 18 *Florida State University Law Review* 855.

structure imposed from above. It is better understood as a symbolic form situated within the cultural and material life of society, shaped by the institutions, practices, and worldviews of those who inhabit it[56].

Through this view the positivist aspiration to subsume the whole of social life within a coherent normative system appears not only inadequate, but epistemologically blind to the plurality of forms through which human meaning takes shape. It conceals the cultural, historical, and political dimensions that continuously shape legal meaning, ignoring the complexity of cultural variation, individual behaviour, and evolving social practices—none of which can be fully captured by a single, abstract theory.

What appears to be a determined legal reality is often a projection of the standpoint from which it is observed. Just as a rose, under close inspection, dissolves into a dense web of structures, so too legal concepts reveal their internal fragmentation when examined up close. Coherence gives way to complexity, unity to plurality.

It is precisely this ideological closure that comparative law has long sought to challenge. Shifting away from abstract formulations and focusing to the concrete emergence of operative legal responses the comparative legal approach moved beyond the conception of law as a mechanical system governed by universally valid rules and instead explores how different legal systems respond to specific factual scenarios[57]. Comparative law invites us to see law not as the expression of a single, unified voice, but as the outcome of a complex dialogue between many different mechanisms: doctrines, institutional structures, models of interpretation, practical applications, and cultural patterns all contribute—each in their own way—to shaping the legal rule that ultimately governs a given situation[58].

Rather than being dictated from above by a single source, the legal rule emerges from this layered and dynamic interaction, which the comparative lens allows us to perceive more clearly. Just as the nature of a particle depends on how it is observed, so too law does not reveal itself through abstract reasoning alone, but through its entanglement with the

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[56] Clifford Geertz, 'Local Knowledge: Fact and Law in Comparative Perspective' in *Local Knowledge* (Basic Books 1983) 167–176.

[57] Rudolph B. Schlesinger, *Formation of Contracts: A Study of the Common Core of Legal Systems* (Oceana Publications 1968).

[58] Rodolfo Sacco famously termed these heterogeneous contributors to legal meaning 'formants,' borrowing from phonetics—where a formant is one of several resonant frequencies that together shape a sound—to stress that a legal rule arises from the combined resonance of multiple sources: see Rodolfo Sacco, 'Legal Formants: A Dynamic Approach to Comparative Law (1 & 2)' (1991) 39 Am J Comp L 1, 1–34 and 343–402.

social, political, and material realities in which it lives.[59]

Viewed from this angle, reality itself does not stand apart waiting to be discovered: it comes into being through relation, where meaning is not inherent in things or texts but takes shape through interpretive frameworks, institutional practices, and the concrete contexts in which law is lived.[60]

Comparative law plays a crucial role in rethinking legal meaning. It questions the positivist belief that law can be reduced to a single normative order and instead uncovers the plurality of legal solutions beneath the surface of apparent uniformity[61]. Rather than offering abstract coherence, law reveals itself as a layered and evolving practice, deeply entangled with the contexts in which it takes form. Within the same social space, multiple normative orders often coexist: state law, customary rules, religious norms, local agreements, and informal expectations may all claim authority—sometimes complementing one another, sometimes overlapping or even conflicting. This plural landscape shows that legal meaning is not dictated from above by a single source, but emerged through the interaction of diverse frameworks of legitimacy and interaction.[62]

Legal comparison becomes more than a classificatory method: it is a mode of inquiry that reveals the constructed nature of legal categories and the historical contingencies they embody. It does not simplify but it takes complexity for granted—highlighting pluralism of legal traditions.[63] Like the quantum microscope, the comparative lens are capable of detecting the layered texture of a seemingly solid object, it reveals that behind the surface of legal uniformity lies a dense weave of differentiated meanings,

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[59] The perspectival nature of legal reasoning—namely, that what appears as a determinate legal reality often reflects the standpoint and conceptual framework of the observer—was already articulated by Benjamin N Cardozo, who described judicial decision-making as an inescapably situated practice shaped by the judge's experiences and values: *The Nature of the Judicial Process* (Yale University Press 1921) 9–20, 166–167. This insight is later reformulated through the lens of modern physics by Laurence H Tribe, who, drawing on analogies with quantum theory, argues that legal determinations "warp" or shift depending on the observer's vantage point and interpretive frame: 'The Curvature of Constitutional Space: What Lawyers Can Learn from Modern Physics' (1989) 103 *Harv L Rev* 1, 6–7.

[60] See Fritjof Capra and Ugo Mattei, *The Ecology of Law: Toward a Legal System in Tune with Nature and Community* (Berrett-Koehler Publishers 2015).

[61] Rudolph B. Schlesinger, *Comparative Law: Cases–Texts–Materials* (5th edn, Foundation Press 1988) Ch. 7 where he stated that 'Comparative law enlarges the perspective beyond doctrinal formalism to include diverse legal cultures, thereby exposing the plurality of legal solutions beneath apparently uniform bodies of law'.

[62] Ugo Mattei, '*Three Patterns of Law: Taxonomy and Change in the World's Legal Systems*' (1997) 45 *American Journal of Comparative* Law 5.

[63] Günter Frankenberg, 'Critical Comparisons: Rethinking Comparative Law' (1985) 26 *Harvard International Law Journal* 411.

inherited assumptions, and situated practices. Law, in this light, is not the product of a single voice or a neutral system, but the evolving outcome of a continuous dialogue between legal traditions, cultural imaginaries, and situated perspectives. In this reframed epistemology, chaos is no longer a deviation to be corrected, but the very horizon within which law must operate—an horizon shaped by indeterminacy, plurality, and complexity, rather than by order, uniformity, or abstraction.[64]

IX. PRIVATE PROPERTY AND THE HUMAN AND THINGS RELATIONSHIP

Today, the frameworks that guide legal, political, and economic development appear to be marked by a profound chiasm. On the one hand, globalisation continues to promote the diffusion of a dominant cultural model—rooted in the ideals of the rule of law, liberal democracy, and the rhetoric of human rights—presented as universal and self-evident. On the other hand, the growing complexity of contemporary societies challenges this model at its core, forcing legal thought to confront realities that resist simplification and demand new conceptual tools. At the core of this systemic rupture lies a paradoxical persistence: the relationship between humans and things continues to be governed by a singular, reductive model of property—one intellectually rooted in Cartesian science and premised on the notion of absolute dominion, "that sole and despotic dominion which one man claims and exercises over external things of the world, in total exclusion of the right of any other individual in the universe." [65]

This vision has been codified by modern legal systems into a grammar of exclusion and commodification, reflecting an epistemology grounded in the separation of subject and object. Within this framework, property has come to be increasingly detached from the materiality of things and redefined as the abstract projection of the owner's autonomous will.

The relative simplicity of its basic assumption has determined the success of the property rights paradigm and the seeds of its diffusion across diverse legal traditions, cultural settings, and economic systems. In this way, the language of property became the dominant medium through

[64] See Sara Hejazi, supra at par.6.

[65] See Blackstone's *Commentaries, Abridged* by W. C. Sprague (9th edn, Callaghan & Company 1915) 105.

which modernity structured its relationship with the world.[66]

The digital revolution has profoundly transformed the scale and reach of this relationship. What was once limited to tangible goods now extends into immaterial and previously inaccessible domains—life processes, genetic resources, personal data, algorithmically generated knowledge. The perimeter of what can be owned has expanded dramatically, absorbing ever more elements of human life and ultimately reducing the human itself to a site of extraction and value production—feeding systems designed to learn, predict, and decide. In this process, the boundaries between subject and object, agent and artefact, have grown increasingly unstable.[67]

However legal thinking, for the most part, remains anchored to the classical image of property as an abstract and neutral form—detached from the dense web of ecological, material, and social relations in which it operates. So deeply entrenched is this perspective that few are willing to recognise that the rebellion of things—whether manifest in the planetary reaction to environmental degradation or in the algorithmic agency of intelligent machines—may be traced back to the very legal grammar that constructs things as ownable, humans as sovereign, and relations as asymmetrical. In this sense, the legal form of property is not merely a reflection of broader social transformations; it is a constitutive force in shaping the reality it purports to govern.

This conceptual dislocation invites a deeper epistemological reflection. What presents itself as a universal model of property is, in fact, grounded in the same rationalist foundations that sustained the classical and positivist conception of law. Like classical physics—and the legal formalism it inspired—this vision assumes a world of stable meanings and fixed categories: where a rose is just a rose, and property is a clearly defined right to exclude. But once we shift perspective and examine these categories more closely, their apparent coherence begins to dissolve, revealing them as historically contingent and culturally constructed.

Comparative legal scholars have long recognised this. They know that legal categories are not universal truths but culturally embedded linguistic devices, shaped within specific traditions to address socially relevant facts[68]. Viewed through this lens, property law becomes a

[66] Duncan Kennedy, 'Two Globalizations of Law and Legal Thought: 1850–1968' (2003) 36(3) *Suffolk University Law Review* 631, 648ff.

[67] Ugo Mattei, 'The Legal Metaverse: Law and Justice in the Age of Technological Disruption' (2023) 71(3) *American Journal of Comparative Law* 549.

[68] See Patrick Glenn, *Legal Traditions of the World: Sustainable Diversity in Law* (5th edn, Oxford University Press 2014), 18ff.

privileged site of legal pluralism: a terrain where statutory norms intersect with judicial interpretation, customary rules, and lived practices, enabling communities to articulate divergent ways of organising material relations. Some systems emphasise exclusivity, dominion, and individual entitlement; others prioritize reciprocity, shared use, or integration within a community or ecosystem[69].

Placed in this broader comparative and epistemological perspective, the modern model of exclusive property appears less as the natural endpoint of legal evolution than as one historically contingent arrangement among many—one whose apparent universality dissolves, much like the quantum rose, once the observer shifts vantage point. What emerges from this shift is not simply the fragility of the dominant paradigm, but the recognition that property itself is not a fixed object of knowledge, but something that changes form as the lens through which it is viewed changes.[70]

Indeed, the very concept of property reveals itself as intrinsically polysemic. Rather than offering a singular or abstract essence, it unfolds as a relational field shaped by the observer's standpoint—an ecology of norms and practices in which statutory rules intersect with judicial interpretation, customary usage, and the lived materiality of everyday life. In this broader sense, property ceases to appear as a stable legal construct and becomes instead a dense web of meanings continually produced within specific social, cultural, and historical configurations.[71]

In quite recent decades, anthropological accounts show that across diverse societies and epochs, the relationship between humans and things has often been conceived not as a dichotomy but as a continuum of forms of reciprocity, care, and mutual belonging. These relations are structured less by exclusive rights than by obligations, symbolic attachments, and ritual practices.[72]

What legal modernity presents as a unified concept reveals itself instead as just one configuration within a far broader landscape of normative practices. Alternative systems of allocation and entitlement

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[69] See Fritjof Capra and Ugo Mattei, *The Ecology of Law: Toward a Legal System in Tune with Nature and Community* (Berrett-Koehler Publishers 2015).

[70] U Mattei and A Quarta, *The Turning Point in Private Law: Ecology, Technology and the Commons* (Edward Elgar 2022) 11ff.

[71] Albina Candian, Antonio Gambaro and Barbara Pozzo, *Property–Propriété–Eigentum: Corso di diritto privato comparato* (CEDAM 1992).

[72] For anthropological accounts emphasising that material relations in many societies are organised through reciprocity, obligation, and embedded social ties rather than exclusive rights, see Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Beacon Press 2001) 46–60; and Marshall Sahlins, *Stone Age Economics* (2nd edn, Routledge 2004).

have long coexisted with formal property regimes—not in a linear progression from "primitive" to "advanced", but within the same normative spaces, sometimes in harmony, sometimes in open tension.[73] These arrangements sometimes resist codification and elude the rigid conceptual frameworks of legal theory, however they remain deeply embedded in the lived experience of communities, in their ritual practices, moral economies, and collective memories. Even where legal scholars hesitate to label them as "property" in the technical sense, they operate as functional systems of governance, grounded in locally meaningful logics.[74]

The Islamic legal tradition offers a particularly rich illustration of such normative plurality, where the regime of traditional property is complicated by a dense network of mediations between the substratum constituted by the shariatic tradition and the rules that are introduced to varying degrees by modern civil codes and regulations.[75] Within this layered framework, the *waqf* regime plays a central role: a religiously grounded institution whereby individuals relinquish property "for the love of God" to support communal welfare. Far from being a marginal relic, *waqf* has long operated as a decentralized mechanism for delivering public goods.[76] The sacral bond that commonly characterized the variety of structures and forms present in traditional Islamic law certainly did not favour the circulation of resources: despite being increasingly overshadowed by Western-style individual property regimes, the sacral bond still survive in collective structure like the Persian Qanats a traditional pattern of water management that enabled the formation of farming communities in the most arid regions of Iran.[77]

As we turn our observation to African traditional systems a similar pattern emerges—one that further challenges the assumptions of legal

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[73] On the historical coexistence of multiple systems of allocation and entitlement—often overlapping, competing, or mutually constraining—and on the critique of any evolutionary narrative that moves linearly from communal arrangements to private property, see David Graeber and David Wengrow, *The Dawn of Everything: A New History of Humanity* (Penguin 2021) 210–246.

[74] 'Official legal culture has difficulty recognized the validity and effectiveness of unofficial, informal, or customary practices. It is not that these do not exist, but rather that they are often rendered invisible within the dominant legal epistemology.' See Boaventura de Sousa Santos, *Toward a New Legal Common Sense* (2nd edn, Butterworths 2002) 85.

[75] Wael B Hallaq, *An Introduction to Islamic Law* (Cambridge University Press 2009).

[76] Timur Kuran, 'The Provision of Public Goods under Islamic Law: Origins, Impact, and Limitations of the Waqf System' (2001) 35(4) *Law and Society Review* 841.

[77] On this topic, I may refer to: Andrea Pradi, 'Private Property and the Commons: The Case Study of Water Distribution in Persian Qanats Part 1.' (2023) 23 *Global Jurist* 287; and Sara Hejazi, 'Private Property and the Commons: The Case Study of Water Distribution in Persian Qanats Part 2' (2023) 23 *Global Jurist* 305.

modernity, where property is not merely a legal construct, but a living relationship grounded in land, ritual memory, and community. In these contexts, collective ownership prevails, mediated by sacred values that recognize the spiritual essence of things. Even where individual rights exist, they remain subordinate to communal responsibilities and ancestral practices aimed at sustainable use. Although Western legal models have increasingly eroded these frameworks, ethnographic evidence—such as from Mali—shows that plural systems of authority and layered rules around land and water continue to reflect a deeply embedded communal logic.[78]

The Chinese debate on copyright offers a further vantage point for observing how divergent conceptions of property can coexist—often in openly conflicting ways—within the same normative space. The controversy that has unfolded in the past two decades is not merely a question of enforcement capacity, but reveals a profound epistemological tension between the Western regime of exclusive intellectual property, strengthened through WTO accession and TRIPS implementation, and the long-standing Confucian grammar that has historically shaped China's approaches to creativity and knowledge. Commentators have frequently noted how Confucian traditions—rooted in emulation, pedagogical imitation, and the authority of exemplary models—sit uneasily beside the individualised logic of authorship that informs modern copyright law.[79]

Within this alternative framework, the act of copying a master's work is not a wrongful taking but a morally inflected gesture of reverence, a practice through which students refine skill, transmit learning, and honour inherited lineages.[80] Far from representing a marginal residue, this ethos of communal creativity long operated as a decentralised mechanism for sustaining the circulation of knowledge, even as formal reforms increasingly strengthened proprietary claims. The result is a layered doctrinal field where conceptions of entitlement grounded in collective refinement and respectful imitation persist beneath, besides, and at times against the exclusive rights recognised by Western-style copyright.

Taken together, the Islamic, African, and Chinese examples underscore a broader comparative insight: property is never a monolithic institution,

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[78] Luca Pes, 'A different model to look at the relationship between humans and things: land and water rights in the Inner Delta of the Niger River (Mali)' forthcoming.

[79] For cultural accounts of how Confucian traditions of emulation and moral cultivation complicate the reception of exclusivity-based copyright norms, see Peter K Yu, 'The Confucian Challenge to Intellectual Property Reforms' (2012) 4 *WIPO Journal* 1, 3–10.

[80] William P Alford, *To Steal a Book Is an Elegant Offense: Intellectual Property Law in Chinese Civilization* (Stanford University Press 1995).

but a composite of heterogeneous normative grammars—religious, communal, pedagogical, statutory—whose coexistence and friction reveal the contingent, relational, and deeply cultural nature of legal ordering. Such plurality troubles any assumption that exclusive property represents the universal or natural endpoint of legal evolution and instead highlights the diverse ways in which communities articulate access, obligation, value, and belonging that bind humans to one another and to the material world.[81]

From these examples what emerges is not a uniform legal form, but a landscape marked by cultural and normative pluralism, where the idea of property resists stable categorization and instead takes shape through ongoing negotiation. Property is continuously shaped not only by legal traditions and institutional arrangements, but also by the social practices, symbolic meanings, and even the intrinsic nature of the things themselves.[82]

This invites us to rethink the very ontology of property. Things are not silent objects waiting to be possessed, but actors within a shared cultural and legal narrative, capable of expressing claims, values, and attachments through the communities that engage with them[83].

Much like in quantum theory, where the act of observation alters the very state of what is observed, property arises through a process of co-constitution: meaning, entitlement, and materiality do not exist independently, but emerge through their mutual interplay. In this sense, property is the outcome of a reciprocal relation, in which human intention and material agency are deeply entangled.[84]

Law cannot be blind to this interaction: property should be conceived as a co-produced legal relation, grounded not only in the will of the subject but also in the nature and constraints of the object.

This recognition calls for a renewed legal reasoning—one that does not seek to eliminate complexity, but to dwell within it. Comparative law offers a privileged vantage point: it reveals how law is lived, not just written—emerging through cultural entanglements, normative tensions, and ecological interdependencies. In the face of overlapping crises, this approach invites us to abandon the search for abstract uniformity

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[81] Filippo Valguarnera, *Access to Nature: The Rights of Humans and the Rights of Nature in Comparative Perspective* (Martinus Nijhoff 2012).

[82] Philippe Descola, *Beyond Nature and Culture* (University of Chicago Press 2013) 373ff.

[83] Carol M Rose, 'Possession as the Origin of Property' (1985) 52 University of Chicago Law Review 73, 82, now in Carol M Rose, *Property and Persuasion: Essays on the History, Theory, and Rhetoric of Ownership* (Westview Press 1994) 25–31.

[84] Ian Hodder, *Entangled cit.* (Wiley-Blackwell 2012).

and instead cultivate a legal imagination grounded in relation and responsibility.

Seen through this lens, legal categories no longer appear as fixed or universal, but as historically situated frameworks for organizing convivencia—always open to revision, negotiation, and care. Within such a vision, property must be rethought: no longer as the "sole and despotic dominion" over things[85], but as a social and ecological responsibility, accountable to the community, to the living world and to future generations.[86]

X. CONCLUSION

The time is ripe for a reconfiguration of the relationship between humans and things within legal thought. The mechanistic paradigm that placed the sovereign subject at the center of a passive, fully knowable world no longer holds. As the sciences, particularly quantum physics, have revealed the relational, indeterminate, and dynamic nature of matter, so too the law must learn to look beyond its inherited certainties—beyond the reassuring glow of the lamppost, where we have long sought answers. Like in the Sufi parable of the drunken man searching for his keys under the streetlight, we risk continuing to search where it is easiest, not where truth may reside.

Interdisciplinary dialogue invites us to look into the shadows—to question the epistemological assumptions embedded in our legal categories and institutions. Scientific revolutions do not transform only their native domains; they radiate outward, shifting metaphors, dislodging intuitions, and unsettling the foundations of adjacent fields. Comparative law, with its sensitivity to context, contradiction, and cultural difference, is particularly attuned to this vibration. It allows us to perceive the pluralism, contingency, and embodied practices that conventional legal frameworks often obscure.

This reorientation does not mean abandoning law's structuring role but rather reimagining it as a field of co-existence rather than domination—a medium that acknowledges the agency not only of human actors, but also of things, environments, and processes. In this light, legal institutions can become more than instruments of control; they can cultivate shared worlds, enabling forms of relation that are attentive to

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[85] Even Blackstone himself, just a few lines after promptly qualifies the statement, admitting that *'this proprietary form no subject in England has' see* William Blackstone, *Commentaries on the Laws of England*, 137.

[86] Fritjof Capra and Ugo Mattei, *The Ecology of Law cit.*

ecological fragility, material entanglement, and cultural specificity.

By embracing this shift—from abstraction to relation, from mastery to interdependence—we may begin to build legal imaginaries and institutional architectures that reflect the world not as it was once conceived, but as it is becoming: dynamic, uncertain, and profoundly entangled.

The subject of this essay is to rethink the relationship between humans and things. But why speak of a *convivencia* of things? The term, drawn from anthropology and philosophy, evokes the idea that things do not stand alone but co-exist with us in dense material, symbolic, and temporal relations. In this sense, *convivencia* is not a mere metaphor but an epistemological prompt: it reminds us that legal reality emerges from layered interactions that resist reduction to singular definitions. Interdisciplinary inquiry—across physics, anthropology, and legal theory—helps reveal the implicit assumptions embedded in our categories, bringing to light the tacit knowledge that silently shapes our thinking and that, once made visible, can finally become open to choice and transformation.

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