The ‘Uncertainty Hypothesis’ in International Economic Law

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Abstract

This article seeks to analyse whether Heisenberg’s uncertainty principle may be, *mutatis mutandis*, applicable to law. From a legal perspective, instead of position and momentum, Heisenberg’s equation can be expressed in terms of a rule’s precision and accuracy. Therefore, a working hypothesis, which might be called the “*uncertainty hypothesis*”, would hold that: *An increase in a rule’s precision at a definite time, decreases its accuracy in an indefinite future case, and vice versa.* Putting the hypothesis into practice in two case studies indicates that highly accurate rules may lead to injustice because of lack of precision, while pursuing high levels of precision may lead to lack of justice because of inaccuracy. The legal implication, if we accept the uncertainty hypothesis, is a recommendation to seek the best possible solution in terms of the best possible balance between the advantages of one perspective (precision) and the virtues of the other (accuracy).

Keywords

Uncertainty principle – Justice – Fair and Equitable Treatment (FET) – Rules of origin – WTO

1 Introduction

“Those who are going to devote to the *ius* ought first to know the derivation of the word *ius*. It derives from *iustitia* [justice]. For, as Celsus defines it elegantly,

ius is the *art of the good and the equitable*.¹ These words represent the definition of *ius* by the first-second century jurist Celsus² that have been borrowed in the opening of Ulpian's first book of the "*Institutiones*"³ and later on placed at the very beginning of Justinian's Digest.

"*Ius* cannot be exactly translated from Latin into English",⁴ although it is commonly translated by the English word "*law*."⁵ However, in contrast to the word "*law*", the word "*ius*", because of its etymological root, carries with it the connotation of justice (*iustitia*). First of all, it is necessary to bear in mind that concepts with deep social and cultural foundations such as '*law*' and '*justice*'⁶ might be difficult if not even impossible to translate literally from one language to another by keeping them entirely unaltered semantically:

Anytime one language is translated into another language, one often encounters the problem of the translation failing to accurately express the original meaning. This problem arises from neither the level of the translator's proficiency in grasping and using a language nor the inherent expressiveness of a language, but rather it is simply that it is impossible

- 1 D.1.1.1. pr. (*Ulpianus libro primo institutionum*) "Iuri operam daturum prius nosse oportet, unde nomen iuris descendat. est autem a iustitia appellatum: nam, ut eleganter Celsus definit, *ius est ars boni et aequi*." English language translation based on Alan Watson, ed. *The digest of Justinian*, Vol. 1 (Philadelphia: University of Pennsylvania Press, 1985), 1, and partially adapted by the author (emphasis added).
- 2 See the historical reconstruction of the succession of Roman jurists from Pomponius Enchiridion reported in the Digest and, in particular with regard to Celsus, D.1.2.2.53. For a brief reconstruction of Celsus' biography see also Massimo Brutti, *Il diritto privato nell'antica Roma*, (G. Giappichelli Editore—Torino, 2011), 647.
- 3 See the reconstruction of the *Institutiones* of Ulpianus provided in Otto Lenel, ed. *Palingenesia iuris civilis*, Vol. 2 (ex officina Bernhardi Tauchnitz, 1889), col. 926.
- 4 See note 1 in Watson, *The digest of Justinian*, 1.
- 5 Two words in Latin (*ius* and *lex*), correspondingly "*droit*" and "*loi*" in French, and "*Recht*" and "*Gesetz*" in German, can be properly translated with the English word "*law*". See Immanuel Kant and John Ladd, *Metaphysical elements of justice: Part I of the metaphysics of morals* (Hackett Publishing, 1999), xx.
- 6 "*Justice*" as an abstract concept such as *truth, knowledge, health, happiness*, etc., has no plural form (like the corpus of laws of a particular legal system "*the Law*" (capitalized, in the sense of *das Recht* (*ius, droit*)), in contrast, a particular "*law*" or a statute (*Gesetz* (*lex, loi*)) can be counted and has a plural, "*laws*". See Kant, *Metaphysical elements*, xx.

to find an appropriate word that corresponds to the meaning of the other word.⁷

Bearing this in mind, it should also be considered that, as Hart puts it: “We think and talk of ‘justice *according* to law’ and yet also of the justice or injustice *of* laws.”⁸ Therefore, it is important from the beginning to try to avoid a bias, which may stem from the meaning of the term “law” in English language, and emphasize that law and justice (*iustitia*) are not interchangeable concepts. Moreover, law (*what is*) should be seen not just as an end in itself but rather as a mean to a greater end, the justice (*what ought to be*). Consequently, a distinction should be made between Law (*ius*) and law (*lex*, a statute, which is a source of *ius*), which seems evident, for instance, by the fact that each society may have a number of peculiar customs, social norms, habits etc. that are often in the form of ‘unwritten laws’.⁹ Therefore, although the terms ‘law (*lex*)’, ‘Law (*ius*)’ and ‘justice’ are sometimes used interchangeably, they are not synonymous. Is it not true that the purpose of the Law (*ius*) is to deliver justice (*iustitia*)? In fact, as mentioned above, already the Romans were remarking that *ius* is “taking its name from justice”—“*Ius a iustitia appellatum*”,¹⁰ helping to clarify that the latter should be the objective of the former. Therefore, it is possible to regard the law (*lex*) as being a part of the Law (*ius*), serving the grand objective of justice (*iustitia*)—‘law’ and ‘justice’ converge in the *ius*. Although the two concepts (Law (*ius*) and justice (*iustitia*)) are undoubtedly related (subordinated), it is necessary to keep in mind that there is a distinction between the general order of norms (including rules organized in statutes, laws) and the fundamental and overriding, grand ‘ideal’ of justice, which is a much more complex matter. As a matter of fact, it is even referred to as a “virtue.”¹¹ In addition, it is necessary to consider that, “the just is a value and the

7 Liang Zhiping, “Explicating Law: A Comparative Perspective of Chinese and Western Legal Culture,” *J. Chinese. L.* 3 (1989): 55.

8 See H.L.A. Hart, *The Concept of Law* (Oxford University Press, 1994), 7; cited by Norman Kretzmann, “Lex Iniusta Non est Lex—Laws on Trial in Aquinas’ Court of Conscience,” *American Journal of Jurisprudence*: Vol. 33: Iss. 1, Article 4 (1988): 99.

9 Furthermore, beside the use of the term in the *objective* sense as “the Law”, referring to a legal system, which may vary from country to country, *ius* may also be applied to indicate the *subjective right* or *rights (iura)* of an individual person, see Adolf Berger, *Encyclopedic Dictionary of Roman law*. Vol. 43, Part 2 (American Philosophical Society, 1953), 525.

10 See *supra* note 1.

11 See Hart, *The Concept of Law*, 7. See also D.1.1.1.1. (*Ulpianus libro primo institutionum*) “Cuius merito quis nos sacerdotes appellet: *iustitiam namque colimus et boni et aequi notitiam profitemur, aequum ab iniquo separantes, licitum ab illicito discernentes, bonos*

statements relating to justice are value judgments";¹² which interpretation may vary from observer to observer and from culture to culture.¹³ Actually, with regard to the Law it is observed that it "really cannot be understood without understanding the culture on which it sits."¹⁴ Furthermore, there is a temptation to use the words "law" and "justice" without stopping to ask what they *mean* as it is readily assumed that the way we *understand* them is uncontroversial and clear. However, similar to what Lukes maintains about power: "We speak and write about power [*Law (ius); justice*] in innumerable situations, and we usually *know, or think we know, perfectly well* what we *mean*."¹⁵ Paradoxically, however, as it will be explained in the paragraphs to follow, the most controversial and disputable concepts may look deceptively simple.

2 The Duality of Justice—The Art of Balancing

All of us develop attitudes toward Law (*ius*) and justice (*iustitia*) along with the rest of our general social knowledge,¹⁶ however, different people hold different views about what is "right" or "wrong" and there is no firm line dividing the "just" from the "unjust". Thus, competing interpretations of what is just and what is unjust are at the centre of any dispute and the 'solution'—as it will be better clarified in the following paragraphs—can only lie in a careful *balancing*, as the more appropriate solution arguably depends on the perspective and

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non solum metu poenarum, verum etiam praemiorum quoque exhortatione efficere cupientes, veram nisi fallor philosophiam, non simulatam affectantes." For an English language translation, see Watson, ed. *The digest of Justinian*, 1: "Of that art we [jurists] are deservedly called the priests. For we cultivate the virtue of justice and claim awareness of what is good and fair, discriminating between fair and unfair, distinguishing lawful from unlawful, aiming to make men good not only through fear of penalties but also indeed under allurements of rewards, and affecting a philosophy which, if I am not deceived, is genuine, not a sham." (Emphasis added).

- 12 Ilmar Tammelo, *Justice and Doubt: An Essay on the Fundamentals of Justice* (Springer, 2013), 323.
- 13 Judith N. Levi and Anne Graffam Walker. *Language in the judicial process*, Vol. 5 (Springer Science & Business Media, 1990), 11. On law and values see also the remarks in Stefano Porcelli. "Power and Contracts," in *Imperium, Staat, Civitas/Imperium, Stato, Civitas*, ed. Emanuela Calore and Roberta Marini. (Stuttgart, 2015), 253—254.
- 14 Edward J. Eberle, "The Method and Role of Comparative Law," *Roger Williams Univ. Legal Studies Paper* 67 (2008), 458.
- 15 Lukes Steven, *Power: A radical view* (Hampshire and New York: Palgrave Macmillan, 2005), 61. (Emphasis added).
- 16 Ronald Dworkin, *Law's empire* (Harvard University Press, 1986), 110.

lies somewhere in between, where the two extremes balance one another. In fact, the ancient symbol of the goddess *Iustitia*, known as the goddess of justice, administering justice by ‘weighing’ the evidences of both sides (*Iustitia* portrayed as holding and balancing the scales) and enforcing the existing law (*Iustitia* holding the sword) in a fair and equal manner (*Iustitia* wearing a blindfold). For a long time, perhaps naturally tempted by a desire to regulate their lives, people strived to create a universal, context-free model of justice, trying to codify the reality by arranging it into laws, methodologies etc. Eventually, however, such an effort may lead to a simplistic view of reality as real life seems to be far more complex and varied. To paraphrase once again Lukes when speaking about power:

When we try to understand power [*Law (ius); justice*], how we think about it relates in a number of ways to what we are trying to understand. (...) But our conception of it may result from and be shaped by what we are trying to describe and explain.¹⁷

For example, in 1794, after decades of drafting, the state of Prussia enacted the “Preussisches Allgemeines Landrecht” that had more than 19,000 articles, which is four times more than the modern civil code and the criminal code of Germany taken together.¹⁸

The authors of these codifications were aware that not all cases could be solved by way of deduction from the legal text, but they tried to make the law as crystal clear as possible and to have the solution of all future cases contained in it as far as possible.¹⁹

This example illustrates that, for instance, the codification of the law (*lex*) cannot be separated from its progressive development (Law (*ius*)) and no matter how hard we might try to thoroughly represent the reality and ‘fit’ it into legal texts with utmost exactness, it is like “trying to describe a landscape while looking out the window of a moving train—events tend to move faster than one can describe them.”²⁰ In fact, as already Celsus was remarking in his

¹⁷ Steven, *Power: A radical view*, 62–3 (Emphasis added).

¹⁸ Hans-Bernd Schäfer, “Legal rules and standards,” *German Working Papers in Law and Economics*, Vol. 2002, Paper 2 (2002): 5.

¹⁹ Ibid.

²⁰ Christian Tietje, et al., *Once and Forever? The Legal Effects of a Denunciation of ICSID*, Beiträge zum Transnationalen Wirtschaftsrecht, Heft 74, 2008, 5, quoting John H. Jackson

definition of Law (*ius*)—it is neither a fact of nature nor something static, but rather an “art” to be considered not in its current, most commonly used ‘aesthetics’ meaning, but as something dynamic—a human activity.²¹ Therefore, we can consider it as a man-made social construct, a system of social rules.²² “Law [*ius*] can only exist in a society, and there can be no society without a system of law [*ius*] to regulate the relations of its members with one another”,²³ or as a well-known legal maxim maintains: *Ubi societas, ibi ius* (“where there is a society, there is Law”). Consequently, it is necessary at least to consider whether justice exists only when there are human beings to make sense and administer it, or it has a meaning on its own, independent of the human mind. From this vantage point we may ponder: is ‘justice’ a phenomena of the mind, or has it always been ‘out’ there, regardless of the human mind and consciousness? Is justice ‘just’ by nature or ‘just’ by enactment and enforcement through an administrative apparatus? Does ‘justice’ still exist if we remove the people, hence their actions and judgments? What meaning can we give to ‘justice’ if there is no human being to make sense of the consequences and administer it?

In the light of what has already been remarked at the beginning, a solution correlating justice with the human mind should be preferable, but further reflections are necessary. For instance, consider two people (*A* and *B*) and a hypothetical *action x* that according to one of the person’s particular moral principles is “just” and according to the other one’s it is exactly the opposite: “unjust”. In a way, ‘one person’s justice is another person’s injustice.’²⁴ Different

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and William J. Davey. *Legal Problems of International Economic Relations: Cases, Materials and Text on the National and International Regulation of Transnational Economic Relations*. 2nd ed. (St. Paul, Minn.: West Pub. Co., 1986), xv. On this aspect, with regard to the energy law related norms, see the remarks in Stefano Porcelli. “Energy, Law and Globalisation. Complexity and Interdependent Relationship between General and Specific Rules in the Energy Sector on a National and Transnational Scale,” in *Legal Aspects of BRICS*, ed. Riccardo Cardilli and Stefano Porcelli. (Wolters Kluwer—Cedam, 2015), 163.

21 See *supra* note 1, and Gallo’s interpretation of Celsus definition of law in Filippo Gallo, *Celso e Kelsen: per la rifondazione della scienza giuridica* (Giappichelli, 2010), 67–74, in particular, on this issue, at p. 67–69.

22 Arthur Ripstein, “Law, language, and interpretation,” *U. Toronto LJ* 46 (1996): 336.

23 David John Harris. *Cases and materials on international law*. (Sweet & Maxwell, 2004), 1 (emphasis added).

24 Paraphrasing the proverb: “one man’s meat is another man’s poison”. The phrase (“*Ut quod aliis cibis est aliis fuit acris venenum*”), which was written by the Roman poet and philosopher Lucretius (c. 99 BC–55 BC) in his major work *De Rerum Natura*, (On the

people may judge the same conditions differently and even the same person's judgement may change over time. Therefore, is 'justice' a quality and therefore 'just' a quality assessment that cannot be separated from the interpreter? Can we separate the observer from the observed phenomena, or do they become intricately entangled? Is there an "observer effect", analogous to the one in quantum physics, which notes that measurements of certain systems cannot be made without affecting the systems? Here it will be appropriate to comment on a very relevant element that shall not be overlooked or underestimated, namely, the "observer effect".

According to the quantum theory, if the outcome of an event has not been observed, it exists in a state of "superposition of potentialities", which is being simultaneously in two incompatible states.²⁵ The most famous illustration is the Schrödinger's unobserved cat, in which thought experiment that served to illustrate the indeterminacy at a micro level into absurdity at a macro level, the cat is simultaneously dead and alive until observed—until that time, the cat is both dead and alive.²⁶

Recent research has shown that it is possible to have a superposition not only of incompatible states, but also of incompatible orders of events.²⁷ In a new paper published in the *New Journal of Physics*, Araújo and co-authors²⁸ have found out that the conventional understanding of events occurring in a definite chronological order, with *event A* happening (and causing) *event B*, or vice versa, may be disturbed in certain quantum processes where events do not happen in a single definite order, but instead both orders (*A* before *B*, and *B* before *A*) occur at the same time. This counterintuitive superposition-like phenomenon is called "*causal nonseparability*."²⁹

The theory of relativity has already shaken the idea that there is an absolute, global time, and that everyone experiences the flow of time

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Nature of Things), Book IV, line 637, is appropriated to emphasize that what is good for one person is not necessarily good for someone else.

25 See Bruce Rosenblum, and Fred Kuttner. *Quantum enigma: Physics encounters consciousness*. (Oxford University Press, 2011), 147: "Your observation not only creates a current reality, it also creates the history appropriate to that reality".

26 Ibid., 97.

27 *Quantum process demonstrates superposition of ordered events* (2015, November 4) retrieved 4 November 2015 from <http://phys.org/news/2015-11-quantum-superposition-events.html>.

28 Mateus Araújo, et al. "Witnessing causal nonseparability," *New Journal of Physics* 17.10 (2015): 102001.

29 Ibid.

and time relations in the same way: two different observers in different reference frames may, for instance, disagree on which event happens before the other.³⁰

“By the early 1920s, physicists had accepted that electrons, and presumably other matter as well as light, could be demonstrated to be either compact lumps or widely spread-out waves. It *depended on the experiment you chose to perform*.”³¹ Analogous to that is it possible that *action x* can be both ‘just’ and ‘unjust’ at the same time until observed/judged by a conscious entity? Given that one can “choose which of these two contradictory features to demonstrate” and that “the physical reality of an object depends on how you choose to look at it”, then one can defend either a “just” or an “unjust” hypothesis: “things can mean and therefore be more than one thing at once.”³² “More importantly, the meaning of all data, evidence, and arguments is dependent upon the belief system from which one views the problem.”³³ Correspondingly, justice seems to resist precise definition and when formulation is attempted it is necessarily reductionist, and essentially contestable. Nevertheless, even without being able to explicitly define it, we think we *understand* and know *intuitively* what ‘justice’ *means* (tacit knowledge) and “much of what we ‘know’ is what we believe to be true.”³⁴ Therefore, it seems impossible to separate the observer from the observed, ergo justice is a community phenomenon that cannot be absolutely just in nature. According to Ulpianus: “Justice is the constant and perpetual will to render to every man his due.” “*Iustitia est constans et perpetua voluntas ius suum cuique tribuendi*.” (D.1.1.10. pr., *Ulpianus libro secundo regularum*). In that sense, law is alive—it undergoes constant changes since it is a work in progress, a social construct, which is not existing separately and impartially “out there” independent from us. Justice is not a static or permanent state, it is an ongoing process and it is hence timeless and open-ended. By the same token,

30 Ibid., *supra* note 27.

31 Rosenblum et al., *Quantum enigma*, 73 and 72: “...physicists in 1923 finally forced to accept a *wave-particle duality*: A photon, an electron, an atom, a molecule, in principle any object, can be either compact or widely spread out. You can show an object to be either bigger than a loaf of bread or smaller than an atom. *You can choose which of these two contradictory features to demonstrate. The physical reality of an object depends on how you choose to look at it.*” (Emphasis added).

32 Deborah Stone, A. *Policy paradox: The art of political decision making* (New York: WW Norton, 1997), 33.

33 Michel Van Eeten, Johannes Gertruda. *Dialogues of the deaf: defining new agendas for environmental deadlocks* (TU Delft, Delft University of Technology, 1999), 8.

34 Ibid., 30.

law could be understood as the *conditio sine qua non* of social coordination and organization. “For law to exist, one needs at least two human beings, that is, *otherness*. But the law finds its perfection only with the existence of an organized community, which requires at least three persons.”³⁵ As has been noted by scholars, legislative decisions like policy decisions are not made in a vacuum by abstract people but by people in social roles and context.³⁶ “The roles, settings, procedures, and audiences exert their own influence, even on the most strong-willed and independent minds.”³⁷ Actually, justice is said to be *understood* only if it is taken to be a state toward which the Law (*ius*) and law (*lex*) are oriented as an *approximation*.³⁸ However, we may theoretically agree on the black letter law, but still disagree on what it *means* and how it should be interpreted and implemented in practice. For instance, the extraordinary, almost universal support for the ‘rule of law’, nationally and internationally, in theory is *possible only because of widely divergent views of what it means in practice*.³⁹ In fact, already the Romans were observing that: “to know the laws (*scire leges*’), is not only to understand the words of which they are composed, but their force and power.”⁴⁰ “The term ‘*ex legibus*’ (according to the laws) is to be understood both according to the sense and to the words.”⁴¹ As a matter of fact, it has already been remarked that: “to know the words of the law is not to know the law.”⁴² The adequate application of the abstract law to the individual case, which frequently does not fall neatly within the black letter

35 Rafael Domingo, *The new global law* (Cambridge University Press, 2010), 187 (Emphasis added).

36 Stone, A. *Policy paradox*, 30.

37 Ibid.

38 Carl Joachim Friedrich, *The philosophy of law in historical perspective*. Vol. 135 (University of Chicago Press, 1963), 191.

39 Simon Chesterman, “An international rule of law?,” *The American Journal of Comparative Law* (2008), 331–332: “Such a high degree of consensus on the virtues of the rule of law is possible only because of dissensus as to its meaning. At times the term is used as if synonymous with “law” or legality; on other occasions it appears to import broader notions of justice.” (Emphasis added).

40 D.1.3.17 (*Celsus libro 26 digestorum*) “*Scire leges, non hoc est verba earum tenere, sed vim ac potestatem*.” (English-language translation, see note 1 in Ian Maclean, *Interpretation and Meaning in the Renaissance: the Case of Law*. Vol. 21 (Cambridge University Press, 1992), 87.

41 (D.50.16.6.1, *Ulpianus libro tertio ad edictum*) “*Verbum ‘ex legibus’ sic accipiendum est: tam ex legum sententia quam ex verbis*.” See Berger, *Encyclopedic Dictionary of Roman law*, 513.

42 Maclean, *Interpretation and Meaning*, Ibid., quoting Hieronymus Sappcotus, *Ad primas leges Digestorum de verborum et rerum significatione*, (Venice, 1579), 56: “nam certe hoc verbum est, quod legis verba tabtum perdiscere, legis ipsius cognitio non est (for it is certain that *only to learn the words of the law by heart is not to know the law*.)” (Emphasis added).

law, requires both intellectual and moral virtue,⁴³ a sense of what is “good and equitable” in the unique and constantly changing circumstances.⁴⁴ In light of the above, the applicability of Heisenberg’s uncertainty principle is examined in two case studies relating to international economic law and global economic governance.

3 Applicability of Heisenberg’s Uncertainty Principle

In the light of the above-mentioned considerations, it may be worth analysing whether Heisenberg’s uncertainty principle, asserting a *fundamental limit to the precision* with which certain pairs of physical properties of a particle, such as position and momentum, can be known simultaneously,⁴⁵ may be, *mutatis mutandis*, applicable to the field of law. From a legal perspective, instead of position and momentum, Heisenberg’s equation⁴⁶ can also be expressed in terms of a rule’s precision and accuracy. Therefore, a working hypothesis, which might be called the “*uncertainty hypothesis*”,⁴⁷ would hold that: *An increase in a rule’s precision at a definite time, decreases its accuracy in an indefinite future case, and vice versa.* Consequently, it might be assumed that very specific and concrete, *ex ante* rules and attempts at extreme precision may miss the big picture of delivering justice in uncertain, dynamic and indefinite, *ex post* circumstances, or if they do, they will produce too many rules to be understood, implemented, and eventually enforced.

In this regard it is noteworthy to mention what some scholars in the field of physics and mathematics have already observed that it is practically

43 See, for instance, the explanations offered by Riccardo Cardilli in his comments about Cicero’s *De officiis* III, 17, 70, in *Bona fides tra storia e sistema* (G. Giappichelli, Torino, 2014), 69–77.

44 See D.1.1.1.1. (*Ulpianus libro primo institutionum*), *supra* note 11.

45 See note 7 in Rudolf Seising, and Marco Elio Tabacchi, eds. *Fuzziness and Medicine: Philosophical Reflections and Application Systems in Health Care: A Companion Volume to Sadegh-Zadeh’s Handbook of Analytical Philosophy of Medicine*. Vol. 302 (Springer, 2013), 112.

46 “The more precisely the position of some particle is determined, the less precisely its momentum can be known, and vice versa.” See Georgi Muskhelishvili, *DNA Information: Laws of Perception* (Springer, 2015), 15.

47 For instance, see Einstein’s opinion on the exactness of natural sciences: “As far as the laws of mathematics refer to reality, they are not certain; and as far as they are certain, they do not refer to reality.” Albert Einstein, *Sidelights on relativity* (New Delhi: Dover, 1983), 11.

impossible to measure anything exactly—perfectly *accurately* and *precisely*.⁴⁸ There is an important difference to be made between the meaning of the words *accuracy* and *precision*. According to ISO 5725, the word *accuracy* refers to: “The closeness of agreement between a test result and the *accepted reference value*.”⁴⁹ The origin of the word *accuracy* comes from late 16th century: “from Latin *accuratus* ‘done with care’, from *ad-* ‘towards’ and *cura* ‘care’”.⁵⁰ Compare this with the meaning of the word *precision*: “The closeness of agreement between *independent test results* obtained under stipulated conditions.”⁵¹ The word *precision* originates from old French *précis*, which comes from Latin *praeēdere*, *prae* ‘in advance’ and *caedere* ‘to cut’.⁵² It should furthermore be noted that: “*Precision depends only on the distribution of random errors and does not relate to the true value or the specified value.*”⁵³ For example, as an old joke goes, a stopped clock will be *accurate* twice a day, but it will *not be precise*,⁵⁴ whereas a clock a minute behind the correct time will never be *accurate* but it will always be *precise* to the nearest minute. Paradoxically, broken clocks have the correct time more frequently than working clocks that are ahead or behind time.

By comparing and contrasting both terms, *accuracy* seems to be comparable to the “big picture”, referring to the degree of correctness to a true value or standard at a macro level; while *precision* is comparable to the “detailed picture”, referring to a state of strict exactness at a micro level without necessarily referring to the true value. Such a perspective (degree of *precision* versus *accuracy*) would depend on how much we zoom, but how much zoom is the right zoom? This article maintains that there could be no “ideal zoom” as it will constantly depend on the different, indefinite and unique circumstances of each case. Hence, although we might be tempted by the idea that there exists a one-size-fits-all solution, as long as the future remains uncertain and the cases

48 Allan H. Robbins and Wilhelm Miller. *Circuit analysis: Theory and practice* (Cengage Learning, 2012), 14.

49 <https://www.iso.org/obp/ui/#iso:std:iso:5725:-1:ed-1:v1:en>, paragraph 3.6. See also Angus Stevenson, ed. *Oxford dictionary of English* (Oxford University Press, 2010), 12: “*accuracy*—the degree to which the result of a measurement, calculation, or specification conforms to the *correct value* or a *standard*”. (Emphasis added).

50 <http://www.oxforddictionaries.com/definition/english/accurate>.

51 <https://www.iso.org/obp/ui/#iso:std:iso:5725:-1:ed-1:v1:en>, paragraph 3.12. (Emphasis added).

52 <http://www.oxforddictionaries.com/definition/english/precise>, see also <http://www.collinsdictionary.com/dictionary/english/precise>.

53 <https://www.iso.org/obp/ui/#iso:std:iso:5725:-1:ed-1:v1:en>, note 1 to entry 3.12. (Emphasis added).

54 http://www.diffen.com/difference/Accuracy_vs_Precision.

indefinite, it would seem impossible to formulate perfectly detailed and universally valid rules.

As hard as we may try to avoid the indeterminacy of concepts at the margins, we will not succeed . . . They result from the imperfect match between concepts conveyed by the words in a statute [the particle in Heisenberg's formula] and the virtually infinite variety of events that can occur in the world [the momentum in Heisenberg's formula].⁵⁵

On the one hand, "perfect rules would require, in Plato's words, "a legislator [to] sit at everyman's side all through his life, prescribing for him the exact particulars of his duty."⁵⁶ *The perfectly detailed rule is one continuously in the making*—it is the judgment of a *wise person* and not a rule at all."⁵⁷ On the other hand, "a rule that is flexible enough to accommodate all situations would be so vague that it would not be a rule."⁵⁸

The tension between the need for the law to be both sufficiently flexible to accommodate new cases as they arise and sufficiently rigid to maintain its predictive power has been discussed by Lawrence M. Solan when summarizing *Cardozo's famous paradox of law*:

If the law is not flexible enough, then it is doomed to irrelevance and to becoming the source of injustice. If the law is too flexible, then it becomes so unstable that it fails to define with any reliability people's rights and obligations. No doubt the ideal system, if it were attainable, would be a code at once so flexible and so minute, as to supply in advance for every conceivable situation the just and fitting rule. But life is too complex to bring the attainment of this ideal within the compass of human powers.⁵⁹

55 Clark D. Cunningham, Judith N. Levi, Georgia M. Green, Jeffrey P. Kaplan, and Lawrence M. Solan. "Plain meaning and hard cases," *The Yale Law Journal* 103 (6), (1994): 1587.

56 Stone, *Policy paradox*, *Ibid.*, 297 (emphasis added), quoting Jerome Frank, *Courts on trial: Myth and reality in American justice* (Princeton University Press, 1949), 406.

57 *Ibid.*, see also Chesterman, *An international rule of law*, *Ibid.*, 335: "Plato held in the Republic that the best form of government was rule by a *philosopher king* . . ."

58 *Ibid.*

59 Lawrence M. Solan, *The language of judges* (University of Chicago Press, 2010), 12–13. See "Lecture IV. Adherence to Precedent. The Subconscious Element in the Judicial Process. Conclusion," in Benjamin Cardozo, et al. *The nature of the judicial process* (Quid Pro Books, 2010).

Therefore, “there is no ‘optimum’ for everyone.”⁶⁰ Hence, finding the ‘*good and the equitable*’ (which serves as a conceptual schema and therefore needs to be given precise content and ‘filled’ with meaning in every particular case and circumstances) is an “*art*” that goes beyond ‘mere technical skills’ and rules mechanically enforced for their own sake.

Moreover, the meaning of the words is not fixed and uncontroversial and their use cannot be taken separately from their context, which permits for ambiguity, misunderstandings, different interpretations and marginal or borderline cases. For instance, as Wittgenstein claimed, even the meaning of a word may not be absolute and may depend on its use.⁶¹ In addition, it is also said that: “Neither written words nor the sounds that the written words represent have any inherent meaning.”⁶² “Thus, the meaning of legal language cannot be determined simply by looking up words in a dictionary. Context must also be considered.”⁶³ Furthermore, “we are bound not by the form of written words but by the proposition they express.”⁶⁴ When we read a written law, we see more than just marks on a page, prior experience, education, training, and so forth constitute the ‘frame’ or ‘lens’ through which one sees the world and makes sense of what is seen.⁶⁵ Therefore, should we take a ‘narrower’ or ‘broader’ reading of the law? For example, consider this when applying the principle of: “treating like cases alike.”⁶⁶ An important question, in such a

60 Ibid.

61 “For a *large* class of cases—though not for all—in which we employ the word “meaning” it can be defined thus: the meaning of a word is its use in the language”, see Ludwig Wittgenstein, and Gertrude Elizabeth Margaret Anscombe. *Philosophical Investigations*. Translated by GEM Anscombe. [A Reprint of the English Translation Contained in the Polyglot Edition of 1958.], (Basil Blackwell, 1963), section 43.

62 Antonin Scalia, and Bryan A. Garner. *Reading law: The interpretation of legal texts*. (St. Paul, MN: Thomson/West, 2012), xxvii. “In their full context,” the authors argue at p. 16, “words mean what they conveyed to reasonable people at the time they were written . . .”

63 Gregory Bassham, “Textualism’s Last Stand: A Review of Scalia and Garner’s Reading Law,” *The Journal of College and University Law* 39:1 (2012): 213.

64 (D.44.7.38, *Paulus libro tertio ad edictum*) *Non figura litterarum, sed oratione, quam exprimunt litterae, obligamur . . .* (For an English-language translation, see note 1 in Maclean, *Interpretation and Meaning*, 87, see also Alan Watson, ed. *The digest of Justinian*, Vol. 4 (University of Pennsylvania Press, 1985), 160.

65 Dvora Yanow, *How does a policy mean?: interpreting policy and organizational actions* (Georgetown University Press, 1996), 6.

66 The so-called principle of consistency. Within common law legal systems, this principle is embodied in the maxim of *stare decisis* (“Let the decision stand”), which requires that like cases be decided in a like manner. On the centrality of consistency to the rule of law, see Lon L. Fuller, *The morality of law*, Vol. 152 (Yale University Press, 1977), 79–81;

context, is what criteria to use to determine which cases *count as* “like cases” and which not, where to draw the lines of inclusion and exclusion?⁶⁷

When applied to law, Heisenberg’s uncertainty principle of unavoidable indeterminacy would hold that no legislator can have in mind or foresee all the possible interpretations and applications (the ‘momentum’ in Heisenberg’s formula) of any legislation (‘particle’) they enact at any time and in all circumstances. “No regulatory tool is perfect, especially under every condition. The appropriate test for a regulatory option is not whether it is perfect. It is whether that approach is better than the alternatives [the *bonum* in the definition provided by Celsus]⁶⁸—including the alternative of doing nothing.”⁶⁹ Bearing in mind Heisenberg’s uncertainty principle, it may have to be considered that when drafting a legislation, it may be impossible to be both specific (in the present moment—the ‘position’ of the particle in Heisenberg’s formula) and universal (in an indefinite future moment—the ‘momentum’) at the same time.

Putting the hypothesis into practice, two case studies from international economic law are selected to help illustrate the applicability of the ‘formula’ to real world situations. On the one hand, the Fair and Equitable Treatment (FET) standard will serve to illustrate that, as confirmed by the recent arbitral practice, it is so broad that it can be fairly *accurately* used in potentially indefinite amount of cases. On the other hand, the “rules of origin” under WTO will serve

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Joseph Raz, “The Authority of Law.” *Essays on Law and Moral* (1979), 214–15; Chesterman, “An international rule of law,” *Ibid.*, 331; Margaret Jane Radin, “Reconsidering the rule of law.” *BUL REV.* 69 (1989): 785; Jeremy Waldron, “Concept and the Rule of Law, The.” *Ga. L. Rev.* 43 (2008), 1; Ronald A. Cass, “Property rights systems and the rule of law.” *Boston University School of Law, Working Paper Series*. <http://papers.ssrn.com/paper.taf> (2003), quoted in note 31; Kenneth J. Vandavelde, “A unified theory of fair and equitable treatment.” *New York University Journal of International Law and Politics* (JILP) 43, no. 1 (2010), 52. See also Chapter XII, *The Politics of Aristotle: A Treatise on Government* (The Floating Press, 2009): “*equals ought to receive equal: but we should know how we are to determine what things are equal and what unequal*”.

67 Stone, *Policy paradox*, 184: “counting always involves deliberate decisions about *counting as*. To count peas, one first needs to decide which things are peas and which aren’t. Counting begins with categorization, which in turn means deciding whether to include or exclude. (...) Categorization thus involves establishing boundaries in the form of rules or criteria that tell whether something belongs or not. (...) But ambiguity—the range of choices in what to measure or how to classify—always lies just beneath the surface of any counting scheme. *Before a decision is made, things could go either way.*”

68 Gallo, *Celso e Kelsen*, 74–5.

69 Cary Coglianese and Evan Mendelson. “Meta-regulation and self-regulation.” *Regulation* (2010), 26.

as an example of a *precise* rule, which used to be pretty straightforward prior to the globalisation.

3.1 *The Case of the Fair and Equitable Treatment (FET) Clause—An Evolving Standard*

The FET standard clause is the example of the relevance of the uncertainty principle in international economic law *par excellence*. In the words of Judge Higgins, “the key terms ‘fair and equitable treatment’ . . . are *legal terms of art*.”⁷⁰ As a matter of fact, there is a great deal of uncertainty and lack of general agreement on the *precise* meaning of the standard, thus, its wide application with considerable success and relatively high *accuracy* in numerous cases of investment disputes in the recent years. In reality, as an UNCTAD report maintains: “almost all claims brought to date by investors against States have included an allegation of the breach of this all-encompassing standard of protection.”⁷¹ In addition, Rudolf Dolzer stated in this relation that: “The generality of the clause easily lends itself to an expansive view of its reach extending to all corners and aspects of an investment setting.”⁷²

On the legal side, a prime illustration of the point made above might be found in the contradictory arbitral awards reached by two parallel proceedings in two different tribunals effectively dealing with the same facts:⁷³ *Lauder v. Czech Republic* under the USA-Czech Bilateral Investment Treaty; and *CME v. Czech Republic* under the Dutch-Czech Bilateral Investment Treaty. On the one hand, the *Lauder* Tribunal found “no evidence of a violation of this obligation [to provide fair and equitable treatment] by the Czech Republic”⁷⁴ and dismissed the claim, whereas the *CME* Tribunal concluded that the Czech authority “has violated the obligation of fair and equitable treatment”⁷⁵ and awarded CME damages of \$270 million and 10% interest.⁷⁶ This example serves to illustrate the point made earlier that: “things can mean and therefore be

70 Rudolf Dolzer, “Fair and equitable treatment: a key standard in investment treaties.” *The International Lawyer* (2005): 87–106, 87, quoting *Oil Platforms (Iran v. U.S.)*, 1996 I.C.J. 803, 858 (Dec. 12) (separate opinion of Judge Higgins). (Emphasis added).

71 UNCTAD, *Investment Policy Framework for Sustainable Development*, 51.

72 Rudolf Dolzer, *Fair and equitable treatment*, 91.

73 See the argument in Mariel Dimsey, *The resolution of international investment disputes: challenges and solutions*. Vol. 1 (Eleven International Publishing, 2008), 93–96.

74 *Lauder v. Czech Republic*, para. 291 (September 3, 2001), retrieved from: <http://www.italaw.com/documents/LauderAward.pdf>, last accessed December 2015.

75 *CME v. Czech Republic*, para 52, (September 13, 2001), retrieved from: <http://www.italaw.com/sites/default/files/case-documents/ita0180.pdf>, last accessed December 2015.

76 *Ibid.*, part IX.

more than one thing at once.”⁷⁷ However, as Christoph Schreuer holds: “*this lack of precision may be a virtue rather than a shortcoming*. In actual practice, it is impossible to anticipate in the abstract the range of possible types of infringements upon the investor’s legal position.”⁷⁸ Nevertheless, “an attempt to reach a general definition may not be the best way to give meaning to this term. Definitions of broad legal concepts, such as the FET standard, are often influenced by specific cases or subjective perceptions.”⁷⁹

In summary of the foregoing analysis, it appears that: on the one hand, very general rules may be *accurate* in a large number of indefinite cases; on the other hand, these rules may be seriously deficient in their *precision* dimension (*under-precision*), hence may conceal inconsistent and discretionary practices when employed to deal with real cases and ultimately may result in *injustice*.

3.2 Lessons Learned from Drafting “Rules of Origin” under WTO

“Determining where a product comes from is *no longer easy* when raw materials and parts criss-cross the globe to be used as inputs in scattered manufacturing plants.”⁸⁰

The rules of origin are an ideal case study to illustrate how in a globalizing world once a simple and *highly precise* criteria to determine where a product was made became a more complex and *less accurate* undertaking. On the one hand, those rules are “an essential part of trade rules because a number of policies discriminate between exporting countries: quotas, preferential tariffs, anti-dumping actions, countervailing duty (charged to counter export subsidies), and more.”⁸¹ On the other hand, already the fact that the negotiations towards harmonization of non-preferential origin rules are still ongoing as at the time of writing,⁸² although they were supposed to have been concluded a long time ago, testifies to the complexity of this technical area

77 See *supra* note 32.

78 Christoph Schreuer, “Fair and Equitable Treatment in Arbitral Practice,” *The Journal of World Investment & Trade* 6, 3 (2005): 365 (Emphasis added).

79 Federico Ortino, *Investment Treaty Law: Current Issues Volume II: Nationality and Investment Treaty Claims, Fair and Equitable Treatment in Investment Treaty Law*. Vol. 2 (BIICL, 2007), 93.

80 https://www.wto.org/english/tratop_e/roi_e/roi_e.htm, last accessed December 2015 (emphasis added).

81 https://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm9_e.htm, last accessed December 2015. For a definition of the rules of origin, see *Agreement on Rules of Origin* (ARO), Article 1.

82 See U.S. Trade Representative, “2015 Trade Policy Agenda and 2014 Annual Report of the President of the United States on the Trade Agreements Program,” March 2015, 11–35,

of international trade law.⁸³ “The inability of the Contracting Parties to reach agreement was the result of the recognition by several countries that the issue of rules of origin was not merely a technical one, but was intimately bound up with commercial policy.”⁸⁴ The lack of agreement and the silence on the issue until the Uruguay Round negotiations resulted in an anarchy in setting rules of origin, which on its turn resulted in “a system of complex, overlapping and often conflicting rulings regarding product origin.”⁸⁵

Pursuant to “Harmonization of Rules of Origin”, Part IV of WTO Agreement on Rules of Origin (ARO), the Harmonization Work Program (HWP) of the non-preferential rules of origin should have been completed by July 1998, however final agreement is still pending.⁸⁶ Research indicates that:

The preliminary results of the HWP extended over three volumes, encompassing more than 2,000 pages and thousands of product-specific rules of origin. (...) The amount of energy and human and financial resources spent on the HWP is almost unprecedented although it recalls the more than 10 years of negotiations leading to the adoption of the Harmonized System (HS). However, the high technical level in drafting the HWP has lately given way to compromises in trade policy considerations.⁸⁷

In conclusion, it appears that the preliminary outcome of the negotiations over a harmonized system of non-preferential origin rules are a very *precise*

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https://ustr.gov/sites/default/files/2015%20AR%20Compiled%20FINAL_o.pdf (last accessed April 2016):

The Harmonization Work Program (HWP) is *more complex than initially envisioned* under the Agreement, which provided for the work to be completed within three years after its commencement in July 1995. *This HWP continued throughout 2014 and will continue into 2015.* (Emphasis added).

83 Arthur E. Appleton and Michael G. Plummer, *The World Trade Organization: legal, economic and political analysis*, Vol. 1 (New York: Springer Science & Business Media, 2007), 603.

84 Ibid., 265.

85 Ibid.

86 See *supra* note 82, see also “Legal texts: the WTO agreements, Agreement on Rules of Origin” https://www.wto.org/english/docs_e/legal_e/ursum_e.htm#iAgreement (last accessed April 2016): “Much work was done in the CRO and the TCRO and substantial progress has been achieved in the three years foreseen in the Agreement for the completion of the work. However, *due to the complexity of the issues the HWP could not be finalized within the foreseen deadline.*” (Emphasis added).

87 Stefano Inama, *Rules of origin in international trade* (Cambridge: Cambridge University Press, 2009), 17.

but complicated set of rules, which are confusing even for those familiar with the issue. However, while trying to be of utmost exactness they may be still *insufficiently precise* to deal with the variety of dynamically changing real life situations. Moreover, beside the fact that under the cover of highly technical and *precise* details, the limitations in terms of *accuracy* may pave the way for obscure and arbitrary discretionary practices and excessive regulatory rigidity, which may once again, like in the case of the FET clause, result in *injustice*.

4 Conclusion

In conclusion, as it has also been emphasized in the discussion about the words “law” and “justice” at the beginning of this article, it is important to be aware of the fact that concepts, which may look deceptively simple, may instead be far more complex. Therefore, it is important not to overlook the connection between Law (*ius*) and justice (*iustitia*) as well as the fact that the law (*lex*) is not the only instrument available to the Law (*ius*) in order to reach its aim: justice. By reasoning in terms of international law, such complexities can be substantially increased by the fact that those concepts are strongly value dependent and profoundly influenced by language and culture. As already the Romans were remarking, Law (*ius*) is an art (*ars*), where the term “art” is to be considered in its dynamic meaning of “human activity”—neither as a fact of nature nor as something static.

Keeping these general considerations in mind, it is interesting to pay attention to some of the findings in the field of physics, in particular with regard to the observer effect and Heisenberg’s uncertainty principle. This can help realise that it is practically not possible (at least for now) to reach absolute accuracy and precision at the same time; the Law, as an ‘*ars*’, cannot be reduced to perfect, mechanically enforceable set of rules. By borrowing again from the definition of Celsus, considering the “*bonum*” as the best possible solution, it could be asserted that the appropriate test for a regulatory option is not whether it is perfect, but whether that approach is better than the alternatives.

As illustrated by the two case studies, the FET clause and the prolonged efforts to achieve harmonization of the “Rules of Origin” under WTO, highly accurate rules may lead to injustice because of lack of precision, while seeking to reach high levels of precision may lead to lack of justice because of inaccuracy. This illustrates the point made earlier that very specific and concrete, *ex ante* rules and attempts at extreme precision may miss the big picture of delivering justice in uncertain, dynamic and indefinite, *ex post* circumstances and *vice versa*.

The implication for the current law, if we accept Heisenberg's uncertainty principle, would be an understanding that our ability, or inability, to make both perfectly precise and accurate legal rules for every hypothetical case may be inherently impossible. In dealing with an increasing degree of complexity in international economic law and global governance, multiplied by big cultural differences and value dependencies, it is important to keep into consideration the fact that looking for perfection is a deceptive utopia. Accordingly, it is worth remembering that: "The variety of human situations is always greater than the variety of categories in even the most precise rule."⁸⁸

The main practical recommendation of this article is to look for the best possible solution in terms of the best balance, which is possible to be achieved under the given circumstances, by bearing in mind the two poles of accuracy and precision. In some cases it might be possible and relatively better to provide more specific rules, in other cases, instead, principles and more general rules may offer the best possible solution. This may be happening already in practice, but the awareness of the fact that we are swinging between these two poles and the consciousness of the fact that we should aim to strike a balance and try to combine the advantages of one perspective (precision) with the virtues of the other (accuracy) may render a valuable contribution to the finding of the best (possible) solution in the endeavour to reach justice in the field of law.

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88 Stone, *Policy paradox*, 297.