

From Control to Communication: Science, Philosophy, and World Trade Law

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*No science can be more secure than
the unconscious metaphysics which
tacitly it presupposes.^{††}*

*The value which we attribute to science
depends upon the idea which we
collectively form of its nature and
role in life.^{†††}*

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^{††} Alfred North Whitehead (cited in ALEXANDER WENDT, *SOCIAL THEORY OF INTERNATIONAL POLITICS* xvi (1999)).

^{†††} EMILE DURKHEIM, *THE ELEMENTARY FORMS OF RELIGIOUS LIFE* 438 (Joseph Ward Swain trans., 1915).

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Abstract

Recently, science has become increasingly salient in various fields of international law. In particular, the World Trade Organization (WTO) Sanitary and Phytosanitary (SPS) Agreement stipulates that a regulating state must provide scientific justification for its food safety measures. Paradoxically, however, this ostensibly neutral reference to science often complicates treaty interpretation. It tends to take treaty interpretation *beyond* the conventional methodology provided by the Vienna Convention on the Law of Treaties, which is primarily concerned with clarifying and articulating the text of treaties. The two decades old transatlantic trade dispute over the safety of hormone-treated beef is a case in point. This Article demonstrates that beneath the controversy between the United States and the European Union lurks a critical hermeneutical divergence on the scope and meaning of the relevant risk science, which, this Article argues, a conventional model of international adjudication cannot fully fathom. This Article is a philosophical retelling of what has largely been regarded as a legal-regulatory controversy. Informed by philosophical hermeneutics, the Article concludes that only a continuing dialogue or communication between disputing parties can narrow the hermeneutical discrepancy over risk science.

Prologue: Is “Science” a Solution or a Problem?

One of globalization’s dividends is an ever-interdependent world with an ever-increasing traffic and volume of international commerce. The dramatic expansion of international trade tends to expose importing countries to a variety of foreign foods and food products that are harvested and manufactured with new ingredients and technologies. Globalization, however, may be a mixed blessing. Along with the diversity associated with international trade may also come unforeseen side effects, such as health risks. The possibility of these risks has begun to emerge as a critical issue within the global trading system.¹ While some importing countries take these risks seriously and impose preventive regulations, other exporting countries resist such measures. The problem is that these risks are uncertain and their nature is fervently disputed.

The World Trade Organization (WTO)² Sanitary and Phytosanitary

1. See John H. Jackson, *Global Economics and International Economic Law*, 1 J. INT’L ECON. L. 1, 1-3 (1998) (highlighting the ever-increasing challenges to the global trading system from various social regulations).

2. Marrakesh Agreement Establishing the World Trade Organization, Apr. 15, 1994, 1867 U.N.T.S. 154 [hereinafter WTO Agreement].

(SPS) Agreement³ responds to the tension between regulatory autonomy and free trade by upholding the right to regulate while requiring a regulating state to provide “scientific” justification for its food safety measures. Ironically, however, this ostensibly neutral reference to “science” tends to complicate treaty interpretation. The inherent ambiguity and uncertainty embedded in the very notion of science often leads to interpretations that go *beyond* the conventional methodology of the Vienna Convention on the Law of Treaties (VCLT),⁴ which is primarily concerned with clarifying and articulating the text of treaties.

The two decades old transatlantic trade row over hormone-treated beef is emblematic of this dilemma.⁵ While treating cattle with growth hormones is an acceptable practice in the United States, it is banned in Europe because of its potential health risks. Accordingly, this ban has deprived many American farmers of access to the lucrative European beef market. This Article demonstrates that beneath this controversy between the United States and the European Union (EU) lurks a critical hermeneutical divergence on the scope and meaning of the relevant risk science, which a conventional model of international adjudication cannot fully fathom. Indeed, the WTO court might lack the competence necessary to address the highly dogmatic struggle between the United States and the EU, which originates from their conflicting “paradigms” on risk science concerning the safety of hormone-treated beef. This Article is a philosophical retelling of what has been regarded as a legal-regulatory controversy. Informed by philosophical hermeneutics, this Article concludes that only continuous dialogue and communication between disputing parties can narrow the interpretive discrepancies over risk science.

The beef hormones dispute is not an evanescent anecdote. It has a long and recurrent history. In the 1980s, after the two parties failed to resolve this issue under the old General Agreement on Tariffs and Trade (GATT) system, the Reagan administration imposed retaliatory tariffs of 100 percent *ad valorem* on the European Community’s (EC) imports, worth nearly \$100 million.⁶ Although a temporary respite was reached in 1989, the issue was so combustible that in 1996 the United States brought the same complaint before the new WTO dispute settlement mechanism soon after it was launched.⁷ In 1998, the WTO court ruled that the EU’s ban

3. Agreement on the Application of Sanitary and Phytosanitary Measures, Apr. 15, 1994, Marrakesh Agreement Establishing the World Trade Organization, Annex 1 A, 1867 U.N.T.S. at 493 [hereinafter SPS Agreement].

4. Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331 [hereinafter VCLT].

5. See, e.g., Eleanor Beardsley, *In Europe, A Cow Over Hormone-Treated U.S. Beef* (National Public Radio broadcast Sept. 29, 2009), available at <http://www.npr.org/templates/story/story.php?storyId=113314725> (reporting on European farmers’ enmity toward competing with U.S. hormone-treated beef).

6. U.S. Dep’t of Agric., Foreign Agricultural Service, Chronology of the European Union’s Hormone Ban, <http://www.fas.usda.gov/itp/policy/chronology.html> (last modified Nov. 18, 2005).

7. *Id.*

lacked scientific justification.⁸ Nevertheless, the EU has refused to repeal the ban, even in the face of U.S. retaliation authorized by the WTO.⁹ As of today, the parties have failed to fully resolve this issue. However, they have reached a provisional truce under which the EU permits the United States to ship hormone-free beef, while preserving the original ban on hormone-treated beef.¹⁰

The clash of two conflicting dogmas typifies this decades-long transatlantic dispute. The United States holds that an infinitesimal amount of hormones injected into cattle for growth promotion poses no significant health risks to humans when consumed. To justify its position, the United States relies on the mainstream version of science embodied in relevant international standards, such as the Codex Alimentarius Commission standards (Codex standards). The Codex standards establish acceptable daily intakes (ADIs) and maximum residue limits (MRLs), which set the appropriate levels of certain substances, including hormones, in the human body.¹¹ In stark contrast, the EU takes a highly preventive approach, accentuating certain minority scientific opinions that identify health risks in human consumption of foods administered with hormones. Departing from laboratory-based science, the EU's position rests on practical wisdom tuned into the "real world where people live and work and die."¹²

Then, *which* version of science is the right one? Should we adhere to mainstream science, as the United States does, and allow hormone-treated beef to freely circulate while dismissing any public outcry against it as unreasonable fear? Or, should risk-averse, public heuristics still be morphed into a public policy, even if the actual probability of health risks is extremely low?¹³ More importantly, can (and should) the WTO court prescribe its own "right" version of science to disputing parties? If it can,

8. Appellate Body Report, *European Communities—Measures Affecting Meat and Meat Products (Hormones)*, ¶ 208, WT/DS26/AB/R, (Jan. 16, 1998), available at http://www.wto.org/english/tratop_e/dispu_e/find_dispu_cases_e.htm [hereinafter, Appellate Body Report, *Hormones*] ("The absence of such a risk assessment (. . .) leads us to the conclusion that no risk assessment that *reasonably supports or warrants* the import prohibition embodied in the EC Directives was furnished to the Panel.") (emphasis added).

9. Sungjoon Cho, *International Decisions, United States—Continued Suspension of Obligations in the EC—Hormones Dispute*, 103 AM. J. INT'L L. 299, 300-02 (2009) [hereinafter Cho, *Hormones Suspension*] (documenting the EU's persistent refusal to repeal its ban on hormone-treated beef, despite the 1998 defeat in the WTO dispute settlement procedure).

10. Press Release, Office of the U.S. Trade Representative, *USTR Announces Agreement With European Union In Beef Hormones Dispute* (May 13, 2009), available at <http://www.ustr.gov/about-us/press-office/press-releases/2009/may/ustr-announces-agreement-european-union-beef-hormones->.

11. See Panel Report, *United States—Continued Suspension of Obligations in the EC—Hormones Dispute*, ¶ 7.447, nn. 551-52, WT/DS320/R (Mar. 31, 2008).

12. Appellate Body Report, *Hormones*, *supra* note 8, ¶ 187.

13. See Dan M. Kahan et al., *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 HARV. L. REV. 1071, 1071-72 (2006) (reviewing CASS R. SUNSTEIN, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* (2005)) (raising a similar question: "[w]hy . . . should regulatory law afford any weight to the uneducated opinions of ordinary citizens as opposed to the reasoned judgments of politically insulated risk experts?").

why has the WTO court thus far failed to put an end to this recurring dispute, despite the unequivocal references to “science” in the SPS Agreement?

Similar to the climate change debate, this food safety dispute involves two fiercely competing accounts of science that are impeding the creation of a coherent international public policy.¹⁴ Surprisingly, however, most legal commentators appear to be oblivious to this problem.¹⁵ Instead, they focus on the allocation of regulatory competence between the WTO and domestic regulators, and suspect that the SPS Agreement would impose excessive regulatory burdens on domestic governments and unduly second-guess domestic regulatory decisions.¹⁶ Furthermore, they fear that WTO global regulation would eventually undermine domestic regulatory autonomy and ultimately state sovereignty.¹⁷ According to these scholars, domestic governments should be allowed to take proactive steps to mitigate public fear, whether such fear is rational or irrational,¹⁸ despite the WTO’s apparent goal of promoting “sound science.”¹⁹ While this literature is use-

14. See Stephan Harding, *The Long Road to Enlightenment*, GUARDIAN, Jan. 8, 2007, available at <http://www.guardian.co.uk/environment/2007/jan/08/climatechange.climatechangeenvironment> (documenting the history of scientific controversies on climate change).

15. For notable exceptions to this general trend, see David A. Wirth, *European Communities—Measures Concerning Meat and Meat Products*, 92 AM. J. INT’L L. 755, 759 (1998) (questioning the SPS Agreement’s “fundamental reliance” on science despite its “evolving” nature); Jeffery Atik, *Science and International Regulatory Convergence*, 17 NW. J. INT’L L. & BUS. 736, 738 (1997) (rejecting a universalist notion of science and emphasizing its temporal-spatial relativity).

16. See, e.g., David M. Driesen, *What Is Free Trade?: The Real Issue Lurking Behind the Trade and Environment Debate*, 41 VA. J. INT’L L. 279, 296, 300 (2001); Isis Amelia Rose Sien, Note, *Beefing Up the Hormones Dispute: Problems in Compliance and Viable Compromise Alternatives*, 95 GEO. L. J. 565, 566–67 (2007) (observing that the WTO might not be an appropriate avenue to handle measures driven by non-discriminatory motives, such as cultural practices); Andrew T. Guzman, *Food Fears: Health and Safety at the WTO*, 45 VA. J. INT’L L. 1, 26–27 (2005) (warning that the WTO court’s interference with domestic regulatory prerogatives on food safety may backfire, especially “when states refuse to comply or refuse to comply in full with a WTO ruling.”).

17. See, e.g., Michael Trebilcock & Julie Soloway, *International Trade Policy and Domestic Food Safety Regulation: The Case for Substantial Deference by the WTO Dispute Settlement Body Under the SPS Agreement*, in THE POLITICAL ECONOMY OF INTERNATIONAL TRADE LAW 537, 553 (Daniel L. M. Kennedy & James D. Southwick eds., 2002) (warning that if the WTO were to become a “global science court” it might supplant domestic regulatory determinations, and thus undermine its own legitimacy); Layla Hughes, *Limiting the Jurisdiction of Dispute Settlement Panels: The WTO Appellate Body Beef Hormone Decision*, 10 GEO. INT’L ENVTL. L. REV. 915, 915 (1998) (viewing the SPS Agreement’s requirement of scientific justification as not grounded in “either domestic or international environmental law”); see generally Steve Charnovitz, *The World Trade Organization, Meat Hormones, and Food Safety*, 14 INT’L TRADE REP. (BNA) 1781 (Oct. 15, 1997) (arguing that the WTO should not intervene in certain domestic health and safety issues).

18. See Howard F. Chang, *Risk Regulation, Endogenous Public Concerns, and the Hormones Dispute: Nothing to Fear But Fear Itself?*, 77 S. CAL. L. REV. 743, 775 (2004) (supporting the efforts of domestic governments to reduce public fear, even if considered irrational, as a legitimate objective).

19. Warren H. Maruyama, *A New Pillar of the WTO: Sound Science*, 32 INT’L LAW. 651, 651–52 (1998).

ful in understanding certain *domestic* regulatory positions,²⁰ it nonetheless fails to grasp the root of the food safety dispute, i.e., risk science itself, and thus remains largely unable to formulate operable *international* regulatory solutions.

Other scholars have looked to relevant disciplines, such as political science and psychology, to explain risk-related legal reasoning or decision-making, and have identified complicated political dynamics behind these diverging positions on risk science,²¹ as well as cognitive, social, and psychological roots.²² For example, there is some empirical evidence that rent-seeking politics or certain psychological biases may motivate judges or policymakers to adopt a strict notion of risk science, which in turn allows them to avoid any opportunistic (protectionist) exploitation of erroneous perceptions of risk science by interested parties or disputants.²³

Although these disciplines may help explain the particular legal reasoning or decision-making of an *already* adjudicated case involving issues related to risk science, they fail to answer a more fundamental question: *whether* adjudication itself should ever occur in these contentious cases? While these disciplines mostly concern factors exogenous to risk science, such as political dynamics, they do not explore factors “endogenous” to the nature of risk science itself: its innate incompleteness and provisionality. Critically, it is these endogenous factors that generate the diverging, transatlantic scientific claims regarding the safety of hormone-treated beef.

This Article contends that insights from the philosophy of hermeneutics can better explain the real nature of disputes involving controversial risk science. First, one should realize that science does not exist as an immutable truism, but instead as a particular “paradigm.”²⁴ It is not that the United States or the EU position on risk science is right or wrong. Rather, each position is simply based on a different, competing paradigm. The ultimate product of any adjudication, however, is “binary”—one party will win and the other will lose. Therefore, once the WTO court adjudicates a dispute involving two competing paradigms of risk science, it is likely the court will find for the side that subscribes to whichever paradigm

20. See, e.g., Darrell Chichester, Comment, *Battle of the Beef, The Rematch: An Evaluation of the Latest E.C. Directive Banning Beef Produced with Growth Hormones and the U.S. Refusal to Accept the Directive as WTO Compliant*, 21 AM. U. INT'L L. REV. 221, 248-49 (2005) (viewing the EC's new measure as consistent with the SPS Agreement).

21. See generally MARK A. POLLACK & GREGORY C. SHAFFER, *WHEN COOPERATION FAILS: THE INTERNATIONAL LAW AND POLITICS OF GENETICALLY MODIFIED FOODS* (2009) (detailing the political factors, such as industry lobbying and regulatory capture, behind the transatlantic struggle over genetically modified foods).

22. See, e.g., CASS R. SUNSTEIN, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* 24-35 (2005) (attacking the precautionary principle from the standpoint of cognitive psychology).

23. For example, Howard Chang observed that protectionists might generate a food scare (“endogenous fear”) to protect the domestic market from foreign competition. See Chang, *supra* note 18, at 761-64.

24. See THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* 147 (3d ed. 1996) (observing that “[t]he competition between paradigms is not the sort of battle that can be resolved by proofs.”).

is deemed more plausible. In so doing, the WTO court will elaborate on an ostensibly universal, textual meaning of “science,” pursuant to the VCLT, in order to distinguish good science from bad science, the latter of which might be protectionist or unreasonable.²⁵ Accordingly, the WTO court will emerge with its own “right answer” on the safety of hormone-treated beef, just as Dworkin’s Herculean judge would do.²⁶ However, it seems naive to expect the court to yield complete intellectual control over competing notions of science. To an already dogmatic party or its political institution, such as the European Parliament, this type of outcome would hardly be considered legitimate.²⁷

The futility of such “judicialization” of science should shift our interpretive attention from the mere literal meaning of science to parties’ understandings of science, often driven by parties’ history and context (“horizon”). Understanding, therefore, is “party-dependent.”²⁸ For example, the EU’s understanding of risk science, as it is related to the safety of hormone-treated beef, is based on its own horizon, which the United States does not currently share. One’s horizon, like a prejudice, blinds it from perceiving an undistorted image of others. True understanding and reconciliation, therefore, requires the “patient identification and undoing of those facets of our implicit understanding that distort the reality of the other.”²⁹ Through this open process, often compared to “conversation,” one party can voluntarily accept, or at least tolerate, a position that it does not share.³⁰ Then, and only then, can these different horizons “fuse” and true understanding materialize.³¹

Importantly, these philosophical insights should inform the WTO court’s hermeneutical path toward resolving trade disputes involving risk science. Instead of forcing a rushed end to a dogmatic struggle between parties, the WTO court, with the aid of collaborative regulatory dialogue, should guide parties toward discovering a solution themselves.³² The

25. According to Warren Maruyama, the aim of the SPS Agreement was to institutionalize “sound science” in the WTO system. See Maruyama, *supra* note 19, at 651–52; see also ROBIN FELDMAN, *THE ROLE OF SCIENCE IN LAW 100* (2009) (observing that science provides “information that is reliable, sustainable and true in some absolute sense.”).

26. See generally RONALD DWORKIN, *LAW’S EMPIRE* 239–40 (1986) (advocating, in a metaphoric sense, for the Herculean judge, who will always render right answers).

27. This is exactly why the EU had initially refused to comply with the 1998 Appellate Body report. Indeed, the EU’s adamant non-compliance led to a successive dispute (*Hormones-Suspension*) a decade later in 2008. See Cho, *Hormones-Suspension*, *supra* note 9, at 300–02.

28. Charles Taylor, *Gadamer on the Human Sciences*, in *THE CAMBRIDGE COMPANION TO GADAMER* 126, 127 (Robert J. Dostal ed., 2002).

29. *Id.* at 132.

30. HANS-GEORG GADAMER, *TRUTH AND METHOD* 361 (Joel Weinsheimer & Donald G. Marshall trans., 2nd rev. 1989) [hereinafter GADAMER, *TRUTH AND METHOD*].

31. *Id.* at 306; see also Kristin Mueller, *Hormonal Imbalance: An Analysis of the Hormone Treated Beef Trade Dispute Between the United States and the European Union*, 1 *DRAKE J. AGRIC. L.* 97, 111 (1996) (noting that “[w]ith growing economic interdependence and an increase in international trade issues, cooperation and understanding among nations becomes critical.”).

32. For a peer review model of managing or resolving these disputes, see generally Andrew Lang & Joanne Scott, *The Hidden World of WTO Governance*, 20 *EUR. J. INT’L L.*

WTO court can facilitate such dialogue by utilizing certain procedural disciplines—reason-giving, notification, and transparency requirements—when it interprets major material obligations under the SPS Agreement, such as risk assessment.

For example, if a regulating (importing) country unduly refuses to disclose its new sanitary measure to an exporting country negatively affected by the measure, the WTO court may find negative probative forces indicating that the regulating party failed to fulfill its risk assessment obligation under Article 5.1 of the SPS Agreement.³³ The WTO court could even establish a presumption that a regulating country's measure is adopted without valid scientific justification if it fails to disclose the measure to WTO members. The underlying logic is that the regulating country is unlikely to have conducted a meaningful risk assessment when it fails to even take into account the crucial interests of the most affected trading partners (exporting countries).

Finally, a disclaimer is in order. This Article does not concern the interpretation of science per se or the complexity thereof. Furthermore, I do not intend to present a grand thesis on the interpretation of science in general. Instead, this Article focuses on the particular issue of food safety and risk science as it is related to WTO norms, such as the SPS Agreement. Consequently, it demonstrates that an international court, such as the WTO court, is unlikely to properly handle science-related trade disputes because of the innate complexity of science.

Also, the diverging paradigms of risk science discussed here should not be translated directly into any generalized form of cultural determinism.³⁴ The decades-long transatlantic dispute over hormone-treated beef did not transpire because Americans are generally risk-friendly and Europeans risk-averse. Americans are as risk-averse as, or more so than, Europeans with respect to other issues, such as the carcinogenic risks from certain food additives.³⁵ Yet regarding this particular subject-matter, hor-

575 (2009) (highlighting various committee review procedures under the SPS Agreement and the General Agreement on Trade in Services (GATS) as “hidden” forms of WTO governance).

33. In fact, established jurisprudence of the WTO court provides that lack of regulatory dialogue may militate against a finding that a regulating country (defendant) exercised good faith. See, e.g., Appellate Body Report, *United States—Standards for Reformulated and Conventional Gasoline*, at 28-29, WT/DS2/AB/R (Apr. 29, 1996) (ruling that the U.S. failure to reach out to its trading partners for regulatory cooperation constituted an arbitrary and unjustifiable discrimination); Appellate Body Report, *United States—Import Prohibition of Certain Shrimp and Shrimp Products*, ¶ 181, WT/DS58/AB/R (Oct. 12, 1998) (finding that the U.S. government's denial of certain due process rights to exporters constituted arbitrary and unjustifiable discrimination).

34. See Jonathan B. Wiener, *Whose Precaution After All? A Comment on the Comparison and Evolution of Risk Regulatory Systems*, 13 DUKE J. COMP. & INT'L L. 207, 208 (2003) (criticizing the conventional stereotypes of Europeans as “risk-averse” and Americans as “risk-preferring”). But cf. Kahan et al., *supra* note 13, at 1086-87 (arguing that a positive relationship exists between “cultural worldviews and perceptions of environmental risks.”).

35. This is the so-called “Delaney clause.” See James S. Turner, *Delaney Lives! Reports of Delaney's Death Are Greatly Exaggerated*, 28 ENVTL. L. REP. 10,003, 10,018-19

mone-treated beef, the EU *happens to be* more precautionary than the United States due to a combination of factors, including different institutional configurations and historical occurrences, such as recent food scandals.³⁶ Over time, these factors have led to the selective salience of a particular paradigm on risk science within contemporary EU society.

Against this backdrop, this Article unfolds in the following sequence. Part I sketches the basic relationship between health risks and international trade. It explains how risk science occupies an important place in international trade law and briefly introduces the regulatory scheme under the WTO's SPS Agreement. Part II then explores how the ostensibly neutral concept of science embedded in the SPS Agreement may generate diverging interpretations. Furthermore, it argues that the WTO court and conventional forms of treaty interpretation may not adequately resolve disputes involving conflicting paradigms of science. Part III critically observes that this problem of interpretive divergence, which produces different regulatory prescriptions on the same issue, can in fact be traced to different "philosophical" standpoints between parties on particular aspects of risk science. Providing a philosophical analysis of risk science, Part III highlights the importance of communication in understanding another nation's regulatory positions that involve risk science.

Part IV then applies these philosophical insights to the international law of risk regulation and argues that the focus of regulation should shift from "control" to "communication," while also providing some policy suggestions in this regard. Finally, this Article posits that efforts to narrow risk science's hermeneutical fissure, through dialogue between WTO members, will help constitute the global trading community. Indeed, such dialogue establishes a collective identity among WTO members and internalizes it within domestic legal systems. This Article also acknowledges that regulatory dialogue might be a painful process, in that it may require a certain "identity cost," i.e., one must first change the understanding of self before he or she can understand the other.³⁷

I. International Trade and Food Safety: A Conspectus

Trading foodstuffs often results in trading diseases or other harmful substances, such as toxins, contained in those foodstuffs. If all trading nations shared the same regulatory system, policing these problems would be much easier. In reality, however, inevitable regulatory heterogeneity engenders trade disputes as the two paramount goals—free trade and regu-

(1998); see also Wiener, *supra* note 34, at 225 (arguing that there is "no simple divergence in which Europe or the United States is more precautionary than the other *across the board*" and that "relative precaution appears to depend on the *risk and the consequences of specific policies* than it does on *broad national or temporal postures*.") (emphasis added).

36. POLLACK & SHAFFER, *supra* note 21, at 5.

37. Taylor, *supra* note 28, at 141 ("The cost appears as such from the standpoint of the antecedent identity, of course. . . . It cannot be denied . . . that the path to acknowledging this is frequently painful.").

latory protection—of trading nations often clash. In other words, exporting countries' desires for better market access may conflict with importing countries' trade restrictions in the name of regulatory protection. Such a clash is most salient when an importing country is sensitive to certain risks, while an exporting country is not. Most of the recent trade and human health controversies, including hormone-treated beef, avian flu, swine flu (H1N1), and genetically modified organisms (GMO), fit within this rubric. The following table illustrates the fact that the United States and the EU have differing sensitivities with respect to a wide range of risks.

[Table 1: Comparison of Risk Sensitivities (The EU v. The U.S.)]

Risks Sensitive to the EU	Risks Sensitive to the U.S.
Hormone-Treated Beef	Mad Cow Disease
Genetically Modified Foods	Particulate Matter
Toxic Chemicals	Lead in Gasoline
Climate Change	The Stratospheric Ozone Layer
Marine Pollution	New Drug Approval
Guns	Nuclear Energy
Teenage Consumption of Illegal Drugs	Teenage Consumption of Alcohol and Tobacco

(Source: Wiener (2003)³⁸)

The prototypical mechanism that reconciled the values of free trade and regulatory protection was Article XX, the General Exception clause, in the General Agreement on Tariffs and Trade (GATT), established in 1947.³⁹ Although an import restriction may have violated a certain free trade obligation,⁴⁰ in a provisional sense, under GATT Article XX⁴¹ such a measure could have been justified as a legitimate policy if that measure was “necessary” to protect human health, for example, and did not constitute an arbitrary discrimination or a disguised restriction to international trade.

The SPS Agreement under the new WTO, launched in 1995, has created a more sophisticated regulatory system that features “science” and “scientific justification” at its forefront. Specifically, the SPS Agreement requires WTO members to uphold science and base their sanitary mea-

38. See generally Wiener, *supra* note 34, at 225-29 (summarizing those risks that Europeans and Americans, respectively, view with greater precaution).

39. General Agreement on Tariffs and Trade art. XX, Oct. 30, 1947, T.I.A.S. No. 1700, 55 U.N.T.S. 187.

40. Consider the following obligation, which provides:

No prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licences or other measures, shall be instituted or maintained by any contracting party on the importation of any product of the territory of any other contracting party or on the exportation or sale for export of any product destined for the territory of any other contracting party. *Id.* art. XI(1) (emphasis added).

41. *Id.* art. XX.

tures on scientific justifications. For example, Article 2.2 of the SPS Agreement stipulates that sanitary regulations should be “based on *scientific* principles and . . . not maintained without sufficient *scientific* evidence.”⁴² Likewise, Article 5.2 requires WTO members to “take into account available *scientific* evidence” when they assess human health risks.⁴³

Furthermore, the SPS Agreement aims to “harmonize” WTO members’ sanitary measures to the extent that they choose to incorporate the scientific standards provided by representative international regulatory organizations, such as the Codex Alimentarius Commission. Article 3.1 provides that “[m]embers shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations, where they exist.”⁴⁴ Although WTO members may depart from these standards for a higher level of protection,⁴⁵ they must maintain regulatory “consistency” when applying their chosen levels of protection to other comparable situations.⁴⁶

Annex A of the SPS Agreement defines “international standards” for food safety as the “standards, guidelines and recommendations established by the Codex Alimentarius Commission relating to food additives, veterinary drug and pesticide residues, contaminants, methods of analysis and sampling, and codes and guidelines of hygienic practice.”⁴⁷ Article 12.3 requires the SPS Committee, which is a regular consultation forum in this area, to seek scientific advice from the Commission.⁴⁸ The SPS Agreement, as far as its text is concerned, largely institutionalizes scientific positions of the mainstream epistemic community, especially those of the Codex Alimentarius Commission.

II. Judicializing Risk Science and Its Discontents

Although science rose to prominence under the WTO, treaty interpretation alone might not fully capture its genuine meaning. The traditional treaty interpretation method articulated in Articles 31 and 32 of the VCLT centers on three main elements: text, intention, and teleology.⁴⁹ The pri-

42. SPS Agreement, *supra* note 3, art. 2.2 (emphasis added).

43. *Id.* art. 5.2 (emphasis added).

44. *Id.* art. 3.1.

45. *Id.* art. 3.3 (allowing WTO members to maintain higher standards of protection if scientifically justified).

46. *Id.* art. 5.5 (requiring consistency in levels of protection across “different situations” to avoid arbitrariness and unjustifiable distinctions).

47. *Id.* Annex A, ¶ 3(a).

48. *Id.* art. 12.3 (“The Committee shall maintain close contact with the relevant international organizations in the field of sanitary and phytosanitary protection, especially with the Codex Alimentarius Commission, . . . with the objective of securing the best available scientific and technical advice for the administration of this Agreement . . .”).

49. First, the VCLT provides that “a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.” VCLT, *supra* note 4, art. 31(1). Next, it states that “[r]ecourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to con-

mary and foremost interpretive methodology is to “reduce agreements to clear language.”⁵⁰ Here, the main mission of an interpreter is to locate the clearest, lexicographic, and ordinary meaning of each word and phrase within the black letter law. While this is certainly the beginning of any interpretation, it is never the end. Most treaty language suffers from ambiguities. Considering that treaties are the product of negotiation, these textual ambiguities are often indispensable to reach a compromise. Note that most, if not all, operative provisions of the SPS Agreement are quite open-ended. For example, Article 2.2 of the SPS Agreement provides that “[m]embers shall ensure that any sanitary or phytosanitary measure . . . is based on *scientific* principles and is not maintained without sufficient *scientific* evidence.”⁵¹ But what kind of “science” does this Article refer to? Would dictionary meanings of the term “science” suffice for purposes of the SPS Agreement? Should it then represent the mainstream version? Or could it also connote a minority, or even eccentric, version?

At first, one might raise the credible assumption that the term embodies the mainstream view of risk science on sanitary measures, considering the context in which the term “science” is used elsewhere in the SPS Agreement. Indeed, the Agreement incorporates the norms and standards of representative international regulatory entities, such as the Codex Alimentarius Commission.⁵² It also encourages WTO members to consult these professional institutions when they enact and apply domestic sanitary measures.⁵³ Therefore, a traditional treaty interpretation under the VCLT, which prioritizes the ordinary meaning of text as well as its context, would likely distill, by analyzing quantitative data and rigorous methodologies, a mainstream view of risk science.⁵⁴

The *Hormones* Panel apparently subscribed to this conventional version of science. In the *Hormones* dispute, the United States challenged the EC’s ban on hormone-treated beef on the ground that hormones already exist in ordinary meat and other foodstuffs, such as milk and broccoli,

firm the meaning resulting from the application of article 31, or to determine the meaning when the interpretation according to article 31: (a) leaves the meaning ambiguous or obscure; or (b) leads to a result which is manifestly absurd or unreasonable.” *Id.* art. 32.

50. Peter McRae, *The Search for Meaning: Continuing Problems with the Interpretation of Treaties*, 33 VICTORIA U. WELLINGTON L. REV. 209, 212 (2002); see also Gerald G. Fitzmaurice, *Vae Victis or Woe to the Negotiators! Your Treaty or Our “Interpretation” of It?*, 65 AM. J. INT’L L. 358, 362-63 (1971).

51. SPS Agreement, *supra* note 3, art. 2.2 (emphasis added).

52. *Id.* art. 3.1 (“To harmonize sanitary and phytosanitary measures on as wide a basis as possible, Members shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations, where they exist . . .”).

53. See, e.g., *id.* art. 12.2 (“The Committee shall encourage the use of international standards, guidelines or recommendations by all Members and, in this regard, shall sponsor technical consultation and study with the objective of increasing coordination and integration between international and national systems and approaches for approving the use of food additives or for establishing tolerances for contaminants in foods, beverages or feedstuffs.”).

54. In this regard, one might observe that the SPS Agreement is based on “sound science.” See Maruyama, *supra* note 19, at 651-52.

which the EC obviously does not prohibit.⁵⁵ The Panel, the WTO low court, agreed with the experts' opinions relied upon by the United States.⁵⁶ According to the scientists consulted by the Panel, *how* we consume certain hormones in food, whether endogenously in food or artificially injected,⁵⁷ does not matter from the human health perspective as long as the *amount* of hormone intake is under the acceptable level set by the Codex Alimentarius Commission. Consequently, the Panel found that the EC violated Article 5.5 of the SPS Agreement because it arbitrarily discriminated between two comparable regulatory situations.⁵⁸

[Table 2: Comparative Oestrogen Intakes from Food Sources]

Food	Unit Weight (g)	Oestrogen Intake (ng)
Unimplanted Steer Meat	500	61.1
Oestradiol-Implanted Steer Meat	500	11.4
Zeranol-Implanted Steer Meat	500	7*
Cow Meat	500	75 (7.2-540)*
Hen's Egg	50-60	1,750*
Cabbage	100	2,400*
Peas	100	400*
Wheat Germ	10	200*
Soybean Oil	10 ml	20,000*
Milk	500 ml	75*

* Oestradiol Equivalents

(Source: Panel Report, *Hormones*, ¶ 4.94)

However, the Appellate Body (AB), the WTO high court, sided with the EC's interpretation and thus reversed the Panel's finding. In a rather sweeping tone, the AB denied the scientific validity of the comparison between these two regulatory situations. The AB *de facto* substituted the conventional version of science with its own when it identified a "funda-

55. Panel Report, European Communities—Measures Concerning Meat and Meat Products (Hormones), ¶ 8.171, WT/DS26/R/US (Aug. 18, 1997), available at http://www.wto.org/english/tratop_e/dispu_e/find_dispu_cases_e.htm [hereinafter Panel Report, *Hormones*].

56. In describing the evidence presented by the experts, the Panel noted that: [A]ll scientific experts advising the Panel have concluded that residues of the three natural hormones present endogenously in meat and other foods or administered for therapeutic or zootechnical purposes are *qualitatively the same* as the residues of these hormones administered for growth promotion and that if any differences between these hormones could exist (e.g., *differences in pathways taken or metabolites*), these differences would in any event not have consequences for the potential adverse effects of these hormones. *Id.* ¶ 8.187 (emphasis added).

57. *Id.*

58. *Id.* ¶ 8.197.

mental distinction” between these two situations.⁵⁹ Further, the AB observed that any attempt to compare them would lead to “absurdity.”⁶⁰ The AB replaced *techné*, represented by laboratory science, with *phronesis*, a common-sense-based notion of science, befitting the “real world where people live and work and die.”⁶¹ Under this interpretation, the EC did not violate Article 5.5 of the SPS Agreement because the two situations, naturally occurring versus artificially injected hormones, were not comparable in the first place.

In the *Hormones* case, the EC’s position prevailed only because of the AB’s hierarchical superiority to the Panel. In future disputes, however, how can the WTO court overcome interpretive dilemmas, especially in light of the shortcomings of traditional treaty interpretation that prioritizes ordinary meaning and context? Perhaps the WTO court might have recourse to certain non-textual interpretive criteria.⁶² First, the *telos*, or purpose and object, of a treaty might elucidate treaty text with respect to a given interpretive situation. True, teleological interpretation is capable of delivering holistic answers to certain interpretive questions confronted by many courts. In fact, international tribunals, including the WTO AB, often engage in teleological interpretations even when they declare that they only practice in textual interpretations.⁶³

One potential problem with this type of interpretation is that it may result in legislative action by a judicial organ.⁶⁴ Although judicial legislation may be unavoidable to some extent under certain circumstances,⁶⁵ within the context of highly diverging issues on health risk and science such judicial legislation may backfire. Even judicial prudence embedded in teleological interpretation may not break parties’ dogmatic positions on risk science. The authority of any such interpretation may not stand amid parties’ divergent positions on food-borne risks, which often reflect their own unique context and history.

59. Appellate Body Report, *Hormones*, *supra* note 8, ¶ 221.

60. *Id.*

61. *Id.* ¶ 187; *cf.* Stephen Tyreman, *Promoting Critical Thinking in Health Care: Phronesis and Criticality*, 3 *MEDICINE, HEALTH CARE AND PHILOSOPHY* 117, 117 (2000) (arguing that “*phronesis* adds a necessary corrective dimension to modern Western medicine’s over-emphasis on *techné*.”) (emphasis added).

62. One might point to “special meaning” as a tool to overcome ambiguities of ordinary, dictionary meanings. Yet because a special meaning is eventually guided by parties’ “intentions” it suffers the same deficiencies as intentions as interpretive criterions.

63. Henrik Horn & Joseph H. H. Weiler, *European Communities—Trade Description of Sardines: Textualism and its Discontent*, in *THE WTO CASE LAW OF 2002* 248, 252 (H. Horn and P. C. Mavroidis eds., 2005) (“[A] pretense to determine a legal meaning of a text based on the ordinary meaning of words somehow bestows greater hermeneutic propriety on the resultant interpretation. Any critical reading of the case law will show that when it appears fit the AB is no less teleological . . . than any other tribunal of similar standing.”).

64. McRae, *supra* note 50, at 222.

65. *See, e.g.*, Sungjoon Cho, *Global Constitutional Lawmaking*, 31 *U. PA. J. INT’L L.* 621, 658–63 (2010) (defending the WTO court’s judicial legislation in the form of “constitutional adjudication” in the area of antidumping law (zeroing)).

Another interpretive criterion might be parties' "intentions." Hersch Lauterpacht once observed that "[i]t is the duty of the judge to resort to all available means—including rules of construction—to discover the intentions of the parties."⁶⁶ In fact, some domestic courts, including U.S. courts, accentuate legislative intent when interpreting statutes and even constitutions.⁶⁷ Yet in the realm of international law, such intentions are not necessarily clear nor coherent. Even if parties' intentions may be located in "preparatory work" (*travaux préparatoires*), such records themselves are often prone to multiple interpretations.⁶⁸ In fact, the negotiation history of the SPS Agreement reveals deep-rooted divergences between WTO members, in particular the United States and EU, on critical issues affecting the regulation of health risks, such as the authority of mainstream science symbolized by international standards, e.g., the Codex standards.⁶⁹

In sum, the VCLT's conventional methodology of treaty interpretation may not adequately construe the notion of "science" under the SPS Agreement. Multiple interpretations are always possible, depending on which version of science the interpreter adopts. Similarly, non-textual, supplemental criteria would not sufficiently overcome interpretive dilemmas.

The uncertain world of science might not be susceptible to a test of normative validity that is basically "binary"—legal or illegal. Thus, an innate mismatch exists between the nature of risk science, which is indeterminate, and that of adjudication, which is determinate. If the WTO court *adjudicates* science-driven disputes, as it would ordinary non-scientific trade disputes, it is more likely to subscribe to a particular scientific paradigm.⁷⁰ This "judicialization" of science amounts to the WTO court playing Dworkin's Herculean judge, who always renders the "right" answer,

66. Hersch Lauterpacht, *Restrictive Interpretation and the Principle of Effectiveness in the Interpretation of Treaties*, 26 BRIT. Y.B. INT'L L. 48, 83 (1949).

67. See, e.g., *Rhode Island v. Massachusetts*, 37 U.S. (12 Pet.) 657, 721 (1838) (ruling that constitutional interpretation "must necessarily depend on the words of the constitution [and] the meaning and *intention* of the convention which framed and proposed it . . .") (emphasis added).

68. First, the very term "preparatory work" is ambiguous, possibly referring to several different documents, such as memoranda, minutes of conferences or even different versions of treaty drafts. See generally Summary Record of the 873rd Meeting on the Law of Treaties, [1966] 1 Y.B. INT'L L. COMM'N, at 204, U. N. Doc. A/CN.4/SR.873. Second, negotiating states are often reluctant to express their real intentions. See *id.* at 207.

69. See generally Elizabeth Fisher, *Beyond the Science/Democracy Dichotomy: The World Trade Organization Sanitary and Phytosanitary Agreement and Administrative Constitutionalism*, in CONSTITUTIONALISM, MULTILEVEL TRADE GOVERNANCE AND SOCIAL REGULATION 327, 328-29 (Christian Joerges & Ernst-Ulrich Petersmann eds., 2006) [hereinafter CONSTITUTIONALISM] (attributing the nebulous nature of the SPS text to "political compromise and thoughtless drafting."). In addition, many scholars observe that the decision-making process *within* the Codex Alimentarius Commission is also very controversial and even political. See, e.g., Thorsten Hüller & Matthias Leonhard Maier, *Fixing the Codex?: Global Food-Safety Governance Under Review*, in CONSTITUTIONALISM, *supra* note 69, at 268-69 (introducing literature that cast doubts on the neutrality and integrity of the Codex Alimentarius Commission).

70. Cf. SHEILA JASANOFF, *THE FIFTH BRANCH: SCIENCE ADVISERS AS POLICYMAKERS* 49 (1990) (observing that U.S. judicial activism with respect to scientific disputes has pro-

namely its preferred choice between competing scientific paradigms.⁷¹ Even if such judicialization is unintentional and simply the product of reasoning, it may still appear illegitimate. Indeed, the court's assessment of scientific validity (judicialization) seems inconsistent with its status as a neutral arbiter.

Moreover, judicialization of science may outsource *legal* issues to science or scientists.⁷² In some cases the WTO court might be tempted to simply defer to expert opinions, instead of subjecting legal questions to legal scrutiny. Such deference might, for example, embolden panelists to determine whether appreciable risks of carcinogenicity from the consumption of hormone-treated beef exist, instead of merely deciding whether there is a "rational relationship" between the SPS measure and the risk assessment.⁷³

Rather than confronting these underlying problems the WTO court might want to develop its own justiciability doctrine, by which it could decline to hear these "wrong cases,"⁷⁴ and thereby avoid the risk of judicialization of science in the first place. The WTO court's procedural authority, however, may not provide a mechanism by which courts could exercise this judicial avoidance tactic. Furthermore, it may be unable to develop operable criteria that effectively screen out wrong cases. Moreover, one might say that all food safety-related disputes are potentially wrong cases to the extent that scientific controversies and socio-cultural sensitivities contribute to their intrinsic combustibility.

III. Philosophizing the Debate: The Hermeneutics of Risk Science

A. Piercing the Veil of Legalized Science: Why Philosophical Insights?

Given the aforementioned problems with the judicialization of risk science, judicial interpretation might not adequately grasp the full meaning of risk science as it relates to food and human health. The following ques-

duced an over-simplified paradigm of "science policy" which blends science with policy).

71. See, e.g., Sungjoon Cho, *Of the World Trade Court's Burden*, 20 EUR. J. INT'L L. 675, 685-86 (2009) [hereinafter Cho, *World Trade Court's Burden*] (criticizing the AB's position in *Hormones*, and likening the court to the Dworkinian Herculean judge who hands down his or her own final answer when resolving a highly controversial scientific issue).

72. FELDMAN, *supra* note 25, at 37-38 (discussing the recent phenomenon by which legal dilemmas are outsourced to science, a problem she identifies as "externalization").

73. See, e.g., Appellate Body Report, United States—Continued Suspension of Obligations in the EC—Hormones Dispute, ¶ 612, WT/DS320/AB/R (Oct. 16, 2008) [hereinafter Appellate Body Report, *Hormones—Suspension*] (criticizing the Panel for failing to appraise expert testimony under a proper and limited standard of review).

74. "Wrong cases" refer to those extremely combustible (political) cases that tend to short circuit the dispute settlement system. See Robert E. Hudec, *GATT Dispute Settlement After the Tokyo Round: An Unfinished Business*, 13 CORNELL INT'L L.J. 145, 159 (1980); see also William J. Davey, *Dispute Settlement in GATT*, 11 FORDHAM INT'L L.J. 51, 67-78 (1987); John H. Jackson, *The Jurisprudence of International Trade: The DISC Case in GATT*, 72 AM. J. INT'L L. 747, 779-80 (1978) (discussing a similar concept of cases that cannot be handled properly by adjudication).

tions tend to explore the deep-seated meaning of risk science, which judicial interpretation might not fully capture. First, *why* do we interpret anyway? Is it so courts can resolve a particular dispute or so parties can discover a valid answer (truth) behind the dispute? Second, *what* should be interpreted? Should it be the risk science reified in the SPS text itself or the version embedded in each party's contextual social reality? Third, *who* should interpret? A WTO judge with an Olympian detachment from the social context of the science-related dispute or should it be the disputants themselves, who are not only observing but also "experiencing" those risks?⁷⁵

Beneath these questions lurks a more fundamental, philosophical issue which the WTO court can not fully fathom with only the VCLT as an aid. Note that both the *Hormones* Panel and AB relied on the VCLT only to produce diametrically opposite rulings on the same question. First, it may be useful to describe this interpretive fissure as a "conflict of paradigms," in the Kuhnian sense. Here, two paradigms clashed over the safety of hormones in food. One paradigm, adopted by the United States and the Panel, focuses on the *level* of hormone residue in the human body regardless of its pathway or metabolites.⁷⁶ Under this paradigm, there is no significant regulatory difference between naturally-occurring hormones in foods (hormones in milk or broccoli) and artificially-injected hormones (hormones in cattle). This paradigm represents the mainstream or normal view of science, according to Kuhn, which is incorporated in international standards, such as the Codex standards. Therefore, the Panel ruled that the EU violated the SPS Agreement by treating like situations (naturally-occurring hormones and artificially-injected hormones) in an unlike manner (no regulatory intervention and a total ban).⁷⁷

The paradigm adopted by the EU and the AB diametrically differed with that selected by the United States and the Panel. For example, the EU and AB highlighted potential man-made risks that could arise from the abuse or misuse of hormones administered to cattle for growth promotion purposes.⁷⁸ Admittedly, the conventional paradigm would not even con-

75. GADAMER, *TRUTH AND METHOD*, *supra* note 30, at 352-53 (criticizing the Aristotelean notion of "contingent observations," which tend to focus only on the "formation of concepts" in regard to science; instead, emphasizing that experience is a "process" in which one not only confirms past expectations but also embrace new possibilities in understanding).

76. Panel Report, *Hormones*, *supra* note 55, ¶ 8.187.

77. SPS Agreement, *supra* note 3, art. 5.5 ("With the objective of achieving consistency in the application of the concept of appropriate level of sanitary or phytosanitary protection against risks to human life or health, or to animal and plant life or health, each Member shall avoid arbitrary or unjustifiable distinctions in the levels it considers to be appropriate in different situations, if such distinctions result in discrimination or a disguised restriction on international trade.") (emphasis added).

78. Appellate Body Report, *Hormones*, *supra* note 8, ¶ 206 ("We disagree with the Panel's suggestion that exclusion of risks resulting from the combination of *potential abuse and difficulties of control* is justified by distinguishing between 'risk assessment' and 'risk management.'") (emphasis added); Panel Report, *Hormones*, *supra* note 55, ¶ 4.194 ("The European Communities claimed that there were additional risks to human

sider these types of risks because it regards the problem of administrative control as a non-scientific factor.⁷⁹ Yet under the EU's "zero-tolerance" perspective, endorsed by the AB, these man-made risks are taken into account when assessing risk. Therefore, there might be "fundamental differences" between the aforementioned regulatory situations that renders any comparison an "absurdity."⁸⁰

Given that various food scandals, including BSE (Mad Cow disease), shaped the zero-tolerance trend in Europe, the EU's rather practical attitude toward risk science, adopted by the AB ("real world where people live and work and die"⁸¹), is comprehensible. In each society, a confluence of factors, including historical contingencies, underlying institutional configurations, and interest group dynamics, tend to establish a paradigmatic equilibrium on a particular scientific issue.⁸² Such equilibrium is not only difficult to reverse,⁸³ but also exhibits critical distributive implications. For example, the European paradigm, which disfavors hormone-treated beef, tends to protect European cattle growers, who mainly produce hormone-less beef, from an influx of American hormone-treated beef. It is clearly in the vital interest of American farmers to shift the European paradigm in a direction that will permit their products to circulate in the European market.⁸⁴

The shift of a paradigmatic equilibrium, or "paradigm shift," might be a drastic phenomenon, perhaps even a "scientific revolution," by which "many old measurements and manipulations become irrelevant."⁸⁵ The rather radical nature of changing a given position on risk science does not benefit judicialization. In other words, deciding whether to maintain or change a scientific paradigm should not be in the hands of a judge who

and animal health arising from the administration and *potential misuse* of hormones.") (emphasis added).

79. Panel Report, *Hormones*, *supra* note 55, ¶ 8.146.

80. Indeed, the AB emphasized the "absurdity" of requiring the EU to regulate naturally-occurring hormones in order to justify its ban:

[W]e consider there is a fundamental distinction between added hormones (natural or synthetic) and naturally-occurring hormones in meat and other foods. In respect of the latter, the European Communities simply takes no regulatory action; to require it to prohibit totally the production and consumption of such foods or to limit the residues of naturally-occurring hormones in food, entails such a comprehensive and massive governmental intervention in nature and in the ordinary lives of people as to *reduce the comparison itself to an absurdity*.

Appellate Body Report, *Hormones*, *supra* note 8, ¶ 221 (emphasis added).

81. *Id.* ¶ 187.

82. POLLACK & SHAFFER, *supra* note 21, at 77, 83.

83. Margaret Levi, *A Model, a Method, and a Map: Rational Choice in Comparative and Historical Analysis*, in *COMPARATIVE POLITICS: RATIONALITY, CULTURE, AND STRUCTURE* 19, 28 (Mark I. Lichbach & Alan S. Zucherman eds., 1997) (quoted in POLLACK & SHAFFER, *supra* note 21, at 78).

84. See Christian Joerges, *Law, Science, and the Management of Risks to Health at the National, European and International Level—Stories on Baby Dummies, Mad Cows and Hormones in Beef*, 7 *COLUM. J. EUR. L.* 1, 14-15 (2001) (arguing that both private parties and governments may exploit the authority of science and experts in a way which promotes their economic interests).

85. KUHN, *supra* note 24, at 128.

could pick and choose his or her own paradigm under the guise of textual interpretation. At this juncture, the interpretive focus should shift from the “text” to the “parties” to fully understand the truth behind science as it is experienced in everyday lives.

Our inquiry on risk science and international trade must go beyond conventional treaty interpretation and embrace deeper, philosophical inquiries, in particular those related to the philosophy of interpretation or hermeneutics. Without these additional intellectual efforts, the global trading community may not fully diagnose or treat controversial trade and human health disputes.

B. Science and the Life-world (Lebenswelt): Hans-Georg Gadamer’s Philosophical Hermeneutics

In everyday life scientific inquiries, particularly those related to health risks, tend to connote a certain “truth” claim. For example, “hormone-treated beef is unsafe to consume,” or in a more radicalized form “we may get cancer if we eat hormone-treated beef.” As discussed above, conventional or mainstream science tackles these inquiries through a sophisticated set of “methodologies,” which are produced by positivistic, scientific knowledge based on rigorous scientific investigation. Therefore, according to this conventional standpoint being scientific means being “objective” and “universal.” Under this rubric then, the meaning of science in the United States should be the same as in Europe.

Mainstream science is reified in various international standards created by standard-setting agencies, such as the Codex Alimentarius Commission,⁸⁶ under the auspices of the Food and Agricultural Organization (FAO) and the World Health Organization (WHO). The WTO SPS Agreement requires members to “base” their sanitary measures on the Codex standards.⁸⁷ Under the Commission, the Joint FAO/WHO Expert Committee on Food Additives (JECFA), an independent body of scientists working in their individual capacities, establishes *safe levels* of hormone intake (“ADIs”) as well as maximum *residue limits* of hormones in the human body (“MRLs”).⁸⁸

Philosophers have long challenged this emphasis on positivistic science. Edmund Husserl famously criticized this version of modern science as a “mathematization of nature,” which is arguably detached from our real life or “life-world” (*Lebenswelt*).⁸⁹ Following Husserl’s tradition, Hans-Georg Gadamer objected to the conventional premise that an exhaustible

86. FAO/WHO, *Understanding the Codex Alimentarius* (1999), available at ftp://ftp.fao.org/codex/Publications/understanding/Understanding_EN.pdf.

87. See, e.g., SPS Agreement, *supra* note 3, art. 3.1, Annex A, ¶ 3(a).

88. Panel Report, *Hormones*, *supra* note 55, ¶¶ 2.14, 2.17.

89. See generally EDMUND HUSSERL, *THE CRISIS OF EUROPEAN SCIENCES AND TRANSCENDENTAL PHENOMENOLOGY* (David Carr trans., Northwestern University Press 1970).

scientific “method” is the exclusive avenue to a truth claim.⁹⁰ According to Gadamer, this version of science is nothing more than the “paradigmatic expression of the condition that gave rise to epistemology,”⁹¹ or even the “naiveté of an ontology of the world based on the objectivism of mathematical natural science.”⁹² Gadamer argued that the life-world is an “intuitively given world” amid ever streaming horizons, structured as “a finite, subjective-relative world with indeterminate open horizons.”⁹³ In contrast, the world of science holds the “symbolic givenness of a logical substraction that can no more be given by itself than the infinite series of numbers.”⁹⁴ While “objective science is a factor in our own life-world,” it can only be understood by “historical exploration of its origin and its limits of validity.”⁹⁵

Gadamer believed that truth, including scientific truth, may only be obtained through hermeneutics, which he described as a “dialogical-dialectical interchange between interpreter and *interpretandum*.”⁹⁶ Importantly, understanding cannot be driven from a vacuum. Our attitude toward what is interpreted (“interpretandum”), such as a text, event, or other’s behavior, is often predetermined by pre-understandings of past interpreters, whom we are inevitably linked to through a chain of interpretations (“interpretational lineage”).⁹⁷ Interpretation is not “presuppositionless” precisely because an interpreter cannot escape from his or her own ontological premise, i.e., the “finite temporal situation as the horizon within which the beings he understands have their initial meaning for him.”⁹⁸

Note that this pre-understanding is not a mere bias which, in association with enlightenment, is purged by the power of reason, but rather it is a “belongingness” (*Zugehörigkeit*) to the tradition. The innate historical distance (alienation) between the interpretandum and the interpreter can only be overcome by the consciousness of effective history.⁹⁹ Such consciousness then fuses the interpretandum’s history or context (“horizon”) and the interpreter’s own horizon (“fusion of horizons”), and achieves an authentic understanding of the interpretandum.¹⁰⁰ Accordingly, the “universal praxis” of human reason or rationality can no longer monopolize the lan-

90. See generally Hans-Georg Gadamer, *The Science of the Life-World* [hereinafter *Life-World*], in PHILOSOPHICAL HERMENEUTICS 182 (David E. Linge trans. & ed., 1976) [hereinafter PHILOSOPHICAL HERMENEUTICS].

91. JOEL C. WEINSHEIMER, *GADAMER’S HERMENEUTICS: A READING OF TRUTH AND METHOD* 4 (1985).

92. *Life-World*, *supra* note 90, at 184.

93. *Id.* at 193.

94. *Id.*

95. *Id.* at 194.

96. Fred R. Dallmayr, *Borders or Horizons? Gadamer and Habermas Revisited*, 76 CHI.-KENT L. REV. 825, 828–29 (2000).

97. David Weininger, *Hermeneutics and Phenomenology Lecture* (1999), available at http://people.bu.edu/wwildman/WeirdWildWeb/courses/wphil/lectures/wphil_theme19.htm#.

98. David E. Linge, *Editor’s Introduction*, in PHILOSOPHICAL HERMENEUTICS, *supra* note 90, at xlvii.

99. See WEINSHEIMER, *supra* note 91, at x.

100. GADAMER, *TRUTH AND METHOD*, *supra* note 30, at 306.

guage of science.¹⁰¹ Because the interpreter's life-world "claims its own phenomenal legitimacy," based on its characteristic "givenness," the classical, neo-Kantian undertaking of "conceiving the objects of experience in the sense of the science of facts"¹⁰² becomes a shaky thesis. Firmly rejecting a narrow definition of science, the AB's famous dictum in *Hormones* ("real world where people live and work and die"¹⁰³) seems to correspond to this philosophical position.

In sum, Gadamer accuses scientific positivism, the pedigree of which may trace back to August Comte, of existing as a self-fulfilling prophecy gravely detached from the life-world.¹⁰⁴ According to Gadamer, those presuppositions or prejudices that constitute our life-world are in fact necessary for us to unearth the truth, including the scientific truth, within texts or phenomena before us. Such prejudices, therefore, never distract or prevent an individual from getting to the truth.¹⁰⁵

IV. Applying Philosophical Insights to International Law of Risk Regulation

A. From Control to Communication

Philosophical insights shed critical light not only on the futility of the judicialization of science, but also on the hitherto lack of genuine *mutual* understanding¹⁰⁶ in the transatlantic dispute over hormone-treated beef. The United States should realize that the EU's understanding of risk science remains grounded in the EU's own horizon to the same extent as the United States' own horizon drives its understanding. Because a party's original horizon prevents it from recognizing another's horizon and its undistorted image, true understanding and reconciliation requires the "patient identification and undoing of those facets of our implicit understanding that distort the reality of the other."¹⁰⁷ Only with this open-mindedness, often compared to "conversation,"¹⁰⁸ can one party volunta-

101. *Life-World*, *supra* note 90, at 196. Often, cultural or ethical concerns might be reflected in formulating scientific standards, such as the Codex standards. See Hüller & Maier, *supra* note 69, at 291.

102. *Life-World*, *supra* note 90, at 183-84.

103. Appellate Body Report, *Hormones*, *supra* note 8, ¶ 187.

104. See notably JURGEN HABERMAS, KNOWLEDGE AND HUMAN INTERESTS (1968).

105. Some scholars define this rather subjective, relative notion of science as "trans-science," situated between pure scientific facts and value (policy) judgment. See Alvin M. Weinberg, *Science and Trans-Science*, 10 MINERVA 209 (1972); Thomas O. McGarity, *Substantive and Procedural Discretion in Administrative Resolution of Science Policy Questions: Regulating Carcinogens in EPA and OSHA*, 67 GEO. L. J. 729, 732-47 (1979). Both articles are cited in Vern R. Walker, *Keeping the WTO from Becoming the "World Trans-Science Organization": Scientific Uncertainty, Science Policy, and Factfinding in the Growth Hormones Dispute*, 31 CORNELL INT'L L.J. 251, 252 n.1. (1998).

106. Taylor, *supra* note 28, at 127 (describing this understanding as "party-dependent").

107. *Id.* at 132.

108. *Id.* at 134.

rily accept a position that may be *against* its interests.¹⁰⁹ A dialogue partner can encourage us to question our assumptions, which we must nonetheless rethink to reach mutual understanding.¹¹⁰ Only through this dialogue or conversation can different horizons “fuse,” providing a path to true understanding of the other.¹¹¹ In sum, Gadamer’s hermeneutical openness urges an interpreter to endeavor to fuse her own horizon with another’s horizon to extract meanings, namely to “understand.”

Applying Gadamer’s theory of philosophical hermeneutics to risk regulation, within the meaning of the WTO, yields two different subjects of understanding: facts and norms. These two subjects are often enmeshed in practical interpretive situations. For example, an exporting country may interpret an importing country’s regulation to protect human health, such as a ban on hormone-treated beef. The same member is then positioned to interpret relevant WTO texts related to risk regulations, such as the SPS Agreement, in tandem with its interpretation of the facts.

Here, the exporting country might commit the hermeneutical error of giving in to its impulse to “control” the dogmatic struggle with its trading partner, potentially by manipulating scientific methodologies, which may border on “myths,” and not by relying on science in its true meaning.¹¹² In many cases, “a tremendous leap from a tiny amount of data” may still appear scientific.¹¹³ When evaluating a trading partner’s risk regulation, blind faith in laboratory data does not lead to genuine scientific understanding, especially when scientists fail to agree on critical issues. Likewise, if the WTO court plays the Dworkinian Hercules by subscribing to a certain paradigm of science and imposing it on a losing party, the court tends to disregard that party’s unique regulatory context. Naturally, the losing party is likely to perceive such interpretation as flawed and illegitimate.¹¹⁴

The essential lesson from the philosophy of hermeneutics—as it is related to risk science and the WTO—highlights unyielding interpretive openness,¹¹⁵ achieved through “a lessening of distance”¹¹⁶ between an interpreter and interpretandum, and anchored by a firm acknowledgement

109. GADAMER, *TRUTH AND METHOD*, *supra* note 30, at 361. As with the principle of Socratic dialogue, every conversation (dialogue) should start from the point of the “*docta ignorantia*,” which acknowledges original ignorance as well as fallibility. Anton A van Niekerk, *Hermeneutics and Historical Consciousness: An Appraisal of the Contribution of Hans-Georg Gadamer*, 21 S. AFR. J. PHIL. 228, 234 (2002).

110. Georgia Warnke, *Law, Hermeneutics, and Public Debate*, 9 YALE J. L. & HUMAN. 395, 411 (1997).

111. GADAMER, *TRUTH AND METHOD*, *supra* note 30, at 306.

112. Cf. Karl Popper, *Philosophy of Science: A Personal Report*, in *BRITISH PHILOSOPHY IN MID-CENTURY* 155, 157 (C.A. Mace, ed., 1957) (characterizing Marxism, psychoanalysis, and individual psychology as myths).

113. FELDMAN, *supra* note 25, at 145.

114. See Cho, *World Trade Court’s Burden*, *supra* note 71, at 710 (“[T]he Court’s judicialization of science may become ‘political’. Under these circumstances, the Court’s exercise of its interpretive burden over the BOP tends to erode its legitimacy by inviting more, not less, politics from the parties concerned.”).

115. See Axel Honneth, *On the Destructive Power of the Third, Gadamer and Heidegger’s Doctrine of Intersubjectivity*, 29 PHIL. & SOC. CRITICISM, 5, 5 (2003); Dennis J.

of the inevitable finitude of human experience.¹¹⁷ After all, understanding and truth can emerge only through conversation.¹¹⁸ Note, however, there does not exist a final, definite answer when it comes to understanding (truth). Truth only operates to the extent that it continuously exists in the “hermeneutical circle”¹¹⁹ between the interpreter and the interpretandum. In other words, the interpreter should continue to ask and refine questions until he or she is satisfied; that is, until the interpreter’s horizon is fused with that of the other. American regulators will not understand, in any genuine sense, the European ban on hormone-treated beef until they actually reach out to their European counterparts and fully appreciate the “phenomenon itself in its unique and historical concreteness.”¹²⁰

This hermeneutical circle already subsists in the regulatory dialogue generated under the SPS Agreement. Mutual understanding becomes possible when such dialogue changes *either* party or *both* parties participating in the dialogue. This dialectic is not about one party forcing the other party to accept the former’s original position. Rather, hermeneutical convergence may occur when a dialogue *induces* the modification of an original position of either or both parties in the form of mutual understanding. The following table illustrates this dialectical change under the stylized settings of regulatory dialogue.

[Table 3: Two Possible Hermeneutic Circles for Hermeneutical Convergence]

1. $A_0 \rightarrow (B_0 \rightarrow B_1) \rightarrow A_0 \rightarrow (B_1 \rightarrow B_2) \rightarrow \dots$
2. $A_0 \rightarrow B_0 \rightarrow (A_0 \rightarrow A_1) \rightarrow (B_0 \rightarrow B_1) \rightarrow \dots$

Suppose that A is an exporting country which raises an inquiry on B, an importing (regulating) country, regarding B’s sanitary measure. A_0 is A’s original position on risk science according to which B’s sanitary measure is without scientific justification. B_0 is B’s original position on risk science according to which its measure is scientifically justified. Under the first scenario, A demands from B scientific justification behind B’s measure. In the course of preparing for answers to A’s inquiry, B may seek to discover the context of A’s inquiry, such as A’s motivation, background, culture, and interest. Such discovery tends to help B better understand A_0 .

Schmidt, *Gadamer*, in *A COMPANION TO CONTINENTAL PHILOSOPHY* 433 (Simon Critchley & William R. Schroeder eds., 1999).

116. Honneth, *supra* note 115, at 5.

117. Schmidt, *supra* note 115, at 440.

118. *See id.* at 434.

119. *See* Warnke, *supra* note 110, at 409 (“Understanding is . . . a *circular* movement in which the understanding of the meaning of new chapters of the book proceeds on the basis of the understanding the interpreter has constructed of the meaning and unity of the previous chapters, while at the same time, his or her understanding of the new chapter may require revising the understanding of those previous parts.”) (emphasis added).

120. Schmidt, *supra* note 115, at 436; GADAMER, *TRUTH AND METHOD*, *supra* note 30, at 6.

Then, B may want to voluntarily modify its original position (B0_B1) to accommodate A0. This process may continue multiple times until B's policy change truly fuses with A's original position (A0).

Under the second scenario, the modification of original positions is reciprocal. In the course of reason-giving and reason-receiving both parties embrace opportunities to change their original positions (A0_A1 and B0_B1). After multiple loops of such regulatory dialogue the parties may reach a mutual understanding based on their mutually changed positions. In other words, as the number of loops or interactions (n) increase the hermeneutical discrepancy (Bn-An) tends to shrink toward zero. Between these two, highly simplified yet non-exhausted scenarios, one might reasonably speculate that the second scenario might signify a better chance for mutual understanding because the probability of closing the hermeneutical gap (Bn-An) appears higher here than in the first scenario.

B. Policy Suggestions

Philosophical discussions on hermeneutics have important implications for the current debate on international trade and risk science. At present, WTO members rarely share mutual understanding on the very meaning of science or scientific justification as they relate to the health risks of various food additives or other food modification technologies. Given these different understandings, any impulsive legal/regulatory attempt to impose a specific paradigm of science in a trade dispute is likely to invite more dispute rather than resolve the initial misunderstanding. In this regard, the theory of philosophical hermeneutics offers some practical suggestions.

First, disputing parties should refrain from the temptation to jump to WTO litigation over those disputes that involve competing paradigms of science. A losing party would find it difficult to tolerate a decision contrary to its socio-cultural fundamentals or horizon. Adjudicating these types of disputes is likely to produce "wrong cases,"¹²¹ while also costing the WTO its efficacy and legitimacy. Therefore, parties should engage in more dialogue, and communicate about the root issues of their dispute through various institutionalized avenues under the WTO, such as consultations, the SPS committee, and other peer review forums, e.g., the Trade Policy Review Mechanism (TPRM).¹²² In this regard, the constructive settlement of a recent trade dispute involving genetically modified (GM) products between the EU and Canada was hermeneutically sound, especially

121. See Hudec, *supra* note 74, at 159.

122. This dialogue is not limited to regulators. Through a dialogue, scientists may narrow their own epistemic gap in evaluating scientific theories and data. See Douglas Crawford-Brown et al., *Environmental Risk, Precaution, and Scientific Rationality in the Context of WTO/NAFTA Trade Rules*, 24 RISK ANALYSIS 461, 468 (2004) (observing that risk science should be included in the "dialogue" among scientists regarding "how to judge data and theories, how to weight lines of evidence, and how to balance these considerations in a judgment of epistemic status and in a depiction of the uncertainty in risk estimates.").

given that both parties established an avenue for continuing dialogue.¹²³

Notably, an increasing number of SPS disputes have been resolved through the SPS Committee process instead of by judicial ruling. For example, nearly thirty percent of the “specific trade concerns” reported to the SPS Committee were addressed by discussions and consultations under the Committee.¹²⁴ Whether or not the specific trade concerns facilitated by the SPS Committee have involved controversies related directly to different paradigms of risk science, this extra-judicial peer-review mechanism still offers an operable avenue for regulatory dialogue over risk science.

[Table 4: Specific Trade Concerns: Resolved Issues (1995-2008)]

Sector	Total Number of Concerns Resolved	Regulating (Importing) States	Complaining (Exporting) States
Animal Health	41	Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Canada, Chile, China, Columbia, Cuba, Czech Rep., El Salvador, France, Germany, Iceland, Indonesia, Israel, Hungary, Italy, Netherlands, Norway, Poland, Romania, Singapore, Slovak Rep., Slovenia, Spain, Taiwan, Turkey, U.S., Venezuela.	Argentina, Brazil, Canada, Chile, EC, Hungary, India, Panama, Switzerland, Uruguay, U.S.
Food Safety	20	Australia, China, Czech Rep., EC, Korea, Malaysia, New Zealand, Philippines, Poland, Singapore, Spain, Switzerland.	Argentina, Australia, Bolivia, Brazil, Canada, EC, Gambia, India, Indonesia, Philippines, Senegal, Sri Lanka, Switzerland, Thailand, U.S.
Plant Health	24	Australia, Brazil, China, EC, Honduras, Indonesia, Japan, Korea, Mexico, New Zealand, Panama, Slovak Rep., Switzerland, Taiwan, Turkey, U.S.	Argentina, Brazil, Canada, Chile, EC, Ecuador, Hungary, New Zealand, Poland, Thailand, U.S.

(Source: WTO, SPS Committee¹²⁵)

123. See David Akin, *EU Drops Ban on Genetically Modified Canola from Canada*, CALGARY HERALD, Jul. 15, 2009; Ian Austen & James Kanter, *Canada Settles a Crop Trade Complaint Against Europe*, NY TIMES, Jul. 15, 2009, at B2.

124. WTO Committee on Sanitary and Phytosanitary Measures, *Review of the Operation and Implementation of the Agreement on the Application of Sanitary and Phytosanitary Measures*, G/SPS/36, Jul. 11, 2005; see also Sungjoon Cho, *The WTO's Gemeinschaft*, 56 ALA. L. REV. 483, 537-38 (2004) (noting that a SPS dispute between Canada and Brazil regarding the former's ban on the latter's export of beef for the fear of BSE (mad cow disease) was resolved under the SPS Committee process by adopting a revised “Recommended Procedures for Implementing the Transparency Obligations of the SPS Agreement (Article 7).”); Lang & Scott, *supra* note 32, at 592-95 (introducing several SPS disputes which were addressed under the SPS Committee's peer review (“Specific Trade Concerns”) process).

125. See generally WTO, Committee on Sanitary and Phytosanitary Measures, *Specific Trade Concerns: Resolved Issues*, G/SPS/GEN/204/Rev.9/Add.3 (Feb. 6, 2009).

Even if the WTO court eventually adjudicates these kinds of disputes, due to the absence of a justiciability doctrine, it should focus on those tasks which the judicial system is well-suited to address.¹²⁶ One conceivable option is for the WTO court to adjust its hermeneutical focus to procedural obligations, e.g., reason-giving, transparency, and notification, which mandate dialogue and communication between concerned parties. These procedural obligations would enable regulating states to reach out to certain “omitted voice[s],”¹²⁷ such as foreign governments and producers, and gain access to the latter’s regulatory context (horizon). In an effort to facilitate this kind of communication between regulating states and those affected by such regulations, the WTO court may accord certain probative value to the regulating state’s undertaking of these procedural obligations. In other words, whether the regulating state has discharged its burden of proof as to the “substantive” requirement, such as the existence of a “rational relationship” between a risk assessment and the final regulation, may depend on whether the state performed certain procedural obligations.¹²⁸ The underlying logic of this probative incentive is that risk regulations adopted without hermeneutical empathy tend to lack a rational basis. Indeed, perhaps such flawed regulations may be protectionist or pseudo-scientific measures. This idea of a procedural-substantive nexus is not new, other courts often link certain procedural deficiencies to substantive violations.¹²⁹

For example, under the SPS Agreement an importing state promulgating a regulation that deviates from an international standard must notify other WTO members about “the products to be covered by the regulation together with a brief indication of the objective and rationale of the proposed regulation.”¹³⁰ If the regulating state fails or neglects to release a notification, such failure or neglect may generate a plausible suspicion that the regulating state in fact lacks a risk assessment that would scientifically justify the regulation in question. At this juncture, the burden of proving that the regulation nonetheless complies with the risk assessment requirement (SPS Article 5.1) shifts to the defendant (regulating state). Under the SPS Agreement, one might locate several examples of such a nexus between procedural and substantive obligations, the most significant of which are identified in Table 5. In each nexus, a regulating state’s failure to fulfil a certain procedural obligation may militate against discharging the state’s

126. Cf. FELDMAN, *supra* note 25, at 167.

127. See Jonathan Baert Wiener & John D. Graham, *Resolving Risk Tradeoffs*, in *RISK VERSUS RISK: TRADEOFFS IN PROTECTING HEALTH AND THE ENVIRONMENT* 226, 230 (John D. Graham & Jonathan Baert Wiener eds., 1995).

128. Cho, *World Trade Court’s Burden*, *supra* note 71, at 717–18 (discussing a “Copernican turn” of shifting from “substantive finality” to “procedural legitimacy.”).

129. Under some jurisdictions, a procedural failure, such as the absence of notification, may lead to disapplication of an underlying (substantive) measure. See, e.g., Case C-194/94, *CIA Security International SA v. Signalson SA and Securitel SPRL*, 1996 E.C.R. I-2201 (ruling that a domestic court should disapply a technical regulation if a Member has failed to notify the European Commission of such regulation, under Directive 83/189).

130. SPS Agreement, *supra* note 3, Annex B, ¶ 5(b).

burden of proving that it complied with a corresponding substantive obligation.

[Table 5: Matching Procedural Obligations with Substantive Obligations Under the SPS Agreement]

Procedural Obligations	Substantive Obligations
Article 3.4 (requiring members to engage in serious dialogue on international standards); Article 5.8 (requiring a member deviating from international standards to answer an exporting country's inquiries)	Article 3.1 (requiring members to base their SPS measures on relevant international standards)
Article 5.8 (requiring a member deviating from international standards to answer an exporting country's inquiries); Article 7 (requiring members to provide information on their SPS measures)	Article 5.1 (requiring the existence of a rational relationship between a risk assessment and an SPS measure)
Article 5.8 (requiring a member deviating from international standards to answer an exporting country's inquiries); Article 7 (requiring members to provide information on their SPS measures)	Article 5.4 (requiring members to take into account the goal of minimizing negative trade effects); Article 5.5 (requiring members to maintain consistency in determining the appropriate level of regulatory protection)
Article 5.7 (the 3rd & 4th Prong) (requiring members to explore additional information for an objective risk assessment when imposing a provisional measure and review the measure within a reasonable period of time)	Article 5.7 (the 1st & 2nd Prong) (allowing members to adopt a provisional measure when there is insufficient scientific information, provided that it is on the basis of any pertinent available information)

Finally, WTO members, in and out of the WTO context, should seriously seek to “educate” the public as to the risk science on specific trade issues. This education and social marketing will raise awareness and literacy among consumers and policymakers on key issues related to science and human health, which will in turn facilitate risk communication between concerned parties. Once regulators, regulatees, and affected parties, e.g., consumers, are placed in the same hermeneutical circle, we can expect some kind of hermeneutical convergence during which the Gadamerian fusion of horizons transpires. Until then we may have to accustom ourselves to the twilight zone of science.¹³¹

131. The EU's new policy on GM foods, coined “technical pluralism,” seems to be based on this position. It permits the “co-existence” of GM and non-GM supply chains. See generally Justo Corti Varela, *The EU “Coexistence” Policy under WTO Law: Problems*

In conclusion, if the WTO court refocuses its interpretive gaze on procedural discrepancies not only is the legitimacy of a decision enhanced, but also parties are encouraged to reach a mutually acceptable settlement through continuing regulatory cooperation. As the WTO Dispute Settlement Understanding advises, parties should think hard about whether using the WTO dispute settlement system would be “fruitful” before they file a complaint.¹³²

Epilogue: Risk Governance, Democracy, and the Global Trade Constitution

Beneath the decades-long dispute between the United States and the EU on the safety of hormone-treated beef lies a critical hermeneutical divergence on the scope and meaning of relevant risk science. The WTO court’s conventional mode of treaty interpretation can not fathom such a deep paradigmatic fissure. Thus, any “judicialization” of risk science would fail to genuinely resolve the dispute because the already dogmatic, losing party would not accept the court’s decision. Instead, it would find ways to window-dress the decision and create a mere semblance of compliance. In fact, this is what the EU has done for the last two decades since losing the *Hormones* dispute in 1998.¹³³ Accordingly, this Article contends that concerned parties should engage in genuine communication toward mutual understanding, informed by philosophical insights, rather than struggle to prevail over the other in litigation where each party adheres to its original position in a dogmatic fashion. Some hermeneutical refocusing by the WTO court, through the operationalization of burden of proofs, may encourage disputants to communicate more vigorously.

Admittedly, communication toward genuine understanding of another’s position can be a “painful” process.¹³⁴ It demands an “identity cost” because one cannot understand the other unless one changes the understanding of the *self*.¹³⁵ This is a critical “inward-looking” aspect of understanding, which requires an interpreter to be willing to change his or her *own* original position and tolerate the plurality of interpretation in a hermeneutical circle.¹³⁶ The openness of a hermeneutical circle also corresponds to democratic rationality that is based on a deliberation requirement.¹³⁷ In this sense, science may be implemented only as a “weak program” whose premise is that “democratic values . . . are necessary conditions for the development of epistemic strategies that can lead to critical

and Solutions, Conference Paper presented to the ESIL-ASIL Research Forum (Changing Futures?: Science and International Law), Oct. 3, 2009 (on file with the author).

132. WTO Agreement, *supra* note 2, Annex 2, art. 3.7 (“Before bringing a case, a Member shall exercise its judgement as to whether action under these procedures would be fruitful.”).

133. See Cho, *Hormones Suspension*, *supra* note 9, at 300-02.

134. Taylor, *supra* note 28, at 141.

135. *Id.*

136. JEAN GRONDIN, *SOURCES OF HERMENEUTICS* 44 (1995).

137. Robert Howse, *Democracy, Science, and Free Trade: Risk Regulation on Trial at the World Trade Organization*, 98 MICH. L. REV. 2329, 2342-43 (2000).

understanding of our individual and collective experiences and to progressive . . . inquiry.”¹³⁸ Rather than an absolute, universal referential point, science may be subject to people’s construction in a public sphere.

The communicative function of WTO norms, embedded in a number of procedural obligations, holds the potential to facilitate such democratic deliberation on risk science in the international sphere by channeling collective experiences, and thus creating and extending mutual understanding. Considering that law is the basic medium for social integration,¹³⁹ WTO members should not underestimate law’s communicative nature. Communicative law or legal processes will provide WTO members with avenues toward hermeneutical openness, that will enable the fusion of horizons, in a given area of risk science, among WTO members.

Perhaps an important mission for trade law scholars is to help develop a common “language” of science, which can carry with it a “background understanding” of an extended life-world, as well as more inclusive accounts and possibilities that extend beyond positivistic, scientific data.¹⁴⁰ As interlocutors, the academic community may facilitate the communication necessary to fuse different horizons and establish a “common lifeworld,”¹⁴¹ by creating a conceptual framework based on discourse and language. At this juncture, the exigency of “education” as a special form of communication arises. Gadamer did not put much stock in the role of scientific reason and method in humanity’s future. Rather, what was promising to him was the “infinite openness of interpretation,”¹⁴² which is only possible through the development of a “sensitivity to the kindred sense communicated in the experience of the work of art.”¹⁴³ In this sense, openness requires cultivation or education (*Bildung*).

In conclusion, understanding risk science as it affects international trade can be a “constitutional” issue that forces us to decide not only whether we *can* but also whether we *should* do certain things. It inevitably

138. Sal Restivo, *The Myth of Kuhnian Revolution*, 1 SOC. THEO. 293, 299 (1983); see also Howse, *supra* note 137, at 2342-43 (observing that citizens’ value judgments should be able to trump mainstream science under certain circumstances). Admittedly, if one understands democracy more from a representative (political), not necessarily deliberative, standpoint, there might be a tension between democracy and science. See Fisher, *supra* note 69, at 330-31 (observing that the SPS Agreement might become problematic if a domestic SPS measure, departing from normal science, is seen as a “democratic” responsibility of that government); Vern R. Walker, *The Myth of Science as a “Neutral Arbiter” for Triggering Precautions*, 26 B.C. INT’L & COMP. L. REV. 197, 197 (2003).

139. Jürgen Habermas, *Between Facts and Norms: An Author’s Reflections*, 76 DENV. U. L. REV. 937, 937 (1999) (regarding law as a medium for social integration, not merely as a tool for the exercise of administrative or political power).

140. Taylor, *supra* note 28, at 130-31, 135.

141. Drawing on Habermas’ communicative action theory, Thomas Risse defined “common lifeworld” as a “supply of collective interpretations of the world and of themselves, as provided by language, a common history, or culture.” Thomas Risse, “Let’s Argue!”: *Communicative Action in World Politics*, 54 INTL ORG. 1, 10 (2000).

142. Schmidt, *supra* note 115, at 441.

143. *Id.*

holds a moral-normative impulse.¹⁴⁴ The unique moral-normative thesis entrenched in the hermeneutics of science is highly inductive to a constitutional dimension of the global trading system because it shapes the system's collective identity.

144. PHILOSOPHICAL HERMENEUTICS, *supra* note 90, at 196-97.