

Chicago-Kent College of Law

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2011

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.♦*

Abstract

Science has recently become increasingly salient in various fields of international law. In particular, the 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 tends to complicate treaty interpretation. It tends to take treaty interpretation *beyond* a conventional methodology under the Vienna Convention on the Law of Treaties, which is primarily concerned with clarifying and articulating the treaty text. The two decades old transatlantic trade dispute over hormone-treated beef is a case in point. This article demonstrates that beneath the controversy between the United States and the European Union on the safety of hormone-treated beef lurks a critical hermeneutical divergence on the scope and meaning of relevant risk science, which a conventional model of international adjudication cannot fully fathom. The article is a philosophical retelling of what has been regarded largely as a legal-regulatory controversy. Informed by the philosophical hermeneutics, the article concludes that only a continuing dialogue or communication between disputing parties concerned can narrow down the hermeneutical discrepancy on risk science.

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[♦] Alfred North Whitehead (cited in ALEXANDER WENDT, SOCIAL THEORY OF INTERNATIONAL POLITICS xvi (1999)).

[♣] EMILE DURKHEIM, ELEMENTARY FORMS OF RELIGIOUS LIFE 438 (Joseph Ward Swain trans. 1915).

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

One of globalization’s dividends is an ever-interdependent world with 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 harvested and manufactured with new ingredients and technologies. Yet globalization may be a mixed blessing: Along with the diversity associated with international trade may also come unforeseen side effects, such as health risks. These risks have begun to emerge as critical issues within the global trading system.¹ While some importing countries tend to take these types of 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 (SPS) Agreement³ responds to this tension between regulatory autonomy and free trade by upholding the right to regulate and at the same time 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 tends to take its interpretation *beyond* a conventional

¹ See John H. Jackson, *Global Economics and International Economic Law*, 1 J. INT’L ECON. L. 1, 1-4 (1998) (highlighting the ever-increasing challenges to the global trading system from various social regulations).

² Final Act Embodying the Results of the Uruguay Round of Multilateral Trade Negotiations, 15 Apr. 1994, Legal Instruments – Results of the Uruguay Round, 33 ILM (1994) 1140; Marrakesh Agreement Establishing the World Trade Organization, Legal Instruments – Results of the Uruguay Round, 33 ILM (1994) 1140 [hereinafter WTO Agreement].

³ Agreement on Sanitary and Phytosanitary Measures, Annex 1 A, the WTO Agreement, *supra* note __ [hereinafter SPS Agreement].

methodology under the Vienna Convention on the Law of Treaties (VCLT),⁴ which is primarily concerned with clarifying and articulating the treaty text.

The two decades old transatlantic trade row over hormone-treated beef is quite emblematic of this dilemma.⁵ While treating cattle with growth hormones is an acceptable practice in the United States, the same practice is banned in Europe for its potential health risks. This ban has deprived many American dairy farmers of lucrative accesses to the European beef market. This article demonstrates that beneath the controversy between the United States and the European Union (EU) on the safety of hormone-treated beef lurks a critical hermeneutical divergence on the scope and meaning of relevant risk science, which a conventional model of international adjudication cannot fully fathom. The WTO court might be incompetent in addressing a highly dogmatic struggle between the U.S. and the EU which originated from conflicting “paradigms” on risk science concerning the safety of hormone-treated beef. The article is a philosophical retelling of what has been regarded largely as a legal-regulatory controversy. Informed by philosophical hermeneutics, the article concludes that only a continuing dialogue or communication between disputing parties can narrow down the interpretive discrepancy on risk science.

The beef hormones dispute is not an evanescent anecdote: It has a long and recurrent history. In the 1980s, the Reagan administration imposed retaliatory tariffs of 100 percent ad valorem on the European Communities (EC) imports worth about \$100 million after the two parties failed to resolve this issue under the old General Agreement on Tariffs and Trade (GATT) system.⁶ Although a temporary respite was reached in 1989, the issue was so combustible that the U.S. brought the same complaint to the new WTO dispute settlement mechanism as soon as it was launched in 1996. Although the WTO court ruled that the EU’s ban lacked scientific justification in 1998,⁷ the EC has refused to repeal the ban even in the face of the U.S. retaliation authorized by the WTO.⁸ As of today, both parties have failed to fully resolve this issue, though they have once again reached a provisional truce under which the EC permitted the U.S. to ship

⁴ Vienna Convention on the Law of Treaties, May 23, 1969, 1155 U.N.T.S. 331, *reprinted in* 8 I.L.M. 679 (*entered into force* Jan. 27, 1980) [hereinafter VCLT].

⁵ See e.g., Eleanor Beardsley, *In Europe, A Cow over Hormone-Treated Beef*, NAT’L PUB. RADIO, Sep. 29, 2009, available at <http://www.npr.org/templates/story/story.php?storyId=113314725> (reporting on the European farmers’ enmity toward the U.S. hormone-treated beef).

⁶ Foreign Agricultural Service, United States Department of Agriculture, *Chronology of the European Union’s Hormone Ban*, available at <http://www.fas.usda.gov/itp/policy/chronology.html>.

⁷ European Communities - Measures Affecting Meat and Meat Products (Hormones), WT/DS26/AB/R, Appellate Body and the Panel Report, as modified, adopted on Feb. 13 1998, ¶208. (emphasis added), available at http://www.wto.org/english/tratop_e/dispu_e/find_dispu_cases_e.htm [hereinafter, AB 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).

⁸ Sungjoon Cho, *United States – Continued Suspension of Obligations in the EC – Hormones (International Decisions)*, 103 AM. J. INT’L L. 299, 301-2 (2009) (documenting the EC’s persistent refusal to repeal its ban on the hormone-treated beef despite the 1998 defeat in the WTO dispute settlement procedure) [hereinafter Cho, *Hormones Suspension*].

additional hormone-free beef only, while preserving the original ban on hormone-treated beef.⁹

The clash of two conflicting dogmas tends to typify this decades-long transatlantic dispute. The U.S. holds that an infinitesimal amount of hormones injected into cattle for growth promotion purposes poses no significant health risks to humans when consumed. The U.S. justifies its position using the mainstream version of science embodied in relevant international standards, such as the Codex Alimentarius Commission standards (Codex standards). The Codex standards establish the appropriate levels of hormones in the human body, as codified in a “Maximum Residue Level (MRL)” and an “Acceptable Daily Intake (ADI).”¹⁰ In stark contrast, the European Union (EU) takes a different, highly preventive approach, accentuating certain minority scientific opinions which *do* identify health risks in the human consumption of foods administered with hormones. Departing from the laboratory-based science, the EU’s position rests on practical wisdom tuned into the “real world where people live and work and die.”¹¹

Then, *which* version of science is the right one? Should we adhere to mainstream science, as the U.S. does, and allow hormone-treated beef to freely circulate while dismissing any public outcry against it as unreasonable fear? Or, should this risk-averse public heuristics still be morphed into a public policy, even if the actual probability of health risks is extremely low?¹² More importantly, could (and should) the WTO court prescribe its own “right” version of science to disputing parties? If it could, why has the WTO court thus far failed to put an end to this recurring dispute, despite the unequivocal references to “science” under the SPS Agreement? This food safety dispute is similar to the climate change debate in that two fiercely competing accounts of science impede the creation of a coherent international public policy.¹³

Surprisingly, however, most legal commentators appear to be oblivious to this dilemma.¹⁴ Instead, they focus on the allocation of regulatory competence between the WTO and domestic regulators. They suspect that the SPS Agreement

⁹ USTR, *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->.

¹⁰ United States--Continued Suspension of Obligations in the EC--Hormones Dispute, Panel Report, WT/DS320/R, ¶2.17-18 (adopted Nov. 14, 2008).

¹¹ AB Report, *Hormones*, *supra* note __, ¶187.

¹² 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, *LAW OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* (2005)) (raising a similar question “why ... should regulatory law afford any weight to the uneducated opinions of ordinary citizens as opposed to the reasoned judgments of politically insulated risk experts?”).

¹³ See Stephen Harding, *The Long Road to Enlightenment*, THE GUARDIAN, Jan. 8, 2007 (documenting the history of scientific controversies on climate change).

¹⁴ Regarding notable exceptions to this general trend, see David A. Wirth, *European Communities Restrictions on Imports of Beef Treated with Hormones*, 92 AM. J. INT’L L. 755, 760 (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).

would impose too much regulatory burden on domestic governments and unduly second guess domestic regulatory decisions.¹⁵ They fear that the WTO global regulation would eventually undermine domestic regulatory autonomy and ultimately state sovereignty.¹⁶ According to these scholars, domestic governments should be allowed to take proactive steps to mitigate public fear, whether such fear is rational or irrational,¹⁷ despite the WTO's apparent goal of promoting "sound science."¹⁸ While this literature is useful in understanding certain *domestic* regulatory positions,¹⁹ it nonetheless fails to grasp the root of the 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 legal decision-making by identifying complicated political dynamics behind these diverging positions on risk science²⁰ as well as the cognitive/social psychological roots of such divergence.²¹ For example, there is some empirical evidence that rent-seeking

¹⁵ 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) (critically observing that the WTO's regulatory prescriptions would over-burden domestic governments and that WTO panels might second guess domestic regulators' decision-making); Isis Amelia Rose Sien, *Beefing Up the Hormones Dispute: Problems in Compliance and Viable Compromise Alternatives*, 95 GEO. L. J. 565, 567 (2007) (observing that the WTO might not be an appropriate avenue to handle certain non-discriminatory measures 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 might backfire as non-compliance with its decision).

¹⁶ 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, 557 (Daniel L.M. Kennedy & James D. Southwick eds., 2002) (warning that the WTO as a "global science court" might supplant domestic regulatory determinations and thus undermine its 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, 916 (1998) (viewing that the SPS Agreement's requirement of scientific justification is not grounded on either domestic or international environmental law); Steve Charnovitz, *The World Trade Organization, Meat Hormones, and Food Safety*, 14 INT'L TRADE REP. (BNA), No. 41, at 1785 (Oct. 15, 1997) (arguing that the WTO should not intervene certain domestic health and safety issues).

¹⁷ Howard F. Chang, *Risk Regulation, Endogenous Public Concerns, and the Hormones Dispute: Nothing to Fear But Fear Itself?*, 77 S. CAL. L. REV. 743, 775-76 (2004) (advocating the domestic government's efforts to reduce public fear even if it might not be irrational).

¹⁸ Warren Maruyama, *A New Pillar of the WTO: Sound Science* 32 INT'L LAW. 651, 653 (1998) (observing that the new WTO SPS Agreement ushered in "sound science" in adopting health measures).

¹⁹ See e.g., Darrell Chichester, *Battle of the Beef, The Rematch: An Evaluation of the Latest EC Directive Banning Beef Produced with Growth Hormones and the U.S. Refusal to Accept the Directive as WTO Complaint*, 21 Am. U. Int'l L. Rev. 221, 248 (2005) (viewing that the EC's new measure is consistent with the SPS Agreement).

²⁰ See generally MARK A. POLLACK & GREGORY C. SHAFFER, *WHEN COOPERATION FAILS: THE INTERNATIONAL LAW AND POLITICS OF GENETICALLY MODIFIED FOODS* (2009) (detailing political factors, such as industry lobbying and capture, behind the transatlantic struggle over genetically modified foods).

²¹ See generally CASS R. SUNSTEIN, *LAW OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* (2005) (attacking the precautionary principle from the standpoint of cognitive psychology).

politics or certain psychological biases may motivate judges or policymakers to adopt a strict notion of risk science to avoid any opportunistic (protectionist) exploitation or erroneous perception of risk science from interest parties or disputants.²²

Although these disciplines may be useful for understanding particular legal reasoning or legal decision-making *that has been* made over issues related to risk science, they still fail to answer a more fundamental question: *whether* adjudication itself should ever be made in these contentious cases. This is because while these disciplines mostly concern factors exogenous to risk science, such as political dynamics over risk science or its psychological justification, they do not explore a factor “endogenous” to the nature of risk science itself – its innate incompleteness and provisionality. Critically, it is this endogenous factor which generates the diverging transatlantic scientific validity claims on the safety of hormone-treated beef.

This article contends that insights from the philosophy of science can help better understand the real nature of these disputes involving controversial risk science. First of all, one should realize that science exists not as an immutable truism but as a certain “paradigm.”²³ It is not that either the U.S. or the EU position on risk science is right or wrong: each position is simply based on a different, competing paradigm. In contrast, an ultimate product of any adjudication is “binary”: One party will win and the other will lose. Therefore, once the WTO court adjudicates this type of dispute in which two competing paradigms of risk science clash each other, the court is most likely to pick a winner subscribing to a particular paradigm which is deemed more plausible than the other. In the course of doing so, the WTO court will elaborate on an ostensibly universal textual meaning of “science” pursuant to the VCLT, so as to distinguish good science from bad science, the latter of which might be protectionist or unreasonable.²⁴ Then, the WTO court will emerge with its own “right answer” on the safety of hormone-treated beef, just as the Dworkinian Herculean judge would do.²⁵ However, it seems naive to expect that the court can yield “complete intellectual control” on the competing notion of science. To an already dogmatic party or its political institution (such as the European Parliament), such an outcome would hardly be seen as legitimate.²⁶

²² For example, Howard Chang observed that protectionists might generate food scare (“endogenous fear”) to protect the domestic market from foreign competition. Chang, *supra* note __, at 763.

²³ THOMAS S. KUHN, *THE STRUCTURE OF SCIENTIFIC REVOLUTIONS* 148 (3d ed. 1996) (observing that “the competition between paradigms is not the sort of battle that can be resolved by proofs”).

²⁴ According to Warren Maruyama, the aim of the SPS Agreement was to institutionalize the “sound science” in the WTO system. *See* Maruyama, *supra* note __, at 652. *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”).

²⁵ *See generally* RONALD DWORKIN, *LAW’S EMPIRE* 239-40 (1986) (portraying, in a metaphoric sense, a judge’s role as a demi-god (*Hercules*) who will always renders right answers).

²⁶ This is exactly why the EU had refused since to comply with the Appellate Body report issued in 1998. The EU’s adamant non-compliance led to a successive dispute (*Hormones-Suspension*) a decade later in 2008. *See* Cho, *Hormones-Suspension*, *supra* note __, at 301-2.

The futility of such “judicialization” of science should shift our interpretive attention from the mere literal meaning of science to parties’ own understandings of science, which are driven by the parties’ history and context, or “horizon”. Understanding is “party-dependent.”²⁷ The EU’s understanding of risk science as it is related to the safety of hormone-treated beef is based on its own history or context (“horizon”), which the U.S. could not originally share. Obviously, one’s horizon, like a prejudice, blinds itself from perceiving an undistorted image of others. It is only through the “patient identification and undoing of those facets of our implicit understanding that distort the reality of the other”²⁸ that one can truly understand, and reconcile with, the other’s position. Through this open process, which is often compared to “conversation,” one party can voluntarily accept some position which it does not share.²⁹ Then, only then, can these different horizons “fuse” and true understanding can materialize.³⁰

Importantly, these philosophical insights should inform the WTO court’s hermeneutical path in addressing trade disputes involving risk science. Instead of venturing to force a rushed end to parties’ dogmatic struggle, the WTO court should assist guiding parties to discover the solution among themselves via collaborative regulatory dialogue.³¹ The WTO court can facilitate such dialogue between disputants by bringing forth certain “procedural” disciplines – such as reason-giving, notification and transparency requirements – when it interprets major material obligations, such as risk assessment, under the SPS Agreement.

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 in such a refusal negative probative forces indicating that the regulating party has in fact failed to fulfill its risk assessment obligation under SPS Article 5.1.³² The WTO court may even establish a presumption that the importing (regulating) country’s measure was adopted without valid scientific justification. The underlying logic is that the regulating

²⁷ Charles Taylor, *Gadamer on the Human Sciences*, in THE CAMBRIDGE COMPANION TO GADAMER 126, 127 (Robert J. Dostal ed. 2002).

²⁸ *Id.*, at 132.

²⁹ HANS-GEORG GADAMER, TRUTH AND METHOD 361 (Joel Weinsheimer & Donald G. Marshall trans. 2nd rev. 1989).

³⁰ *Id.*, at 306. See also Kristin Mueller, *Hormonal Imbalance: An Analysis of the Hormone Treated Beef Trade Dispute Between the U.S. and the E.U.*, 1 Drake J. Agric. L. 97, 112 (1996) (noting that “with growing economic interdependence and an increase in international trade issues, cooperation and understanding among nations becomes critical”).

³¹ Regarding 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. 575 (2009) (highlighting various committee review procedures under the SPS Agreement and the GATS as the “hidden” form of WTO governance).

³² In fact, it is an established jurisprudence of the WTO court that the lack of regulatory dialogue may militate against a regulating country (defendant)’s good faith. See Appellate Body Report, *United States – Standards for Reformulated and Conventional Gasoline*, WT/DS2/AB/R (29 Apr. 1996), at 28 (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*, WT/DS58/AB/R (12 Oct. 1998) (hereinafter *Shrimp-Turtle*), ¶ 181 (finding that the U.S. government’s denial of certain due process rights to exporters constituted an arbitrary or unjustifiable discrimination under the chapeau of GATT Article XX).

country is not likely to conduct a meaningful risk assessment when it fails even to 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. It simply demonstrates that an international court, such as the WTO court, might not properly handle science-related trade disputes on account of the innate complexity of science. I do not intend to present a grand thesis on the interpretation of science in general. Instead, the article focuses on the particular issue of food safety risk and science as it is related to the WTO norms (the SPS Agreement).

Also, diverging paradigms of risk science discussed here should not be translated directly into any generalized form of cultural determinism.³³ 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 in other areas, such as the carcinogenic risks from certain food additives.³⁴ Yet regarding this particular subject-matter (hormone-treated beef) the EU *happens to be* more precautionary than the U.S. side due to a combination of factors, including different institutional configurations and some historical contingencies (such as recent food scandals in Europe).³⁵ These factors have eventually led to the selective salience of a particular paradigm on risk science within contemporary EU society.

Against this backdrop, the 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 offers a brief introduction to 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. It critically observes that this interpretive divergence, which produces different regulatory prescriptions on the same issue, can in fact be traced to different "philosophical" standpoints between the parties concerned on particular aspects of risk science.

Providing a philosophical analysis on risk science, Part II highlights the importance of dialogue and communication in understanding other nations' regulatory situations involving risk science. Part III then applies these philosophical insights to international law of risk regulation and argues that the

³³ 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 stereotyping that Europeans are "risk-averse," while Americans are "risk-preferring"). *But cf.* Kahan et al., *supra* note __, at 1086-87 (arguing for a positive relationship between "cultural worldviews and perceptions of environmental risks").

³⁴ 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 (1998). See also Wiener, *supra* note __, 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 and temporal postures*") (emphasis add).

³⁵ POLLACK & SHAFFER, *supra* note __, at 5.

focus of regulation should shift from “control” to “communication,” while also providing some policy suggestions in this regard. The article concludes by positing that WTO members’ efforts to narrow the hermeneutical fissure on risk science via dialogue will help “constitute” the global trading community because such dialogue establishes a collective identity among WTO members and internalizes it within domestic legal systems. The article also emphasizes that a regulatory dialogue might be a painful process in that it may require a certain “identity cost”: One may first change the understanding of *self* before he or she understands the other.³⁶

I. International Trade and Food Safety: A Conspectus

Trading foodstuffs often result in trading diseases or other harmful substances (such as toxins) contained in those foodstuffs. If all trading nations share the same regulatory system, policing these problems would be much easier. In reality, however, inevitable regulatory heterogeneity among trading nations engenders trade disputes as their two paramount goals, i.e., free trade and regulatory protection, 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 involving hormone-treated beef, avian flu, swine flu (H1N1), and genetically modified organisms (GMO), fall within this rubric. The following table illustrates the fact that the U.S. and the EU have differing sensitivities over a wide range of risks.

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

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)³⁷)

The prototypical mechanism to reconcile these two values (free trade and regulatory protection) was the General Exception clause (Article XX) under the General Agreement on Tariffs and Trade (GATT), established in 1947. For example, although an import restriction may be a violation of certain free trade

³⁶ Taylor, *supra* note __, 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.”).

³⁷ See Wiener, *supra* note __, at 227-30.

obligations (such as GATT Article XI:1)³⁸ in a provisional sense, such a measure may be eventually justified as a legitimate policy if that measure is “necessary” to protect human health and does not constitute an arbitrary discrimination or disguised restriction to international trade under GATT Article XX.³⁹

The SPS Agreement under the new WTO, which was launched in 1996, created a more sophisticated regulatory system featuring “science” and “scientific justification” in the fore. Under the SPS Agreement, it has now become a material obligation of WTO members to uphold science and base their sanitary measures on scientific justification. For example, Article 2.2 of the SPS Agreement stipulates that any sanitary regulation should be “based on *scientific* principles and [] not maintained without *sufficient* scientific evidence.”⁴⁰ Likewise, Article 5.2 requires WTO members to “take into account available *scientific* evidence” when they assess human health risks.⁴¹

Moreover, the SPS Agreement aims to “harmonize” WTO members’ sanitary measures to the extent that they incorporate the same scientific standards (international standards) provided by representative international regulatory organizations, such as the Codex Alimentarius Commission. Article 3.1 provides that “Members shall base their sanitary or phytosanitary measures on international standards, guidelines or recommendations, where they exist.” Although WTO members are allowed to depart from these standards for a higher level of protection,⁴² they still have to maintain regulatory “consistency” in applying their chosen levels of protection to other comparable regulatory situations.⁴³

³⁸ General Agreement on Tariffs and Trade, October 30, 1947, T.I.A.S. No. 1700, 55 U.N.T.S. 187, art. XI:1 (“*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.”) (emphasis added).

³⁹ *Id.*, art. XX (“Subject to the requirement that such measures are not applied in a manner which would constitute a means of *arbitrary or unjustifiable discrimination* between countries where the same conditions prevail, or a *disguised restriction on international trade*, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures (...).”).

⁴⁰ SPS Agreement, *supra* note __, art. 2.2 [hereinafter] (emphasis added).

⁴¹ *Id.*, art. 5.2 (emphasis added).

⁴² *Id.*, art. 3.3.

Members may introduce or maintain sanitary or phytosanitary measures which result in a *higher level of sanitary or phytosanitary protection* than would be achieved by measures based on the relevant international standards, guidelines or recommendations, *if there is a scientific justification*, or as a consequence of the level of sanitary or phytosanitary protection a Member determines to be appropriate in accordance with the relevant provisions of paragraphs 1 through 8 of Article 5. (...) (emphasis added)

⁴³ *Id.*, 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).

The SPS Agreement, as far as its text is concerned, largely institutionalizes scientific positions of the mainstream epistemic community, such as the Codex Alimentarius Commission. Annex A of the 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.”⁴⁴ Article 12.3 also requires the SPS Committee, which is a regular consultation forum in this area, to seek scientific advice from the Commission.⁴⁵

II. Judicializing Risk Science and Its Discontents

Although science rose to its prominence in the WTO, a conventional treaty interpretation alone might not fully capture its genuine meaning. The traditional treaty interpretation method under Articles 31 and 32 of the VCLT centers on three main elements: text, intention and teleology.⁴⁶ The primary and foremost interpretive methodology is to “reduce agreements to clear language.”⁴⁷ Here, the main mission of an interpreter is to locate the clearest lexicographic “ordinary meaning” of each word and phrase in the black letter law. While this is certainly a beginning of any interpretation, it is never an end. Most treaty language suffers from ambiguities. Considering that treaties are a product of negotiations, 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 “members shall ensure that any sanitary or phytosanitary measure (...) is based on *scientific* principles and is not maintained without sufficient *scientific* evidence (...).”⁴⁸ But what kind of “science” would this Article refer to? Would dictionary meanings of the term “science” suffice for the purpose of the SPS Agreement? Should it then represent the mainstream version? Or could it also connote a minority, or even eccentric, version?

⁴⁴ *Id.*, Annex A.

⁴⁵ *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.”).

⁴⁶ VCLT, *supra* note __, art. 31:1. The Article 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.” Article 32 reads that “recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm 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.”

⁴⁷ Gerald. G. Fitzmaurice, *Vae Victis or Woe to the Negotiators! Your Treaty or Our ‘Interpretation’ of It*, 65 AM. J. INT’L L. 358, 363 (1971); Peter McRae, *The Search for Meaning: Continuing Problems with the Interpretation of Treaties*, 33 VICTORIA U. WELLINGTON L. REV. 209, 212 (2002).

⁴⁸ SPS Agreement, *supra* note __, art. 2.2.

At first, one might raise a credible assumption that it reflects the mainstream view on risk science on sanitary measures considering the context in which the term “science” is used elsewhere in the SPS Agreement. The Agreement incorporates the norms (international standards) of representative international regulatory entities, such as the Codex Alimentarius Commission.⁴⁹ The SPS Agreement also encourages WTO members to consult these professional institutions when they enact and apply domestic sanitary measures.⁵⁰ Therefore, a traditional treaty interpretation under the VCLT, which prioritizes ordinary meaning of the text as well and its context, would distill the mainstream science based on quantitative data and rigorous methodologies.⁵¹

The *Hormones* panel apparently subscribed to this conventional version of science. In *Hormones*, the U.S. challenged the EC’s ban on hormone-treated beef on the ground that hormones already exist in ordinary meat and other foodstuffs.⁵² The panel, the low WTO court, agreed with the U.S. as the former relied heavily on the experts’ opinions.⁵³ According to those scientists consulted by the panel, *how* we consume certain hormones in food, whether endogenously in food or artificially injected (“differences in pathways taken or metabolites”), 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.⁵⁴ According to this construction, the EC would violate Article 5.5 of the SPS Agreement since it committed an “arbitrary” discrimination between two comparable regulatory situations. Obviously, the EC did not ban the import of those foodstuffs, such as milk or broccoli, which naturally contain hormones.

⁴⁹ *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.”).

⁵⁰ *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.”).

⁵¹ In this regard, one might observe that the SPS Agreement is based on “sound science.” See Maruyama, *supra* note __, at 652-53.

⁵² European Communities - Measures Affecting Meat and Meat Products (Hormones), WT/DS26/R, Panel Report, as modified by the Appellate Body, adopted on Feb. 13 1998, ¶8.171, available at http://www.wto.org/english/tratop_e/dispu_e/find_dispu_cases_e.htm [hereinafter, Panel Report, *Hormones*].

⁵³ “[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).

⁵⁴ *Id.*

[Table 2: Comparative Oestrogen Intakes from Food Sources]

Food	Unit Weight (g)	Oestrogen Intake (nano gram)
Unimplanted Steer Meat	500	61.1
Oestradiol-Implanted Steer Meat	500	11.4
Zeranol-Implanted Steer Meat	500	7*
Cow Meat	500	75*
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 high WTO court, sided with the EC's interpretation and thus reversed the panel's finding. In a rather sweeping tone, the AB denied the comparison itself between these two regulatory situations. The AB *de facto* substituted its own version of science for the conventional version of science when it identified a "fundamental difference" between these two situations.⁵⁵ The AB observed that any attempt to compare them would lead to "absurdity."⁵⁶ The AB replaced *techne*, which is represented by the laboratory science, with *phronesis*, which is based on common sense-based science befitting the "real world where people live and work and die."⁵⁷ Under this interpretation, the EC did not violate Article 5.5 of the SPS Agreement since these two situations were not comparable in the first place.

In this particular case (*Hormones*), the AB's position prevailed only because of its hierarchical superiority to the panel. In other situations, however, how could the WTO court overcome such an interpretive dilemma which the traditional treaty interpretation prioritizing the "ordinary meaning" and "context" is incapable of addressing? Perhaps the WTO court might attempt to have recourse to certain non-textual interpretive criteria.⁵⁸ First of all, the *telos* (purpose and object) of a treaty might help elucidate treaty languages given interpretive situations. True, a teleological interpretation is capable of delivering a holistic answer to certain interpretive questions confronted by the court. In fact, international tribunals, including the WTO AB, often engage in teleological

⁵⁵ AB Report, *Hormones*, *supra* note __, ¶221.

⁵⁶ *Id.*

⁵⁷ *Id.*, *supra* note __, ¶187. Cf. Stephen Tyreman, *Promoting Critical Thinking in Health Care: Phronesis and Criticality*, 3 MED. HEALTH CARE & PHIL. 117, 117 (2000) (arguing that "*phronesis* adds a necessary corrective dimension to modern Western medicine's over-emphasis on *techne*").

⁵⁸ One might point to the "special meaning" as a tool to overcome ambiguities of ordinary, dictionary meanings. Yet since the special meaning is eventually guided by parties' "intentions" it suffers the same deficiencies as intentions do as an interpretive criterion.

interpretations even when they officially declare that they only engage in textual interpretations.⁵⁹

However, one potential problem in this type of interpretation is that it may result in legislative action by the judicial organ.⁶⁰ Granted, judicial legislation may be unavoidable to some extent under certain circumstances.⁶¹ Yet within the context of highly diverging issues on health risk and science such judicial legislation may backfire. Even jurists' prudence embedded in a teleological interpretation may not break parties' dogmatic positions in comprehending risk science. The authority of such interpretation might not stand amid parties' divergent positions on food-borne risks, which reflect their own unique context and history.

Another interpretive criterion might be parties' "intentions." Hersch Lauterpacht once observed that "it is the duty of the judge to resort to all available means – including the rules of construction – to discover the intentions of the parties."⁶² In fact, some domestic courts, including the U.S. courts, accentuated legislative intentions in interpreting domestic statutes and even the Constitution.⁶³ Yet in the realm of international law, such legislative intentions or parties' intentions are not necessarily clear and coherent. Even if parties' intentions may be located in the "preparatory work" (*travaux préparatoires*), such records themselves are often prone to multiple interpretations.⁶⁴ In fact, investigating the negotiation history of the SPS Agreement only confirms the deep-rooted divergences between negotiating parties, in particular the U.S. and the EU, on certain critical issues in regulating human health risks, such as the authority of the normal science symbolized by international standards (e.g., Codex standards).⁶⁵

⁵⁹ "[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." 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).

⁶⁰ McRae, *supra* note __, at 222.

⁶¹ See e.g., Sungjoon Cho, *Global Constitutional Lawmaking*, 31 U. PA. J. INT'L L. __, ch. 4.2.1 (forthcoming 2010) (defending the WTO court's judicial legislation in the form of "constitutional adjudication" in the area of antidumping law (zeroing)).

⁶² Hersch Lauterpacht, *Restrictive Interpretations and the Principle of Effectiveness in the Interpretation of Treaties*, 26 BRIT. Y.B. INT'L L. 48, 83 (1947).

⁶³ See e.g., *Rhode Island v. Massachusetts*, 37 U.S. (12 Pet.) 657, 721 (1838) (ruling that the interpretation of the Constitution "must necessarily depend on the words of the constitution [and] the meaning and intention of the convention which framed and proposed it (...)") (emphasis added).

⁶⁴ 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. The 873rd Meeting on the Law of Treaties, Y.B. INT'L L. COMM. vol. I. pt. II, 204 (1966). Second, negotiating states are often reluctant in expressing their real intentions. *Id.*, at 207.

⁶⁵ See Elizabeth Fisher, *Beyond Science/Democracy Dichotomy: The World Trade Organization Sanitary and Phytosanitary Agreement and Administrative Constitutionalism*, in *CONSTITUTIONALISM*, *supra* note __, at 329 (attributing the nebulous nature of the SPS text to "political compromise and thoughtless drafting"). In addition, many observe that the decision-making process *within* the Codex Alimentarius Commission is also very controversial and even

In sum, the conventional treaty interpretation methodology under the VCLT might not be adequate in textually construing the notion of “science” under the SPS Agreement. More than one interpretation might be possible depending on which version of science the interpreter adopts. At the same time, non-textual, supplemental interpretive criteria would not be sufficient in overcoming the interpretive dilemma.

The uncertain world of science might not be susceptible to a test of normative validity, which 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. Nonetheless, if the WTO court *does* adjudicate a science-driven dispute, as it would do over ordinary non-scientific trade disputes, and is forced to pick a winner, it is most likely to subscribe to a particular paradigm itself.⁶⁶ This “judicialization” of science amounts to playing a Dworkinian Herculean judge in that the court renders the “right” answer, namely its own evaluation of scientific validity on the safety of hormone-treated beef.⁶⁷ Even if such judicialization is unintentional in the course of reasoning, it may still appear to be illegitimate as a judicial organ. The court’s own formulation of scientific validity (judicialization) might seem to deviate from its status as a neutral arbiter.

Moreover, judicialization of science may outsource *legal* issues to science or scientists.⁶⁸ Instead of constructing legal questions via legal reasoning, the WTO court might be tempted to simply defer legal scrutiny to expert opinions. In some situations, such deference might embolden panelists to determine the existence of appreciable risks of carcinogenicity from the consumption of hormone-treated beef, instead of merely deciding the existence of a “rational relationship” between the SPS measure and the risk assessment.⁶⁹

Confronting these latent problems, the WTO court might want to develop its own justiciability doctrine so that it could decline to hear these “wrong cases”⁷⁰ and avoid the risk of judicialization of science in the first place. Yet

political. See Thorsten Hüller & Matthias Leonhard Maier, *Fixing the Codex?: Global Food-Safety Governance under Review*, in CONSTITUTIONALISM, MULTILEVEL TRADE GOVERNANCE AND SOCIAL REGULATION 268 (Christian Joerges & Ernst-Ulrich Petersmann eds. 2006) [hereinafter CONSTITUTIONALISM] (introducing a number of literatures which cast doubts on the neutrality and integrity of the Codex Alimentarius Commission).

⁶⁶ Cf. SHEILA JASANOFF, *THE FIFTH BRANCH: SCIENCE ADVISERS AS POLICYMAKERS* 49 (1990) (observing that the U.S. court’s judicial activism on scientific disputes produced an oversimplified paradigm of “science policy” which blended science with policy).

⁶⁷ See Sungjoon Cho, *Of the World Trade Court’s Burden*, 20 EUR. J. INT’L L. 675, 685-86 (2009) (criticizing the AB’s position in *Hormones* as the Dworkinian Herculean judge who would hand down his or her own final answer as to a highly controversial scientific issue) [hereinafter Cho, *World Trade Court’s Burden*].

⁶⁸ Feldman, *supra* note __, at 37-38 (discussing what she coined “externalization” which “outsourc[e] legal dilemmas to science”)

⁶⁹ United States – Continued Suspension of Obligations in the EC – Hormones Dispute, WT/DS320/AB/R, Appellate Body Report circulated on Oct. 16, 2008, ¶612, available at http://www.wto.org/english/tratop_e/dispu_e/find_dispu_cases_e.htm [hereinafter AB Report, *Hormones – Suspension*].

⁷⁰ “Wrong cases” refer to those extremely combustible (political) cases which tend to short circuit the whole 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.

besides the WTO court's actual procedural competence on this judicial avoidance tactic, it might not be able to develop operable criteria to screen out wrong cases effectively. One might say that all food safety-related disputes might potentially be wrong cases to the extent that they are somehow intrinsically combustible on account of scientific controversies and socio-cultural sensitivities around them.

III. Philosophizing the Debate: The Hermeneutics of Risk Science

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

Given the aforementioned dilemma of the judicialization of risk science, a judicial interpretation might not be adequate in grasping the full meaning of risk science related to foods and human health. The following questions tend to explore the deep-seated meaning of risk science which a judicial interpretation might not capture. First, *why* do we interpret any way? Is it for the court to resolve a particular dispute or for parties to discover a valid answer (truth) behind the dispute? Second, *what* should be interpreted? Should it be risk science reified in the SPS text itself or the version embedded in each party's contextual social reality? Third, *who* should interpret? Is it more appropriate to have a WTO judge with an Olympian detachment from the social context in which each science-related dispute is formulated or should it be the disputants themselves, who are not only observing but also "experiencing" those risks?⁷¹

Beneath these questions lurks a more fundamental, philosophical issue which the WTO court could not fully fathom with the aid of VCLT alone. Note that both the *Hormones* panel and the AB had relied on the VCLT only to produce diametrically opposite rulings on the same question. First of all, it may be useful to capture 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, which the U.S. and the panel adopted, focuses on the *level* of hormone residue in the human body regardless of its pathway or metabolites.⁷² Under this paradigm, there is no significant regulatory difference between naturally-occurring hormones in foods (such as hormones in milk or broccoli) and artificially-injected hormones (such as hormones in cattle). This paradigm represents the mainstream view or the "normal science," according to Kuhn, which is incorporated in the international standards (the Codex standards). Therefore, the panel ruled that the EC violated the WTO norms (the SPS Agreement) by treating like situations (naturally-occurring hormones and

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 "big cases," which cannot be handled properly by adjudication).

⁷¹ Gadamer criticized the Aristotlean notion of "contingent observations" which tend to focus only on the "formation of concepts" in regard to science. Instead, Gadamer emphasized that experience is a "process" in which one not only confirms past expectations but also embrace new possibilities in understanding. TRUTH AND METHOD, *supra* note __, at 352-53.

⁷² Panel Report, *Hormones*, *supra* note __, ¶18.187.

artificially-injected hormones) in an unlike manner (no regulatory intervention v. a total ban).⁷³

However, the other paradigm which the EU and the AB adopted was diametrically opposed to that picked by the U.S. and the panel. For example, the EU and the AB highlighted certain man-made risks from abuse or misuse of hormones when administered to cattle for growth promotion purpose.⁷⁴ Admittedly, the conventional paradigm would not consider these types of risks since it regards the problem of administrative control as “non-scientific” factors.⁷⁵ Yet under the “zero-tolerance” perspective adopted by the EU and endorsed by the AB, these man-made risks should also be taken into account in assessing risks. Therefore, there might be “fundamental differences” between the aforementioned two regulatory situations, which would make the comparison itself an “absurdity.”⁷⁶

Given that various food scandals, including the BSE (Mad Cow disease) scandal, influenced the shaping of the zero-tolerance trend in Europe, this rather practical attitude toward risk science (“real world where people live and work and die”⁷⁷) might be 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.⁷⁸ Such equilibrium is not only hard to reverse⁷⁹ but also exhibits critical distributive implications. For example, the European paradigm against the hormone-treated beef tends to protect European cattle growers who mainly produce hormone-less beef from the influx of American hormone-treated beef. Therefore, it is in the vital interest of the American

⁷³ SPS Agreement, *supra* note __, 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).

⁷⁴ AB Report, *Hormones*, *supra* note __, ¶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 __, ¶4.194 (“**Error! Main Document Only.**The European Communities claimed that **Error! Main Document Only.**there were additional risks to human and animal health arising from the administration and *potential misuse* of hormones.”) (emphasis added).

⁷⁵ Panel Report, *Hormones*, ¶8.146.

⁷⁶ AB Report, *Hormones*, *supra* note __, ¶221

“[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.*” (emphasis added).

⁷⁷ *Id.*, ¶187.

⁷⁸ POLLACK & SHAFFER, *supra* note __, at 77, 83.

⁷⁹ Margaret Levi, *A Model, a Method and a Map: Rational Choice in Comparative and Historical Analysis*, in *COMPARATIVE POLITICS: RATIONALITY, CULTURE, AND STRUCTURE* 28 (Mark I. Lichbach & Alan S. Zucherman eds. 1997) (quoted in POLLACK & SHAFFER, *supra* note __, at 78).

farmers to shift the European paradigm in a way which may permit their products to circulate in the European market.⁸⁰

The shift of this paradigmatic equilibrium, or “paradigm shift,” might be a drastic phenomenon, which amounts to “scientific revolution,” after which “many old measurements and manipulations become irrelevant.”⁸¹ This rather radical character of changing a given position (paradigm) on risk science does not befit the nature of judicialization. In other words, maintaining and changing a scientific paradigm should not be in the hands of a judge who would pick and choose his or her own paradigm under the guise of textual interpretation. At this juncture, the interpretive focus should be shifted from the “text” to “parties” to fully understand the truth behind science as is exercised in everyday lives.

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

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

In everyday lives, 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 a hormone-treated beef.” As discussed above, the conventional (mainstream) science tackles these inquiries through a sophisticated set of “methodologies” which positivistic scientific knowledge produces after rigorous scientific investigation. Therefore, according to this conventional standpoint being scientific means being “objective” and “universal.” Under this rubric, what science means in the United States should be the same as in Europe.

This mainstream science is reified in various international standards created by standard-setting agencies, such as the Codex Alimentarius Commission⁸² under the auspices of the Food and Agricultural Organization (FAO) and the World Health Organization (WHO). The WTO SPS Agreement requires WTO members to “base” their sanitary measures on guidelines and recommendations issued by the Codex Alimentarius Commission (the Codex standards).⁸³ Under the Commission, the Joint FAO/WHO Expert Committee on

⁸⁰ 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. ENV’T L. 1, 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).

⁸¹ KUHN, *supra* note __, at 129.

⁸² FAO, Understanding the Codex Alimentarius, available at http://ftp.fao.org/codex/Publications/understanding/Understanding_EN.pdf.

⁸³ SPS Agreement, *supra* note __, 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 (...”). Paragraph 3 of Annex A to the SPS Agreement designates international standards, guidelines or recommendations as follows:

Food Additives (JECFA), which is an independent body composed of scientists working under their individual capacities, establish *safe levels* of hormone intake (“Acceptable Daily Intakes (ADI)”) as well as hormones’ maximum *residue limits* in the human body (“Maximum Residue Limits (MRL)”).⁸⁴

However, philosophers have long challenged this positivistic lab scientism. Edmund Husserl famously criticized this version of modern science as a “mathematization of nature” which is arguably detached from our real life, that is to say, “lifeworld” (*Lebenswelt*).⁸⁵ Following Husserl’s tradition, Hans-Georg Gadamer objected to the conventional premise that an exhaustible scientific “method” is an exclusive avenue to a truth claim. According to Gadamer, this version of science is nothing more than the “paradigmatic expression of the condition that gave rise to epistemology”⁸⁶ or even the “naiveté of an ontology of the world based on the objectivism of mathematical natural science.”⁸⁷ According to Gadamer, the lifeworld is an “intuitively given world” amid ever streaming horizons and has a “finite, structure-relative” arrangement yet with “indeterminate open horizons.”⁸⁸ In contrast, the world of science holds the “symbolic givenness of a logical substruction that can no more be given by itself than infinite series of numbers.”⁸⁹ While “objective science may be a factor in our own lifeworld,” it can only be understood by “historical exploration of its origin and its limits of validity.”⁹⁰

Gadamer was of the view that truth, including scientific truth, may be obtained only through “understanding” or “interpretation” (“hermeneutics”) which is a “dialogical-dialectical interchange between interpreter and *interpretandum*.”⁹¹ Importantly, understanding cannot be driven from a vacuum. Our attitude toward “interpretandum” (what is interpreted), such as a text, event or other’s behavior ⁹² is pre-determined by pre-understandings of past interpreters to which we are inevitably inherited (linked) through a chain of

(a) for food safety, 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.

⁸⁴ Panel Report, *Hormones*, ¶¶2.14, 2.17.

⁸⁵ Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology*, trans. David Carr (Evanston: Northwestern University Press, 1970); Gadamer, *The Science of the Life-World* 182 (1969) [hereinafter *Life-World*], in *PHILOSOPHICAL HERMENEUTICS* (David E. Linge trans. & ed. 1976) [hereinafter *PHILOSOPHICAL HERMENEUTICS*].

⁸⁶ JOEL C. WEINSHEIMER, *GADAMER’S HERMENEUTICS: A READING OF TRUTH AND METHOD* 4 (1985).

⁸⁷ *Life-World*, *supra* note __, at 184.

⁸⁸ *Id.*, at 193.

⁸⁹ *Id.*

⁹⁰ *Id.*, at 194.

⁹¹ Fred R. Dallmayr, *Borders or Horizons?: Gadamer and Habermas Revisited*, 76 CHI.-KENT L. REV. 825, 829 (2000).

⁹² According to Gadamer, the hermeneutical experience is “universal.” Modern hermeneutical theorists, such as Schleiermacher and Ricoeur, have overcome a narrow hermeneutical paradigm of the “text-reader” situation (“de-regionalization”). See Anton A van Niekerk, *Hermeneutics and Historical Consciousness: An Appraisal of the Contribution of Hans-Georg Gadamer*, 21 S. AFR. J. PHIL. 228, 228-29 (2002). Therefore, an interpretandum or interpretanda can be “all entities which contain meaning and thus are potential objects of interpretation. *Id.*, at 232.

interpretations (“interpretational lineage”).⁹³ Interpretation is not “presuppositionless” because an interpreter cannot escape from his or her ontological premise, i.e., a “finite temporal situation as the horizon within which the beings he understands have their initial meaning for him.”⁹⁴

Note that this pre-understanding is not a mere bias which, in association with enlightenment, is purged by the power of reason, but rather a “belongingness” (*Zugehörigkeit*) to the tradition. This innate historical distance (“alienation”) between the interpretandum and the interpreter can be overcome only by the “consciousness of effective history.”⁹⁵ Only then, the interpretandum’s horizon and the interpreter’s own horizon are fused (“fusion of horizons”), and an authentic understanding of the interpretandum is achieved.⁹⁶ The “universal praxis” of human reason or rationality can no longer monopolize the language of science.⁹⁷ Because the interpreter’s lifeworld “claims its own phenomenal legitimacy” based on its characteristic “givenness,”⁹⁸ the classical (neo-Kantian) undertaking of “conceiving the objects of experience in the sense of the science of facts”⁹⁹ becomes a shaky thesis. The AB’s famous dictum in *Hormones* (“real world where people live and work and die”¹⁰⁰), which firmly rejected a narrow definition of laboratory science, appears to correspond to this philosophical position.

In sum, Gadamer’s hermeneutics accuse scientific positivism, the pedigree of which might be traced back to August Comte, of a self-fulfilling prophesy gravely detached from the lifeworld.¹⁰¹ According to Gadamer, those presuppositions or prejudices, which constitute our lifeworld or tradition (history), are in fact necessary for us to unearth the truth, including the scientific truth, from those texts or phenomena before us. They never distract or prevent us from getting to the truth.¹⁰²

⁹³ David Weininger, *Hermeneutics and Phenomenology*, available at http://people.bu.edu/wwildman/WeirdWildWeb/courses/wphil/lectures/wphil_theme19.htm# (Nov. 30, 1999).

⁹⁴ David E. Linge, *Editor’s Introduction*, in PHILOSOPHICAL HERMENEUTICS, *supra* note __, at xlvii.

⁹⁵ WEINSHEIMER, *supra* note __, at x.

⁹⁶ TRUTH AND METHOD, *supra* note __, at 306.

⁹⁷ *Life-World*, *supra* note __, at 196. Often, cultural or ethical concerns might be reflected in formulating scientific standards, such as the Codex standards. See Hüller & Maier, *supra* note __, at 291.

⁹⁸ *Life-World*, *supra* note __, at 183.

⁹⁹ *Id.*, at 184.

¹⁰⁰ AB Report, *Hormones*, *supra* note __, ¶187.

¹⁰¹ Tyreman, *supra* note __, at 112. See notably JÜRGEN HABERMAS, KNOWLEDGE AND HUMAN INTERESTS (1968).

¹⁰² Some scholars define this rather subjective, relative notion of science as “trans-science” which is 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 Fact-finding in the Growth Hormones Dispute*, 31 CORNELL INT’L L.J. 251, 251, n.1. (1998).

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* understanding in the transatlantic dispute over the hormone-treated beef. Note that understanding is “party-dependent.”¹⁰³ The U.S. should have realized that the EU’s understanding on risk science is grounded in the EU’s own history or context (“horizon”) as much as the U.S.’ understanding on the same subject is driven by the U.S.’ own horizon. Because a party’s original horizon prevents itself from recognizing the other’s horizon and its undistorted image, it is only through the “patient identification and undoing of those facets of our implicit understanding that distort the reality of the other”¹⁰⁴ that one can truly understand, and reconcile with, the other. Only in this open-mindedness, which is often compared to “conversation,”¹⁰⁵ can one party voluntarily accept some position which may be even *against* itself.¹⁰⁶ A dialogue partner can question our assumptions which we could not doubt on our own but which we should nonetheless rethink to reach our own understanding.¹⁰⁷ Only with this dialogue or conversation can different horizons be “fused,” followed by a true understanding of the other.¹⁰⁸ In sum, Gadamer’s hermeneutical openness urges an interpreter to endeavor to fuse her own horizon with that of other party’s horizon to extract meanings, namely to “understand.”

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

Here, the critical hermeneutical error which the exporting country might commit is its impulsion for “control” over the dogmatic struggle with its trading partner via a manipulative application of scientific methodologies, which might border on “myths,” not science in its true meaning.¹⁰⁹ In many cases, “a tremendous leap from a tiny amount of data” may still appear to be scientific.¹¹⁰ Blind faith in a particular set of laboratory data when evaluating a trading

¹⁰³ Taylor, *supra* note __, at 127.

¹⁰⁴ *Id.*, at 132.

¹⁰⁵ *Id.*, at 134.

¹⁰⁶ TRUTH AND METHOD, *supra* note __, at 361. As in the principle of Socratic dialogue, every conversation (dialogue) should start from the point of the “*docta ignorantia*” which is to acknowledge the original ignorance as well as fallibility. Van Niekerk, *supra* note __, at 234.

¹⁰⁷ George Warnke, *Law, Hermeneutics, and Public Debate*, 9 YALE J. L. & HUM. 395, 411 (1997).

¹⁰⁸ TRUTH AND METHOD, *supra* note __, at 306.

¹⁰⁹ Karl R. Popper, *Philosophy of Science: A Personal Report*, in BRITISH PHILOSOPHY IN MID-CENTURY 155, 157 (C.A. Mace, ed., 1957) (characterizing Marxism and psychoanalysis as “myths”).

¹¹⁰ Feldman, *supra* note __, at 145.

partner's risk regulation would not lead to any genuine scientific understanding, especially when scientists fail to agree on critical scientific issues. Likewise, if the WTO court plays a Dworkinian Hercules by subscribing to a certain paradigm of science and imposes 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.¹¹¹

The essential lesson from the philosophy of hermeneutics – as it is related to risk science in the WTO – is an unyielding interpretive openness¹¹² through “a lessening of distance”¹¹³ between an interpreter and an interpretandum, anchored by a firm acknowledgement of the inevitable finitude of human experience.¹¹⁴ After all, the truth can emerge only “in a conversation.”¹¹⁵ Nor does there exist a final, definite answer when it comes to understanding (truth). Truth only exists, or operates, continuously in the “hermeneutical circle”¹¹⁶ 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 to say until the interpreter's horizon is fused with that of the others. This is why American regulators would not understand, in a genuine manner, the European ban on the hormone-treated beef until they actually reach out to their European counterpart and fully appreciate the “phenomenon itself in its unique and historical concreteness.”¹¹⁷

One may locate this hermeneutical circle in a regulatory dialogue within the context of the SPS Agreement. Mutual understanding is possible when such a 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 can 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 may illustrate this dialectic change under the stylized settings of regulatory dialogue.

¹¹¹ Cho, *World Trade Court's Burden*, *supra* note __, 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.”).

¹¹² 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. Schmidt, *Gadamer*, in A COMPANION TO CONTINENTAL PHILOSOPHY 433 (Simon Critchley & William R. Schroeder eds. 1998).

¹¹³ Honneth, *supra* note __, at 5.

¹¹⁴ Schmidt, *supra* note __, at 440.

¹¹⁵ *Id.*, at 434.

¹¹⁶ “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.” Warnke, *supra* note __, at 409.

¹¹⁷ Schmidt, *supra* note __, at 436; TRUTH AND METHOD, *supra* note __, at 6.

[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 (risk assessment) 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 make B better understand A_0 . Then, B may want to voluntarily modify its original position ($B_0 \rightarrow B_1$) to accommodate A_0 . This process may continue multiple times until B's policy change truly gets fused with A's original position (A_0).

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 ($A_0 \rightarrow A_1$ and $B_0 \rightarrow B_1$). After multiple loops of such regulatory dialogue, both parties may reach mutual understanding with their mutually changed positions. In other words, as the number of loops or interactions (n) increase, their hermeneutical discrepancy ($B_n - A_n$) 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 in that the probability of closing the hermeneutical gap ($B_n - A_n$) appears higher here than the first scenario.

B. Some Policy Suggestions

Philosophical discussions on hermeneutics have important ramifications on the current debate on international trade and risk science. At present, there is little shared understanding among WTO members on the very meaning of science or scientific justification as to the health risks of various food additives or other food modification technologies. Given this situation, any impulsive legal-regulatory attempt in the international level to impose a specific paradigm of science in a specific trade dispute is likely to invite more disputes, rather than resolving them. In this regard, the theory of philosophical hermeneutics tends to offer some practical suggestions.

First, disputing parties should restrain their temptation to jump to WTO litigation over those disputes which involve different paradigms of science. A losing party would find it difficult to tolerate a decision which goes against its socio-cultural fundamental (horizon). Adjudicating these cases is likely to produce wrong cases¹¹⁸ and only cost the WTO its efficacy and legitimacy.

¹¹⁸ See *supra* note __.

Therefore, parties should engage more in dialogue on the root issues through various institutionalized avenues under the WTO, such as consultations, SPS committee and other peer review forums (e.g., the Trade Policy Review Mechanism (TPRM)).¹¹⁹ In this line, the constructive resolution of a recent trade dispute involving genetically modified (GM) products between the EU and Canada was hermeneutically sound, especially given that both parties established an avenue for continuing dialogue.¹²⁰

Notably, an increasing number of SPS disputes have recently been resolved under the SPS Committee. Nearly thirty percent of “specific trade concerns” reported to the SPS Committee were addressed by discussions and consultations under the Committee process.¹²¹ Although those specific trade concerns handled in the SPS Committee may or may not involve 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
		Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Canada, Chile, China, Columbia, Cuba, Czech Rep., El Salvador, France, Germany, Iceland,	Argentina, Brazil, Canada, Chile, EC, Hungary, India, Panama, Switzerland, Uruguay, U.S.

¹¹⁹ 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 located 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”).

¹²⁰ 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. 16, 2009.

¹²¹ 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 an SPS dispute between Canada and Brazil regarding the former’s ban on the latter’s export of beef for the fear of the BSE (Mad Cow diseases) 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 __, at 592-95 (introducing several SPS disputes which were addressed under the SPS Committee’s peer review (“Specific Trade Concerns”) process).

Animal Health	41	Indonesia, Israel, Hungary, Italy, Netherland, Norway, Poland, Romania, Singapore, Slovak Rep., Slovenia, Spain, Taiwan, Turkey, U.S., Venezuela,	
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 Committee)¹²²

Even if the WTO court eventually adjudicates these kinds of disputes due to the absence of a judiciability doctrine, it should focus on those tasks which the judicial system is well suited to address.¹²³ One conceivable option is for the WTO court to adjust its hermeneutical focus to “procedural” obligations, such as reason-giving, transparency and notification, which mandate dialogue and communication between concerned parties. These procedural obligations enable regulating states to reach out to certain “omitted voices,”¹²⁴ such as foreign governments and producers, and get 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

¹²² WTO, Committee on Sanitary and Phytosanitary Measures, Specific Trade Concerns: Resolved Issues, G/SPS/GEN/204/Rev.9/Add.3, Feb. 6, 2009.

¹²³ Feldman, *supra* note __, at 167.

¹²⁴ 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).

probative value to the regulating state's undertaking of these procedural obligations. In other words, whether the regulating state discharged the burden of proof as to its "substantive" requirement, such as the existence of a "rational relationship" between a risk assessment and the final regulation, may depend on whether the same state performed those procedural obligations.¹²⁵ The underlying logic beneath this probative incentive is that any risk regulation adopted without a hermeneutical empathy tends to lack its rational (scientific) basis. Perhaps such flawed regulations may be protectionist or pseudo-scientific measures. In fact, this procedural-substantive nexus is not new. As is seen in other courts, certain procedural deficiencies are often linked to substantive violations.¹²⁶

For example, under the SPS Agreement an exporting state may ask to an importing (regulating) state about "the products to be covered by the regulation together with a brief indication of the objective and rationale of the proposed regulation."¹²⁷ If the regulating state fails or neglects to respond to the inquirer in this situation, such failure or neglect may generate a plausible suspicion that the regulating state in fact lacks a risk assessment which would scientifically justify the regulation in question. At this juncture, the burden of proving that the regulating state nonetheless complied with the risk assessment requirement (SPS Article 5.1) may be shifted to the defendant (regulating state). Under the SPS Agreement, one might locate several possibilities of such a nexus between procedural and substantive obligations. In each nexus, a regulating state's failure to fulfil a certain procedural obligation may militate against discharging the burden of proving that the state has complied with a correspondent substantive (material) 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)

¹²⁵ Cho, *World Trade Court's Burden*, *supra* note __, at 717-18 (discussing a "Copernican turn" of shifting from "substantive finality" to "procedural legitimacy").

¹²⁶ 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] ECR I-2201 (ruling that a domestic court should disapply a technical regulation if a Member has failed to notify such regulation to the European Commission under Directive 83/189).

¹²⁷ SPS Agreement, *supra* note __, Annex B, ¶5(b).

<p>Article 5.8 (requiring a member deviating from international standards to answer an exporting country's inquiries); Article 7 (requiring members to notify information on their SPS measures)</p>	<p>Article 5.1 (requiring the existence of a rational relationship between a risk assessment and an SPS measure)</p>
<p>Article 5.8 (requiring a member deviating from international standards to answer an exporting country's inquiries); Article 7 (requiring members to notify information on their SPS measures)</p>	<p>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)</p>
<p>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)</p>	<p>Article 5.7 (the 1st & 2nd Prong) (requiring members to adopt a provisional measure only when there is insufficient scientific information but on the basis of any pertinent available information)</p>

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 on science and human health, which will in turn facilitate risk communication among the concerned parties. Once regulators, regulatees and affected parties (consumers) are placed in the same hermeneutical circle, we may expect some kind of hermeneutical convergence in which the Gadamerian fusion of horizons transpires. Until then, we might have to get accustomed to the twilight zone of science.¹²⁸

In conclusion, the WTO court's interpretive refocusing on procedural disciplines not only enhances the legitimacy of its decision but also helps parties reach mutually acceptable regulatory settlement through continuing regulatory cooperation. As the WTO Dispute Settlement Understanding advises, parties themselves should think hard about whether using the WTO dispute settlement system would be really “fruitful” before they file the complaint.¹²⁹

¹²⁸ The EU's new policy on genetically modified (GM) foods, which is 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 and Solutions*, Conference Paper presented to the ESIL-ASIL Research Forum (“Changing Futures?: Science and International Law”), Oct. 2009 (on file with the author).

¹²⁹ WTO Understanding on Rules and Procedures Governing the Settlement of Disputes, Annex 2 to the WTO Agreement, *supra* note __, art. 3.7 (“Before bringing a case, a Member shall exercise its judgement as to whether action under these procedures would be fruitful.”).

Epilogue: Risk Governance, Democracy and the Global Trade Constitution

Beneath the decades-long dispute between the U.S. and the EU on the safety of hormone-treated beef lies a critical hermeneutical divergence on the scope and meaning of relevant risk science. Since the WTO court's conventional treaty interpretation could not fathom such a deep paradigmatic fissure, its "judicialization" of risk science would fail to resolve the dispute in a genuine sense: the already dogmatic losing party would not accept the court's decision. It would attempt to 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 it lost the *Hormones* dispute in 1998.¹³⁰ In this regard, parties concerned, the article contends, should abide by philosophical insights which suggest that they engage in genuine communication toward mutual understanding, rather than struggling to prevail over the other in litigation as each party still adheres to its original position in a dogmatic fashion. Some hermeneutical refocusing by the WTO court via the re-operationalization of the burden of proof may encourage disputants to communicate more vigorously.

Admittedly, communication toward genuine understanding of the other's position might be a "painful" process.¹³¹ It demands an "identity cost" since one cannot understand the other unless one changes the understanding of the *self*.¹³² This is a critical "inward-looking" aspect of understanding: an interpreter should be willing to change his or her *own* original position and tolerate the plurality of interpretation in the hermeneutical circle.¹³³ The openness of hermeneutical circle also corresponds to the democratic rationality based on the deliberation requirement.¹³⁴ 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 understanding of our individual and collective experiences and progressive (...) inquiry."¹³⁵

The WTO norms' communicative function, embedded in a number of procedural obligations, such as reason-giving, notification and transparency principles, hold the potential to facilitate such democratic deliberation on risk science in the international sphere by channeling collective experiences and thus creating/extending shared understanding. Considering that law is the basic

¹³⁰ See *supra* note __.

¹³¹ Taylor, *supra* note __, at 141.

¹³² *Id.*

¹³³ Grondin, *supra* note __, at 44.

¹³⁴ Robert Howse, *Democracy, Science, and Free Trade: Risk Regulation on Trial at the World Trade Organization*, 98 MICH. L. REV. 2329, 2342-43 (2000).

¹³⁵ Sal Restivo, *The Myth of Kuhnian Revolution*, 1 SOC. THEO. 293, 299 (1983). See also Howse, *supra* note __, at 2342-43 (observing that citizen's value judgments should be able to trump mainstreams science under certain circumstances). Admittedly, if one understand democracy more from a representative (political), not necessarily deliberative, standpoint, there might be a tension between democracy and science; Fisher, *supra* note __, at 330-31 (observing that the SPS Agreement might become politically problematic if a domestic SPS measure departing from the 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 (2003).

medium for social integration,¹³⁶ WTO members should not underestimate such law's communicative nature. This communicative law or legal process will provide WTO members with adequate hermeneutical openness which will enable the fusion of horizons in a given area of risk science among WTO members.

Perhaps it is an important mission of trade law scholars to help develop a common "language" of science which can carry with it a set of "background understanding" of an extended lifeworld as well as more inclusive accounts and possibilities.¹³⁷ As interlocutors, the academic community may facilitate communication necessary to fuse different horizons and establish a "common lifeworld"¹³⁸ by producing a common conceptual framework in the form of discourse or language. At this juncture, the exigency of "education" as a special form of communication arises. Gadamer did not put much hope in the role of scientific reason and method in humanity's future: what was promising to him was the "infinite openness of interpretation,"¹³⁹ which is only possible through building up "sensitivity to the kindred sense communicated in the experience of the work of the art."¹⁴⁰ In this sense, openness requires cultivation or education (*Bildung*).

In conclusion, understanding risk science as it affects international trade can be a "constitutional" issue which forces us to decide not only whether we *can* but also whether we *should* do certain things: it inevitably hides a moral-normative impulse.¹⁴¹ The unique moral-normative thesis entrenched in the hermeneutics of science is highly inductive to a constitutional dimension of the global trading system since it shapes the system's collective identity.

¹³⁶ 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 beyond a mere tool for the exercise of administrative or political power).

¹³⁷ Taylor, *supra* note __, at 130-31, 135.

¹³⁸ Drawing on the Habermas' communicative action theory, Thomas Risse defined a "common lifeworld" as a "supply of collective interpretations of the world and of themselves, as provided as language, a common history, or culture." Thomas Risse, *Let's Argue! Communicative Action in World Politics*, 54 INTL ORG 1, 10 (2000).

¹³⁹ Schmidt, *supra* note __, at 441.

¹⁴⁰ *Id.*

¹⁴¹ PHILOSOPHICAL HERMENEUTICS, *supra* note __, at 196-97.