

# PERSONAL JURISDICTION: AN ARCHITECTURAL PROBLEM?

by  
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*Late twentieth-century jurisprudence on personal jurisdiction has had to deal with a fundamental challenge to conventional interpretations of both territorial sovereignty and networks or contacts, different than those that arose from traditional re-interpretations of visualized, cartographic space or corporate activity. Globalization makes border crossing a little bit too easy, and thereby calls into question the model of sovereign territorial integrity, and the internet invented a spatial apparatus that bypasses the territorial nation–state completely. It can seem the fundamental question motivating the jurisprudence surrounding personal jurisdiction has become how to balance respect for bodily spaces against respect for territorial spaces and corporate spaces. This Essay argues that this spatial narrative has too easily set aside the linguistic quality of personal jurisdiction. The act of speaking the law operated at the heart of medieval jurisprudence, and that linguistic quality of personal jurisdiction has, if anything, become more apparent in the age of widespread digital computation. This Essay makes the case that personal jurisdiction is, and has historically been, more computational and architectural than spatial. Jurisdiction broadly defined has never lost its spoken, rather than visual, character. This Essay situates International Shoe, Nicaastro, Daimler AG v. Bauman, and Walden v. Fiore within an alternative history of jurisdictional architecture. Each rests squarely on the idea that neither space nor network-contact is as relevant to jurisdiction as architectural process and algorithmic function, resulting in a remarkable continuity of personal jurisdiction doctrine in the United States.*

I.	INTRODUCTION.....	791
II.	ARCHITECTURE.....	796
III.	<i>International Shoe</i> .....	799
IV.	<i>Nicaastro</i> .....	803
V.	CONCLUSION: ARCHITECTURAL JURISDICTION AND ARCHITECTURAL SOVEREIGNTY .....	806

## I. INTRODUCTION

Debates surrounding personal jurisdiction have traditionally been debates about space and contacts. *Jurisdiction*—determined initially via

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speech and in force wherever a particular law was spoken<sup>1</sup>—resolved itself, so the story goes, into a problem of visualized borders and spaces in the early modern cartographic period.<sup>2</sup> Over the sixteenth century, jurisdiction ceased to relate to how the law was spoken and was instead determined by where borders were drawn and where spaces overlapped.<sup>3</sup> In the late nineteenth century, as national sovereignty became a function quite specifically of exclusive jurisdiction over a particular, now relentlessly visualized, territory *and* embodied citizen, the spatial quality of jurisdiction became absolute and indisputable.<sup>4</sup>

By the twentieth century, as sovereignty increasingly played out across both territorial and bodily spaces, a third type of space—corporate space—entered the picture. Conversations about personal jurisdiction thus gradually became conversations about appropriate versus inappropriate relationships between or among sovereign, bodily, and corporate spaces—with the rhetoric of the contact, network, or intersection acting as a unifying factor.<sup>5</sup> Indeed, it is telling that many of the pivotal cases concerning personal jurisdiction over the twentieth and early twenty-first centuries have been cases that involve corporate contacts, sovereign territories, and *bodily harm*.<sup>6</sup> The fundamental question motivating the jurisprudence surrounding personal jurisdiction, it seems, has become how to balance respect for bodily spaces against respect for territorial spaces and corporate spaces—with the territorial nation–state or the disembodied corporation somehow always (inappropriately) triumphing over the integrating body.<sup>7</sup>

But there have also been crises in this two-century-old jurisprudence of personal jurisdiction—crises that, once more, are more often than not articulated in a language of visualized space and networked contacts and intersections. The sovereign territory of the nation state, surrounded by impermeable boundaries, for example, was never as natural or as effective as many wanted it to be, and its fragility manifested itself, from the

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<sup>1</sup> SHAUNNAGH DORSETT & SHAUN McVEIGH, JURISDICTION 4 (2012).

<sup>2</sup> *Id.* at 5; *see also* Hannah L. Buxbaum, *Territory, Territoriality, and the Resolution of Jurisdictional Conflict*, 57 AM. J. COMP. L. 631, 632 (2009).

<sup>3</sup> DORSETT & McVEIGH, *supra* note 1, at 5.

<sup>4</sup> In the United States, *see* *Pennoyer v. Neff*, 95 U.S. 714 (1877); *see also* Buxbaum, *supra* note 2, at 636. For a comparative account of this transition, *see* PÄR KRISTOFFER CASSEL, *GROUND S OF JUDGMENT: EXTRATERRITORIALITY AND IMPERIAL POWER IN NINETEENTH-CENTURY CHINA AND JAPAN* 9 (2011).

<sup>5</sup> This conflict is often articulated as a “liberty” versus “sovereignty” conflict. *See, e.g.*, E. THOMAS SULLIVAN & TONI M. MASSARO, *THE ARC OF DUE PROCESS IN AMERICAN CONSTITUTIONAL LAW* 178 (2013).

<sup>6</sup> *See, e.g.*, *J. McIntyre Mach., Ltd. v. Nicastro*, 131 S. Ct. 2780 (2011); *Asahi Metal Indus. Co. v. Superior Court*, 480 U.S. 102 (1987); *World-Wide Volkswagen Corp. v. Woodson*, 444 U.S. 286 (1980). *See also* *Daimler AG v. Bauman*, 134 S. Ct. 746 (2014); *Goodyear Dunlop Tires Operations, S.A. v. Brown*, 131 S. Ct. 2846 (2011) (general jurisdiction cases).

<sup>7</sup> *See* SULLIVAN & MASSARO, *supra* note 5, at 178–192.

eighteenth century onward, in a number of ways.<sup>8</sup> Corporate internationalism, globalization, and the rhetoric of cosmopolitanism, to choose just a few key threats to territorial nationalism, have all highlighted both the vulnerability of the border and the permeability of the state space that this border is supposed, inviolate, to surround.<sup>9</sup> More to the point, courts also became increasingly aware over the twentieth century of the fragility of the intersection or contact, and they were thus forced to develop more nuanced interpretations of *both* territory and network—interpretations that recognized the dynamism and fluidity of space itself, or the force of new, entirely mobile spatial devices such as the “stream of commerce.”<sup>10</sup>

One of the most significant of these spatial challenges to classic personal jurisdiction doctrine, in fact, emerged not from the inherent frailty of pre-existing national–territorial space, but in the form of a new space that seemed, at least, derived from the network or contact—namely, cyberspace.<sup>11</sup> Whereas globalization makes border crossing a little bit too easy—and thereby calls into question the model of sovereign territorial integrity—the internet invented a spatial apparatus that bypasses the territorial nation state completely. Late twentieth-century jurisprudence on personal jurisdiction therefore had to deal with a far more fundamental challenge to conventional interpretations of both territorial sovereignty and networks or contacts than those that arose from traditional re-interpretations of visualized, cartographic space or corporate activity. It is a testament to the strength and staying power of the cartographic and network models of jurisdiction that the computational crisis<sup>12</sup> has been

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<sup>8</sup> Ralf Michaels, *Territorial Jurisdiction After Territoriality*, in GLOBALISATION AND JURISDICTION 105, 114–15 (Piet Jan Slot & Mielle Bulterman, eds., 2004).

<sup>9</sup> *Id.* at 115.

<sup>10</sup> See, e.g., *Gray v. Am. Radiator & Standard Sanitary Corp.*, 176 N.E.2d 761, 766–67 (Ill. 1961). For a discussion of how this metaphor fares in situations of natural disaster, see Upendra Baxi, *Mass Torts, Multinational Enterprise Liability and Private International Law*, in 276 RECUEIL DES COURS 297 *passim* (Académie de Droit International ed., 2000).

<sup>11</sup> For more on personal jurisdiction and cyberspace, see, among others, Michael A. Geist, *Is There a There There? Toward Greater Certainty for Internet Jurisdiction*, 16 BERKELEY TECH. L.J. 1345, 1347–48 (2001), TiTi Nguyen, *A Survey of Personal Jurisdiction Based on Internet Activity: A Return to Tradition*, 19 BERKELEY TECH. L.J. 519, 533 (2004), Natalya Shmulevich, *A Minimum Contacts and Fairness Examination of Personal Jurisdiction over Providers of Free Downloads on the Internet*, MEDIA L. & POL'Y, Summer 2004, at 55–57, and Joanna Sibilla Taatjes, *Downloading Minimum Contacts: The Propriety of Exercising Personal Jurisdiction Based on Smartphone Apps*, 45 CONN. L. REV. 357, 385 (2012). For an analysis of the legal relationship (or lack thereof) between the internet and globalization, see Andrea Slane, *Tales, Techs, and Territories: Private International Law, Globalization, and the Legal Construction of Borderlessness on the Internet*, LAW & CONTEMP. PROBS., Summer 2008, at 129, 133, 135, 151. For a discussion of cyberspace and personal jurisdiction in a broader context, see Mark A. Lemley, *Place and Cyberspace*, 91 CAL. L. REV. 521, 529–30 (2003).

<sup>12</sup> The computational crisis here is the apparent assault on conventional approaches to personal jurisdiction (*i.e.*, “minimal contacts”) or on conventional tests

likewise imagined as a spatial crisis.<sup>13</sup> Cyberspace has been domesticated as simply one further territory or network around or across which jurisdictional borders or lines might be drawn.

Or, at least, so goes the conventional story of personal jurisdiction. But is this story—this tale of personal jurisdiction as a tale of changing spaces, contacts, and intersections—as valid as it appears to be? Have we in fact seen a gradual move from bounded, territorial space—manifested in both nations and bodies—toward networked, intersecting space, toward fluid, globalized space, toward something called cyberspace? Is it just possible that this relentlessly spatial narrative has too easily set aside the *linguistic* quality of personal jurisdiction—the act of speaking the law—that operated at the heart of medieval jurisprudence? The hypothesis driving this Essay is that, in fact, space—whether territorial, bodily, networked, or computational—is now, and historically always has been, far less important to the doctrine of personal jurisdiction, as well as to the crises that have periodically rocked this doctrine, than commentators have suggested. Indeed, the linguistic rather than spatial quality of jurisdiction has become, if anything, *more apparent* in the age of widespread digital computation.

Or, put differently, personal jurisdiction is perhaps better addressed as a problem of architecture—of planning, speaking, processing, and building—than as a problem of space, contact, or network. Space, regardless of how nuanced an interpretation might be, always evokes the visual, and consistently—even if inadvertently—takes the border as a touchstone.<sup>14</sup> Architecture—while by no means discounting the visual—has far more to do with the interactions of speech, form, symbol, matter, movement, and processing that seems to be at the heart of personal jurisdiction doctrine. In addition, and perhaps more to the point, as evocative as the term “cyberspace” has been in discussions of computation, “*architecture*” is the term of art that scholars and practitioners of information technology use to describe their work.<sup>15</sup>

As a result, privileging the architectural over the spatial or networked qualities of personal jurisdiction jurisprudence may be a helpful first step in identifying the actual challenges—if any—that recent computational variations on political and legal behavior pose to the relationship between jurisdiction and sovereignty. Addressing personal jurisdiction as a problem of architecture may in fact lead to the conclusion that neither corporate or cosmopolitan globalization nor computation has ever

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(*i.e.*, the “sliding scale” test and the “effects test”) launched by the internet or cyberspace.

<sup>13</sup> For a discussion of the legal implications of the debate over whether cyberspace is appropriately deemed “space,” see Julie E. Cohen, *Cyberspace as/and Space*, 107 COLUM. L. REV. 210 (2007).

<sup>14</sup> RUTH A. MILLER, SNARL: IN DEFENSE OF STALLED TRAFFIC AND FAULTY NETWORKS 113–15 (2013).

<sup>15</sup> See, *e.g.*, B. Jack Copeland, *What Is Computation?*, 108 SYNTHESE 335, 335–37 (1996).

brought the doctrine to a crisis point—that the jurisprudence surrounding personal jurisdiction has always been strong, coherent, and internally consistent.

The rest of this Essay makes the case that personal jurisdiction is, and has historically been, more architectural than spatial—and that jurisdiction broadly defined has never lost its spoken, rather than visual, character. On the contrary, today, just as in the medieval period, “speaking the law”—that is, *jurisdiction*—is an architectural and linguistic process that involves not simply delimiting, gridding, or mapping the spaces in which law might operate, but building up sovereign forms and environments that more often than not elude spatial categories. Second, and perhaps unexpectedly, personal jurisdiction jurisprudence has therefore *always* had room for computational variations on legal behavior. Indeed, one might even posit that jurisdictional doctrine is fundamentally computational—and was, even prior to the advent of widespread digital systems. Jurisdiction might best be defined as a mode of information processing in aid of building and constructing sovereign environments—or, in short, computation.

And so, finally, as a corollary, the ethical or moral value attached to particular test cases in the realm of personal jurisdiction—value that conventionally rests on appropriate versus inappropriate interpretations of sovereign, national, corporate, or bodily spaces and intersections—is in need of critical re-evaluation. It may very well be that, say, *International Shoe Co. v. Washington*<sup>16</sup> is a “good” case in the doctrinal history, whereas *J. McIntyre Machinery Ltd. v. Nicastró*<sup>17</sup> is a “bad” case<sup>18</sup>—but, as we will see, the good or bad work that these cases do is not spatial or intersectional; rather, it is computational and informational.

After an initial definitional section that explains in more detail how “architecture” differs from “space” and “network” broadly defined, this Essay will situate, first, *International Shoe* and, second, *Nicastró* within an alternative history of jurisdictional architecture. The conclusion will explore the potentially valuable insights into the workings of law, citizenship, and sovereignty that this architectural variation on jurisdictional analysis can provide. Indeed, it will be clear that an architectural approach to personal jurisdiction not only allows for alternative interpretations of specific cases like *International Shoe* and *Nicastró*, but it also helps us to recognize the remarkable continuity of personal jurisdiction doctrine in the United States, beginning with *International Shoe*, continuing

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<sup>16</sup> *Int'l Shoe Co. v. Washington*, 326 U.S. 310 (1945).

<sup>17</sup> *J. McIntyre Mach., Ltd. v. Nicastró*, 131 S. Ct. 2780 (2011).

<sup>18</sup> Consider, for example, Sullivan & Massaro’s analysis. See SULLIVAN & MASSARO, *supra* note 5, at 187–89.

through *Nicastro*, and appearing most recently in *Daimler AG v. Bauman*<sup>19</sup> and *Walden v. Fiore*.<sup>20</sup>

## II. ARCHITECTURE

Architecture is, historically and etymologically, about building things. Ordinarily, these things are situated in visual space, and ordinarily visual space is, itself, also constructed such that it might reflect a particular goal on the part of the architect. Hence, space is not simply the backdrop against which architects work, but also a building material in aid of, or an agent in, the construction process. Space is not inert; it is always working, moving, flowing, and acting—and indeed, architecture is usually understood never to have reached a conclusion because movement through an architectural environment is always an ongoing, incomplete process.<sup>21</sup>

This conventional wisdom concerning architecture and space is reflected in recent work on personal jurisdiction law as well. The (supposedly traditional and narrow-minded) notion that space is nothing more than a backdrop for movement or activity—that is, that space is simply an inert territorial state surrounded by the border—has given way to a (savvier) vocabulary of spatial contacts, networks, streams, connections, and flows. In neither of these interpretations, however, is the centrality of visualized space questioned. Space becomes dynamic and fluid in these more recent interpretations, but it is still space, and it is still the touchstone for, on the one hand, building, and on the other hand, jurisdiction.

But, as more recent architectural scholarship has posited, the things that architects build are not simply objects that interact, in finite ways, with spaces. Rather—and especially in the realm of what theorists of information call algorithmic architecture—architectural processes value symbols, data, and calculation as much as they value space and matter-in-space.<sup>22</sup> Indeed, it may be that algorithmic architecture is a better reflection of architectural processes writ large than spatial architecture has traditionally been. Or, to get at this point from a different direction, as architecture has become as natural to computation as it has historically been to civil engineering, working with or through visual space has ceased to be the defining characteristic—if it ever was—of architectural work. Far from it: visual space can even be eliminated from architectural

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<sup>19</sup> *Daimler AG v. Bauman*, 134 S. Ct. 746 (2014).

<sup>20</sup> 134 S. Ct. 1115 (2014). In this sense, I am challenging other contributions to this symposium by suggesting that these two recent cases are not a departure from Justice Kennedy's plurality opinion in *Nicastro*.

<sup>21</sup> See, e.g., Eve Blau, *Curating Architecture with Architecture*, LOG, Fall 2010, at 18, 19–20.

<sup>22</sup> LUCIANA PARISI, CONTAGIOUS ARCHITECTURE: COMPUTATION, AESTHETICS, AND SPACE 13 (2013).

calculations, as the play of symbols and data themselves build up non-spatial environments.<sup>23</sup>

In her *Contagious Architecture*, Luciana Parisi has explored some of the characteristics and implications of this algorithmic or informational, rather than solely spatial, mode of architecture.<sup>24</sup> The book is complex and deeply argued, and distilling its conclusions into a series of key points does it a disservice. Nonetheless, for the purposes of this Essay, it is worth identifying three defining characteristics of the algorithmic architecture that Parisi describes. Intriguingly, each of these qualities is also characteristic of pivotal personal jurisdiction cases in the United States—a situation that suggests, at least, that the jurisprudence surrounding personal jurisdiction is as much a problem of such architecture as it is, classically, a problem of visualized spaces and networks.

First, and fundamentally, this architecture, that is increasingly associated with computation rather than with civil engineering, is architecture of speech and code. Computation is linguistic, and so too, scholars have been suggesting, is architecture. Both computational speech and architectural speech *execute*.<sup>25</sup> Moreover, in the same way that the speech of computation is functional speech—code that does work rather than communication that conveys messages or meaning—so too is architectural speech. Both computational speech and architectural speech are far more than present rational plans or representations of future goals.<sup>26</sup> They are simultaneously plans, building tools, and built objects—they are the stuff of computational environments. Eluding any separation between “abstract” speech or plan, on the one hand, and “concrete” building or material, on the other, computational or algorithmic architecture is a function of speech that is both abstract *and* concrete, both symbolic *and* material.<sup>27</sup> Architecture is no longer a finite, linear process of, first, visualizing and drawing abstract plans that are then, second, realized in concrete space. Instead, it is a symbolic process that is, itself, a built environment.

As a result, a second key quality of algorithmic architecture, especially as Parisi imagines it, is that it is outside of space, or “extraspatial.”<sup>28</sup> Once again, a popular progress narrative of what is assumed to be an increasingly nuanced interpretation of space suggests that an early articulation of space as an inert backdrop for activity gave way to a more sophisticated understanding of space as a grid or network characterized by connections, which in turn gave way to an interpretation of space as a fluid surface, an infinite expanse that doubles back on itself in dynamic

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<sup>23</sup> *Id.* at 3.

<sup>24</sup> *Id.* at 8.

<sup>25</sup> N. KATHERINE HAYLES, *MY MOTHER WAS A COMPUTER: DIGITAL SUBJECTS AND LITERARY TEXTS* 50 (2005).

<sup>26</sup> See PARISI, *supra* note 22, at 6.

<sup>27</sup> *Id.* at xii–xiii.

<sup>28</sup> *Id.* at 3.

flows or streams.<sup>29</sup> Parisi's argument, however, is that none of these interpretations of space reflects the simultaneously concrete and abstract architecture of the simultaneously material and symbolic information that is in constant play today.<sup>30</sup>

Indeed, she writes, architecture today, unable to evade computational work, seems to defy spatial categorization. In particular, she continues, environments that are frequently described as finite spaces are more often than not composed of tiny infinities—incomplete parts in which algorithms continue to process incompressible quantities of information.<sup>31</sup> This architecture that rests, as she puts it, on the idea that the sum of the parts is always greater than the whole,<sup>32</sup> in this way cannot be expressed using spatial concepts—even if these concepts reflect the conventions of something called cyberspace. On the contrary, in this arena of discrete algorithmic processes, there is no possibility of connection or networks—no abstraction of relationships or intersections into diagrams or models.<sup>33</sup>

There is also no dynamism or flow. If anything, the “space” of this discrete architecture is hyperbolically contained—even as irrational infinities continue to proliferate within it.<sup>34</sup> Contemporary architectural thinking, therefore, is increasingly reliant on the notion that environments and forms derive from ongoing data processing, and it is increasingly distanced from models of spaces or contacts. Architecture is about encountering and thinking through “concrete abstractions,”<sup>35</sup> rather than about manipulating or working through a pre-existing space or network.

The third key characteristic of architecture, as opposed to space, that will be helpful when we turn back to the problem of personal jurisdiction, therefore, is that architectural crises are crises of information processing rather than crises of space or contacts. They are crises that arise when algorithms encounter infinite, irrational, or non-compressible data, when one of these tiny parts begins, for example, to contemplate without end.<sup>36</sup> To the extent that architecture reaches a crisis point, this crisis point has nothing to do with ever more detailed or nuanced interpretations of space—inert, networked, surface, fluid, cyber, or otherwise—and everything to do with the “extraspacial” operation of data. Architectural crises, such that they exist, are processing crises. And so too, we might posit, have been the jurisdictional crises over the past two hundred years.

Once again, though, the problems or crises that have hit the jurisprudence surrounding personal jurisdiction over the past century have for the most part been articulated in a language of *space* and *contact*. The

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<sup>29</sup> *Id.* at 4–5.

<sup>30</sup> *Id.* at 6.

<sup>31</sup> *Id.* at 8, 202.

<sup>32</sup> *Id.* at 3.

<sup>33</sup> *Id.* at 4–5.

<sup>34</sup> *Id.* at 202–03.

<sup>35</sup> *Id.* at xi.

<sup>36</sup> *Id.* at 242.



doctrine of personal jurisdiction had to deal, first, with a transition from inert space to networked space, and second, with a transition from networked space to fluid space.<sup>37</sup> As the doctrine reflected these changing attitudes toward space it became—or so it was hoped—more ethical and just. More nuanced interpretations of space made for more desirable law.

And yet, scholars and commentators argue today that the doctrine of personal jurisdiction still fails to reflect global reality or is, at best, inconsistent and confused.<sup>38</sup> All of the work on space, in other words, seems to have led to very little progress in the law. But, once again, perhaps such progress was never necessary. Perhaps, instead, the contemporary doctrine already reflects, accurately and justly, a robust and nuanced theory of *architecture* that, nonetheless, defies *space* or *contact*. Recuperating the spoken quality of the earliest variations on jurisdiction—with speech, as always, a functional rather than communicative activity—evading any spatial domestication of law into grid, network, surface, or flow, perhaps these cases are architectural in the best sense of the word.

Or, put differently, perhaps *International Shoe* remains a “good” case according to conventional scholarly wisdom because its architectural processing builds up an effective, and indeed total, sovereign environment—and *not* because it reflects in a desirable way a progressive spatial or networked reality. And perhaps, similarly, *Nicastro* is a “bad” case according to this scholarship not because of its inappropriate interpretation of sovereign space but because it opens up the possibility of simultaneously contained and infinite informational processing—and it thereby reveals a series of uncomfortable truths about the historic as well as contemporary operations of sovereignty. Perhaps *Nicastro* is undesirable, not because it leaves the individual citizen the victim of corporate-as-sovereign power, but because it fails to equate corporate legal environments with sovereign legal environments as rationally as *International Shoe* had.

### III. INTERNATIONAL SHOE

Decided in 1945, *International Shoe* remains a canonical case in the doctrinal history of personal jurisdiction. Responding to an apparently new, twentieth-century spatial reality, in which corporate bodies sought to elude jurisdictional capture by cynically manipulating an anachronistic model of territorial political space, *International Shoe* demonstrated that law could in fact be as dynamic as commerce. The court’s decision in *In-*

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<sup>37</sup> See *supra* notes 10–13 and accompanying text; *infra* Part III.

<sup>38</sup> See Robin J. Effron, *Letting the Perfect Become the Enemy of the Good: The Relatedness Problem in Personal Jurisdiction*, 16 LEWIS & CLARK L. REV. 867, 868–69 (2012) (“The academic community met the *Nicastro* decision with almost unanimous disapproval.”). For a particularly dismissive critique, see also Wendy Collins Perdue, *What’s “Sovereignty” Got to Do with It? Due Process, Personal Jurisdiction, and the Supreme Court*, 63 S.C. L. REV. 729, 729 (2011) (“Personal jurisdiction also seems to inspire foolish remarks and poor opinions, and *Nicastro* may set a new low in that regard.”).

*International Shoe* made clear that reinterpretations of space were not beyond the scope of personal jurisdiction jurisprudence. Indeed, corporations would remain responsible to states and citizens even as corporate bodies became increasingly networked rather than concrete, and even as the spaces across which these bodies operated became fluid. *International Shoe* protected the embodied citizen from the violence that spatially complex corporations now threatened—and it did so by capturing these corporations within their own spatial regimes.

But *International Shoe* is about more than space. In fact, its “extraspacial” linguistic qualities deserve more attention than they have thus far garnered. If anything, *International Shoe* posits a new jurisdictional architecture that brackets or altogether eludes space—an architecture in which the law is spoken or coded, in which networks and flow are disrupted or blocked in the name of pure information processing, and in which, therefore, the ethical triumph, such as it is, is a triumph of legal and corporate information processing rather than of the law beating corporations at their own spatial game. As much as the decision in *International Shoe* begins as a commentary on the problem of corporate-versus-legal space, it quickly becomes a commentary on speech, information processing, and the building up of computational sovereign architectures.

Consider, for example, the logic that the court uses to trap *International Shoe* within Washington State’s jurisdiction. After first situating its development of the minimum-contacts test within a new or rediscovered history of jurisdiction—in which personal “presence within the territorial jurisdiction of a court”<sup>39</sup> gave way early on to a determination based on “minimum contacts” with “the territory of the forum”<sup>40</sup>—the court goes on to state that even this more recent (contact–network) interpretation of spatial jurisdiction is no longer sufficient.<sup>41</sup> Instead, the court must consider the “activities of the corporation’s agent within the state.”<sup>42</sup> As much as it is credited with initiating the minimum-contacts test, therefore, the court in *International Shoe* is actually using the idea of the contact or intersection as nothing more than a *jumping off point* for elaborating a theory of jurisdiction that ignores contacts and networks altogether. Indeed, it becomes clear that the fact that “the corporate personality is a fiction, although a fiction intended to be acted upon as though it were a fact,”<sup>43</sup> demands a theory of jurisdiction that has nothing to do with space, with connections in space, or with movement through space—inert, gridded, networked, or otherwise; rather it has to do with “activities” within a “state.”

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<sup>39</sup> *Int’l Shoe Co. v. Washington*, 326 U.S. 310, 316 (1945).

<sup>40</sup> *Id.* at 316.

<sup>41</sup> *Id.*

<sup>42</sup> *Id.* at 317.

<sup>43</sup> *Id.* at 316.

And what are these “activities”, and what is this “state”? First of all, neither the state nor the activities that determine it are “simply mechanical or quantitative.”<sup>44</sup> Neither state nor jurisdictionally relevant activity, in other words, can be determined by simply viewing a line around a territory—and then identifying a certain set number of actions within that territory—or, for that matter, a certain finite number of crossings over that line. But neither are these activities intersectional or networked. Rather, the activities that determine jurisdiction are explicitly, and influentially,<sup>45</sup> relational—they “depend . . . upon the quality and nature of the activity in relation to the fair and orderly administration of the laws, which it was the purpose of the due process clause to insure.”<sup>46</sup> The determination of jurisdiction has to do with the *interactions and functions* of, on the one hand, “activities” and, on the other hand, “the fair and orderly administration of the laws.”<sup>47</sup> Space has disappeared here in favor of processing. Jurisdiction is a *function* of how law processes “activity.”

Moreover, when the court then puts this relational, “extraspatial” method of determining jurisdiction into practice—when it comes to a conclusion about the responsibility or lack thereof of the corporation—it does so by invoking, first the iterative, systemic quality of these interactions or functions, and second, their specifically linguistic quality. In particular, the court states that, upon “applying these standards,”

the activities carried on in behalf of appellant in the State of Washington were neither irregular nor casual. They were systematic and continuous throughout the years in question. They resulted in a large volume of interstate business, in the course of which appellant received the benefits and protection of the laws of the state, including the right to resort to the courts for the enforcement of its rights.<sup>48</sup>

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<sup>44</sup> *Id.* at 319.

<sup>45</sup> For example, following *International Shoe*, “the relationship among the defendant, the forum, and the litigation, rather than the mutually exclusive sovereignty of the States on which the rules of *Pennoyer* rest, became the central concern . . . .” *Daimler AG v. Bauman*, 134 S. Ct. 746, 753–54 (2014) (quoting *Shaffer v. Heitner*, 433 U.S. 186, 204 (1977)). In her concurring opinion in *Daimler*, Justice Sotomayor states, “What has changed since *International Shoe* is not the due process principle of fundamental fairness but rather the nature of the global economy. Just as it was fair to say in the 1940’s that an out-of-state company could enjoy the benefits of a forum State enough to make it ‘essentially at home’ in the State, it is fair to say today that a multinational conglomerate can enjoy such extensive benefits in multiple forum States that it is ‘essentially at home’ in each one . . . . Put simply, the majority’s rule defines the Due Process Clause so narrowly and arbitrarily as to contravene the States’ sovereign prerogative to subject to judgment defendants who have manifested an unqualified ‘intention to benefit from and thus an intention to submit to the[ir] laws[.]’ . . . .” *Id.* at 771–72. (Sotomayor, J., concurring).

<sup>46</sup> *Int’l Shoe*, 326 U.S. at 319.

<sup>47</sup> *Id.*

<sup>48</sup> *Id.*

Having first determined that jurisdiction is a problem of relations, functions, and interactions rather than a problem of enclosed or networked spaces or spatial contacts, the Court goes on to suggest that what makes these relations jurisdictionally relevant is that they were regular, systematic, and “resulted in a large volume” of *additional* relations, interactions, and functions. What the Court is describing, in other words, is an explicitly algorithmic process—a process in which an initiating function between law and commercial activity produces ever more iterations of this same function, thereby building up an explicitly jurisdictional environment. The “relations” here are not ambiguous, communicative, or subjective. Nor are they gridded or intersectional. They are specifically iterative, algorithmic, and architectural. They build up, via repetition, informational environments that are in turn legal environments. Information processing constructs jurisdiction.

Indeed, the fact that the particular work of the salesmen whose activities led Washington to sue the corporation was to speak to customers, to forge relations, and, in a cascading or viral sort of way, to build up the corporation’s “presence” in a now almost purely linguistic or codified “state” of Washington simply reinforces the proto-computational quality of the decision. *International Shoe* was successful not because it invented a new legal *space* for twentieth century jurisprudence, nor because it transformed space into a question of networks or contacts, but because it took to a logical conclusion the idea that jurisdiction means *speaking* the law and thereby building a non-spatial or “extraspacial” legal environment. The speech of all parties here was computational rather than communicative, and, as a result, this speech was infinitely more effective at building up an airtight legal environment than any spatial or networked model could have been.

As a result, as much as *International Shoe*’s relational rather than territorial interpretation of jurisdiction has been hailed as a triumph of the individual citizen over an authoritarian sovereign or amoral corporation,<sup>49</sup> or as a nuanced and proper evaluation of contemporary sovereign and corporate relations,<sup>50</sup> it is arguably *more* relentlessly sovereign- and corporation-centric than any territory- or contacts/network-based decision could have been. By invoking jurisdiction in its purest form, and by making speech-based interactions—and, especially, the interaction of non-communicative speech that iterates, that cascades, and that thereby builds legal environments—the centerpiece of its supposed border drawing, the court (re)introduced a far more relentless interpretation of jurisdiction than had been recognized in recent years. Yes, the decision captured the corporation. But it also bound to sovereign structures, more effectively than any cartographic fantasy of space or networked fantasy of contact could have, *all* speaking entities—corporate, human, nonhuman,

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<sup>49</sup> *Daimler*, 134 S. Ct. at 771 (Sotomayor, J., concurring).

<sup>50</sup> *See id.*

computational, and environmental. It made speech or code of any kind an act of architecture and an act of sovereign expression.

#### IV. NICASTRO

And yet, *International Shoe* is ordinarily described as a gentler, more progressive, or more humane decision than the supposedly relentlessly corporate-interested decision in *Nicastro*.<sup>51</sup> It is true that *Nicastro* seems in many ways to fly in the face of *International Shoe's* statements about modern spatial fluidity or dynamism. To take the most blatant evidence of this seemingly retrograde stance, for example, Justice Breyer's insistence in his concurrence in *Nicastro* that spaces of commerce have not changed sufficiently to merit a drastic reinterpretation of the doctrine of personal jurisdiction—and that, even if they have, the fact pattern in *Nicastro* does not have anything to do with the potential crises threatened by virtual or internet commerce<sup>52</sup>—seems at best defensive. At worst, it seems blind to the reality of an interconnected world, in which the difference between the digital and the physical is largely moot.

But if we step back from this seeming blindness to recent spatial change, we may discover that, once more, spaces and networks (not to mention vision) in fact have little to do with the court's conflict—whereas processing and architecture have everything to do with it. Justice Kennedy's plurality opinion—open to criticism but less overtly or apparently stodgy than Breyer's—rests, for example, on the point that the “stream of commerce” concept, “like other metaphors, has its deficiencies as well as its utilities.”<sup>53</sup> A significant utility of the metaphor is its invocation of global interconnectedness, and a significant deficiency is its inexactness.<sup>54</sup> From there, the plurality opinion goes on to state that, although the “stream of commerce” metaphor *can* be useful under certain circumstances, in *Nicastro* it is damaging. The facts of *Nicastro* seem not to lend themselves to analysis via reference to a stream of commerce, and when the stream-of-commerce notion enters the conversation, it muddles what is already a clear-cut question of corporate presence or lack thereof. In particular, the plurality insists that the appearance of a single machine

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<sup>51</sup> See Effron, *supra* note 38, *passim*; Perdue, *supra* note 38, at 740.

<sup>52</sup> “But what do those standards mean when a company targets the world by selling products from its Web site? And does it matter if, instead of shipping the products directly, a company consigns the products through an intermediary (say, Amazon.com) who then receives and fulfills the orders? And what if the company markets its products through popup advertisements that it knows will be viewed in a forum? Those issues have serious commercial consequences but are totally absent in this case . . . It would ordinarily rest jurisdiction instead upon no more than the occurrence of a product-based accident in the forum State. But this Court has rejected the notion that a defendant's amenability to suit ‘travel[s] with the chattel.’” J. McIntyre Mach., Ltd. v. Nicastro, 131 S. Ct. 2780, 2793 (2011) (Breyer, J., concurring).

<sup>53</sup> *Id.* at 2788 (plurality opinion by Kennedy, J.).

<sup>54</sup> *Id.*

within the State of New Jersey's territorial jurisdiction can be only accidental, evidence perhaps of arbitrary, disconnected flotsam, but never a fluid stream. A single object making its way to an isolated territory cannot constitute "minimal contacts."<sup>55</sup>

The plurality argues that neither models of spatial fluidity nor models of spatial contact can be relevant in cases dealing with single or unique events. Both dynamic *and* networked spatial models, they imply, demand *sets* of multiple points. If the machine or event (the point) is isolated, it is outside of space—and thus, the Court implies, spatial metaphors fall apart. As much as spatial dynamism seems to be a progressive step away from spatial networks, which are in turn a progressive step away from bounded inert space, each actually collapses into the other when the event is singular (or, for that matter, infinite). Or, as Parisi reminds us, when algorithms, even those with supposedly clear instructions on how and when to halt, encounter incompressible, irrational, or infinite quantities of data, algorithmic *architecture* reveals its "extraspacial" quality.<sup>56</sup>

But the fact that spatial interpretations of jurisdiction are useless in determining cases of singularity or infinity—cases that gesture, once again, toward Parisi's small, contained infinities—had already been made clear in *International Shoe*. In *International Shoe*, remember, the spatial network was likewise deemed anachronistic and meaningless—and so it perhaps makes sense that spatial dynamism should be deemed equally so in *Nicastro*. Indeed, the absence of *any* flow or *any* network in both of these cases by no means undercuts the algorithmic and architectural quality of the jurisdiction that both courts advocate. After all, once the problem in *Nicastro* is determined to be a problem of singularity—a problem of whether a single point can or cannot constitute a jurisdictional environment (if not jurisdictional space)—the argument among the Justices becomes explicitly, and in fact elegantly, an argument about information processing rather than about space or contacts. Once both network and flow have been dispensed with, the juridical question easily

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<sup>55</sup> *Id.*

<sup>56</sup> Consider Parisi's discussion of Chaitin constants, "[t]he incompressible random infinity of Super Omega supersedes the binarism of zeroes and ones by way of an infinite sequence of increasingly random Omega that pushes computation into an extraspace of data. It is argued here that self-delimiting Super Omega infinities are random surplus values of code that drive algorithmic rationality away from preordained functions, and toward a speculative aesthetics that is defined by the conceptual prehensions of indeterminate infinities. In short, if all programming cultures share an axiomatic space of short programs that runs beneath all spatiotemporal complexity, this is because that space is contagious, composed of randomly increasing quantities, and a locus wherein new axioms are ceaselessly added across platforms, categories, and domains. This means that the surplus value of codes is not a spontaneous accident that is added externally to programming algorithms, and with the unpredictability of algorithmic form. On the contrary, surplus values of codes reveal the noncognitive prehension of incomputable objects or discrete infinities." See PARISI, *supra* note 22, at 70 (footnote omitted).

becomes a narrowly focused question of whether the “activities” that law processes can successfully build up sovereign environments.

The disagreement between Justice Breyer and Justice Ginsburg throughout *Nicastro* is particularly telling in this regard. Breyer, for example, repeatedly plays up the singularity, the isolated quality, of the machine as actor or operation. “None of our precedents,” he writes,

finds that a single isolated sale . . . is sufficient [to assert jurisdiction]. Rather . . . the Court has held that a single sale . . . is not a sufficient basis for asserting jurisdiction. And the Court, in separate opinions, has strongly suggested that a single sale of a product in a State does not constitute an adequate basis for asserting jurisdiction over an out-of-state defendant.<sup>57</sup>

Ginsburg, contrarily, writes that although a single sale may start out as an isolated event, it can cascade and iterate, eventually building up a quite efficient jurisdictional environment. “New Jersey,” she argues for example, “has long been a hotbed of scrap-metal businesses. . . . New Jersey recycling facilities processed 2,013,730 tons of scrap iron, steel, aluminum, and other metals—more than any other State—outpacing Kentucky, its nearest competitor, by nearly 30 percent.”<sup>58</sup>

In short, both Breyer and Ginsburg tacitly accept that space is a non-starter for this jurisdictional argument.<sup>59</sup> Indeed, neither Breyer nor Ginsburg even *try* to argue that the corporation should or should not be captured within jurisdictional *space*. Just as Kennedy’s plurality opinion disqualified spatial or networked considerations by invoking the problem of the singular,<sup>60</sup> Breyer and Ginsburg do the same: neither even attempts to place the corporation—physically or via contacts—within any pre-existing territorial, networked, gridded, or fluid spatial category. Rather, and importantly, each acknowledges the meaninglessness of space in this context and then immediately turns to processing and architecture. Whereas Breyer, like Kennedy, insists that the singularity of the machine dooms the algorithmic function to failure—that no processing can happen with an *n* of 1—Ginsburg states the opposite. An isolated starting point can in fact iterate, she states, and can thus in fact build up an “extraspacial” jurisdictional environment—an environment that moves via numbers like “2,013,730” incrementally closer to infinity. Whereas Breyer argues that the algorithm failed to process and that the architectural event failed,<sup>61</sup> Ginsburg argues that they succeeded.<sup>62</sup>

The “bad” quality of the *Nicastro* decision, therefore, is not that it reinforced an unpalatable connection between sovereign interests and corporate interests at the expense of vulnerable citizens (and violated bod-

<sup>57</sup> *Nicastro*, 131 S. Ct. at 2792 (Breyer, J., concurring).

<sup>58</sup> *Id.* at 2795 (Ginsburg, J., dissenting).

<sup>59</sup> *See id.* at 2792 (Breyer, J., concurring); *id.* at 2801 (Ginsburg, J., dissenting).

<sup>60</sup> *See id.* at 2790.

<sup>61</sup> *See id.* at 2792 (Breyer, J., concurring).

<sup>62</sup> *See id.* at 2804 (Ginsburg, J., dissenting).

ies). Instead, the corporation here—just as in *International Shoe*—is speaking the law in the same way that the citizen and the Court are. The linguistic and informational—but emphatically not spatial—interactions or “relations” among the actors, objects, and activities in the case compose, *together*, a jurisdictional function and hence a jurisdictional system. There is no moment at which one or the other might be outside of sovereign jurisdiction because the operations of all, as a system, build up a jurisdictional environment. And yet, the Court rules against the possibility of a jurisdictional environment—a decision that scholars have criticized as patently incorrect.

But, perhaps the Court was not as unjust as many have suggested it was. And, perhaps the *Nicastro* ruling is in line with other rulings in the broader jurisprudence of personal jurisdiction. There is, after all, clearly something wrong with *Nicastro* that is not wrong with *International Shoe*—something algorithmic and architectural rather than juridical, political, or ethical. In particular, the problem with the case is that processes that begin with a single (or infinite) input, as opposed to a clear, finite set, can in fact—despite Breyer’s insistence on failure and despite Ginsburg’s insistence on rational iteration—move in unexpected or, literally, chaotic directions. The problem with *Nicastro*, in other words, is that with its hint of irrationality, it highlights the simultaneous incoherence *and* strength of jurisdiction as speaking the law. And it thus takes to a logical conclusion the relentless efficiency *and* chaos of a simultaneously medieval and computational method of determining sovereignty. Hence, commentators are correct to be concerned—regardless of the actual decision of the Court. The jurisdictional pattern in *Nicastro* is precisely *not* rational—in the same way that medieval and computational forms are frequently deemed irrational—and yet, its irrationality is by no means backward or outside the realm of conventional jurisdictional norms.

## V. CONCLUSION: ARCHITECTURAL JURISDICTION AND ARCHITECTURAL SOVEREIGNTY

That the architectural jurisdiction that we see at play in *International Shoe* and *Nicastro* is (if only potentially) *both* medieval *and* computational should not, however, be surprising. Each type of jurisdiction eludes easy spatial models, and each evades simple, rational, modernist formulations. Indeed, each bookends what is, in retrospect, quite a brief modern period of visual supremacy—an ephemeral moment during which cartography- or network-obsessed political theorists forgot that jurisdiction had always been oral and aural, that the efficacy of rule-of-law sovereignty rested specifically on its ability to make words act, or execute, and not necessarily in a rational manner. Indeed, as much as cyberspace is an attractive (spatial) model, it is telling, again, that information theorists consider themselves theorists of *architecture*. There is a clear awareness among scholars of information that “computational space” is a contradiction in terms and that computational work is something far different



from networking.<sup>63</sup> Like legal environments, computational environments are made up of “extraspacial” speech that does work, often without any singular or coherent goal.

Just as “computational space” is therefore a contradiction in terms, so too, arguably, is “jurisdictional space.” Indeed, we might posit that the reason that the doctrine of personal jurisdiction seems so riddled with contradiction and confusion is that its non-spatial or “extraspacial” quality has remained stubbornly unacknowledged, while the rationality of cartographic representation and networked contacts has been maintained. Personal jurisdiction doctrine is in constant flux, not because of progress, not because of the crisis of the territorial, bounded nation–state, not because the internet has exploded the idea and ideal of the “contact,” but because jurisdiction is, and always has been, architectural and irrational—an environment constructed out of the concrete abstraction that is executable speech. The give and take between executable legal speech and executable computational speech thus makes quite a bit of sense—as do the relentless sovereign formulations that derive from it.

Or, to get at this conclusion from a different direction, the argument between Breyer and Ginsburg in the *Nicastro* ruling—echoed, if less pointedly, in Kennedy’s plurality opinion—is not an argument about whether cyberspace should enter into conversations about jurisdictional space, not an argument about whether sovereignty has changed in the era of the internet, and not an argument about whether the facts of *Nicastro* merit reference to these new variations on jurisdictional and sovereign space. On the contrary, their conversation is more computational than that. Drawing on a pre-existing, if tacit, assumption that legal behavior is always computational behavior—an assumption that we can trace from the earliest medieval formulations of speaking the law right through to the viral proliferation of salesmen in *International Shoe*—Breyer and Ginsburg were arguing over whether the legal and commercial data in *Nicastro* could be processed into a coherent jurisdictional environment. Breyer said that the process failed, whereas Ginsburg said that it succeeded.

What neither Justice recognized, however, were the uncomfortable implications of asking this question in the context of a case like *Nicastro* where the event—or at least the initiating event—was undeniably singular. By setting up the debate as a debate between failure and coherent linearity, each ignored a third alternative: that the chaotic movement of the single machine, the “extraspacial” symbol that could suggest either zero or infinity, raises the possibility of a jurisdictional architecture that not only continues to operate, but that continues to process indefinitely and irrationally, encountering ever more incompressible data. The problem with *Nicastro*, in other words—that both Breyer and Ginsburg, as well as Kennedy, miss—is not whether the movement of the machine can cap-

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<sup>63</sup> Or, at least, radically “non-Cartesian.” See, e.g., HAYLES, *supra* note 25, at 162–63.

ture the corporation within sovereign territory, but whether this movement highlights the fact that the doctrine of personal jurisdiction is fuzzy, confused and irrational because it is *supposed* to be—because that irrationality is at the heart of any jurisdictional, or processing, enterprise.

Indeed, although this possibility is particularly evident in the jurisprudence surrounding *Nicastro*, it also plays out earlier—in *International Shoe*—and later, in cases like *Daimler* and *Walden*. When Ginsburg frames her opinion in *Daimler* with specific reference to the problem of corporate affiliations that do *not* “have the virtue of being unique—that is . . . indicat[ing] only one place,”<sup>64</sup> her issue is, once again, the explosion of Cartesian spatial coordinates, the uselessness of a system in which only a single entity or intersection can occupy a single point in gridded space. Jurisdiction fails, she writes, because the jurisdictional environment is irrational, beyond networks, contacts, or coordinates, and thus “extraspacial”—*just as the Court deemed it to be in Nicastro*. Whereas the singularity of the machine undermined rational processing in *Nicastro*, the *lack* of singularity in spatial coordinates—the lack of a one-to-one correspondence between “affiliation” and “place”—does the same in *Daimler*. In both cases, the court concludes that jurisdiction fails because the architectural processing is irrational. In both cases, space gives way early on to an argument about processing and architecture. And in both cases as well, this conclusion is dissatisfying to many observers.

Sotomayor’s highly critical concurrence in *Daimler* that there is something troubling about defining a corporation as “too big for general jurisdiction,”<sup>65</sup> for example, is in many ways identical to Ginsburg’s critical dissent in *Nicastro*. Both set aside space, network, and contact to make a numerical argument—to suggest that the seemingly irrational numerical facts of the case need not undermine the building up of a jurisdictional (if not general jurisdictional) environment. Sotomayor’s argument with Ginsburg—echoing the argument that Ginsburg herself had with Breyer—is familiarly that even operations that encounter very large quantities of data, quantities that do not lend themselves to easy spatial categorization, can nonetheless be rational operations and thus be productive of jurisdictional environments. Whereas Ginsburg rationalized the *n* moving toward zero in *Nicastro*,<sup>66</sup> Sotomayor rationalizes the *n* moving toward infinity in *Daimler*—even as she finds other reasons to deny the existence of jurisdiction in the case.<sup>67</sup>

That these attempts—of Ginsburg in *Nicastro* and Sotomayor in *Daimler*—to rationalize an irrational jurisdictional architecture were unsuccessful, however, becomes clear in *Walden*. Justice Thomas’ laconic, if repeated, insistence in the case that a jurisdictional environment cannot be

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<sup>64</sup> *Daimler AG v. Bauman*, 134 S. Ct. 746, 760 (2014) (majority opinion by Ginsburg, J.).

<sup>65</sup> *Id.* at 764 (Sotomayor, J., concurring).

<sup>66</sup> *See Nicastro*, 131 S. Ct. at 2804.

<sup>67</sup> *See Daimler*, 134 S. Ct. at 764.

built from a series of isolated “unilateral activit[ies],”<sup>68</sup> once again posits the singular or the unitary as the collapsed data set that necessarily shuts down any jurisdictional function. Once more, however, the argument in *Walden* is a numerical, algorithmic, and architectural argument and not an argument about spaces, networks, or networked contacts. The jurisdictional environment remains incomplete because of a processing failure, not because the law cannot cope with new spatial flows or networks.

Bluntly, then, the logic of *Daimler* and *Walden* is identical to the logic of *Nicastro* as well as to that of *International Shoe*. Each rests squarely on the idea that neither space nor network-contact is as relevant to jurisdiction as architectural process and algorithmic function. Or, put differently, *International Shoe*’s test is, again, *not* a test of contacts. It has little to do with networks or intersections in gridded or dynamic mid-twentieth-century space. On the contrary, the supposedly new twentieth-century test of “extraspacial” architecture and processing that *International Shoe* posited drew on a well-established, *centuries-old* history of jurisdiction as speech, planning, and function. *International Shoe* demanded that courts return to an earlier sovereign question, not that they recognize a new one. And this earlier question was: does a particular set of legal speech acts or executed functions successfully build up a jurisdictional environment? If so, then a court can make a sovereign claim. If not, then there is no sovereignty.

The contribution that *Nicastro*, *Daimler*, and *Walden* make to the doctrine of personal jurisdiction, therefore, is likewise not to add nuance to the new type of jurisdictional space or network that *International Shoe* proposed, but rather to pronounce on what algorithmic qualities might cause this well-established building process to fail. Moreover, the repeated suggestion in each is that if the processing is irrational—the product of singularities, zeros, or infinities—then a jurisdictional environment cannot be built. If *Nicastro* is “bad,” therefore, so too must be *Daimler* and *Walden*. Each, after all, showcases not only the architectural rather than spatial or networked quality of jurisdiction, but also the inherent potential for irrational processing in every jurisdictional enterprise. Each makes clear that every jurisdictional claim has the potential to transform itself into an infinite, if contained, set of operations. As a result, however, if we are going to criticize the decisions in these cases, we cannot do so because they are backward or blind to ongoing technological change. On the contrary, the problem with them, quite specifically, is that they too insistently link the medieval roots of jurisdiction as speaking the law to its contemporary technological manifestations. If anything, then, the problem with personal jurisdiction doctrine is that it is *too* well aware of computation—and indeed, it has been for centuries.

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<sup>68</sup> *Walden v. Fiore*, 134 S. Ct. 1115, 1125–26 (2014) (opinion for a unanimous court by Thomas, J.).