

Beyond Distributions and Primary Goods: Assessing Applications of Rawls in Information Science and Technology Literature since 1990

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This article reviews the ways in which the work and ideas of political philosopher John Rawls have been appropriated or applied by scholars of information science, technology, and related areas since 1990. The article begins with an overview of Rawls's work, paying particular attention to its foundations and methods. Subsequently, a 2-phase discussion of the literature is presented. The first phase reviews engagements with Rawls from more than 150 scholarly articles from databases and journals dedicated to information and technology ethics, information/technology studies, philosophy of technology, and technology and human values. The second phase focuses on scholars who have demonstrated a significant commitment to Rawlsian theory in these areas. Overall, the review demonstrates that most significant applications of Rawls are oriented toward unequal distributions of informational goods exacerbated by advanced information and communication technologies (ICTs). Critically, however, scholars in this area have overlooked the relevance of Rawls's foundations for the sorts of complex networked relationships afforded by those same advanced ICTs. Rather than representing a fatal gap, it opens up a new avenue for the renewed consideration of Rawls—his ideas on the basic structure of society and the importance of self-respect are offered as 2 possible paths forward.

Introduction

This article presents a comprehensive overview of how scholars of information and technology (broadly construed) have incorporated the ideas of political philosopher John Rawls—among the most prominent political philosophers of the 20th century. Rawls has long offered scholars from a range of disciplines a comprehensive and systematic vision

of justice through which to assess various features of contemporary social, political, and economic life. In particular, appealing to Rawls to address moral and political challenges of the development and use of advanced information and communication technologies (ICTs) has scholarly precedent—notable efforts include Bell's (1973) discussion of "post-industrial society," Benkler's (2006) liberal political economic analyses of networked production, van Dijk's (2005) account of the "digital divide," and Sclove's (1992) work on democracy and technological design. Rawls has also been employed extensively in conversations of morality, ethics, and ICTs. This work represents an important contribution to ethical analyses of ICTs by bringing together and critically assessing the application of a particular—and particularly prominent—moral framework.

The article begins with an overview of Rawls's theory of justice, paying particular attention to its foundational assumptions and methodological commitments.¹ Next, a two-phase discussion of the literature is presented. This first phase attends to a wide range of engagements with Rawls based on more than 150 scholarly articles from databases and journals dedicated to considerations of information and technology ethics, information science, philosophy of information, philosophy of technology, technology and human values, and related areas. The second phase focuses on scholars whose bodies of work demonstrate a significant

¹Given that Rawls's scholarship spans decades and thousands of pages, an exhaustive account of his work will not be possible here. In the interest of efficiency, I have tried to focus on the most salient aspects of his central theory—*justice as fairness*. Necessarily, certain tangential concepts and discussions are omitted. At the same time, however, some citations of Rawls in the literature make reference to concepts omitted from this initial discussion. In order to keep the literature review as complete as possible, I have—where necessary—incorporated brief discussions of concepts that may not have been adequately addressed earlier. For a more thorough accounting of many of these concepts, please see the comparable review that first appeared in Hoffmann (2014) (doctoral dissertation).

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commitment to the development of Rawlsian theory with regard to information and technology: Drahos (1996), van den Hoven (1994, 1995, 1997), Brey (2000, 2007), Britz (2004, 2008), and Duff (2006, 2011, 2012). Each author shares a set of core conceptions and commitments: They are all committed to the idea that access to information should be a basic liberty; they each argue that information is vital to the pursuit of individual and collective ends; and they focus on the concept of information as a resource in the abstract, in particular by conceiving of information as a primary good. Combined with the most common uses of Rawls revealed by the broader review, these central concerns come together to form what I will refer to as the “standard account” of Rawls in informational and technological contexts. At the end of the article, I sketch the main ideas of the standard account and point toward some overlooked Rawlsian connections for future research and discussion.

John Rawls and Justice as Fairness

Committed to the idea that there can be a reasonable, public basis for argument on moral issues, Rawls’s work sets out to develop a basis for reasoning about justice in contemporary liberal democratic societies.² Initially, Rawls had hoped that such a procedure might be useful for constructing a wide range of ethical principles, but as his career progressed he refined and restricted the scope of its applicability, eventually limiting it to the construction of principles of justice (see, generally: O’Neill, 2003; Rawls, 1980/1999a, 1993). Perhaps his most notable achievement was the development of the “original position”—a constructive procedure for modeling rational decision making under conditions that are fair (hence the name of his theory, *justice as fairness*). It is through this procedure that Rawls was able to revive and further the idea of a social contract as found in the work of Hobbes, Locke, and—in different ways—Kant and Rousseau (Rawls, 1971, p. xviii). In addition, his work differs in important ways from other strands of liberalism, especially classical economic liberalism and so-called neoliberalism, given that he does not view liberalism as a fundamentally or narrowly economic doctrine tied to the rise of capitalism and market economic thought. Rather, Rawls is situated in a liberal tradition that (i) is fundamentally concerned with ideals of toleration and the promotion of basic freedoms of conscience and expression and (ii) identifies the roots of liberalism in the 16th and 17th century Wars of Religion and the Reformation and their “at first, reluctant acceptance of the principle of toleration and liberty of conscience” (Rawls, 2007, p. 11).

Methodologically, Rawls’s work represents a type of moral constructivism. Whereas contemporary proponents of moral constructivism differ, Rawls’s constructivism “holds that moral objectivity is to be understood in terms of a suitably constructed social point of view that all can accept”

²The discussion of Rawls presented here has been greatly informed by Freeman (2007). For a more detailed version of this overview, please also see Hoffmann (2014, p. 27–68).

(Rawls, 1980/1999a, p. 307). Put another way, moral constructivism adopts principles not because they are true, but because they issue “from social procedures that are, in some sense, suitable”—this is acceptable by all to whom they apply (Darwall, Gibbard, & Railton, 1992, p. 139). The practical task before the constructivist, then, is to identify “what social procedures [are] suitable” (Darwall et al., p. 139). It is this task that Rawls sees before him in developing an account of justice.

Rawls views the basic structure of contemporary liberal democratic societies as the primary problem for a theory of justice (Rawls, 1971, p. 4). He gives two kinds of reasons for taking the basic structure as his primary subject. Under the first kind of reason, he argues that principles of justice are necessary for the regulation and preservation of just background conditions—what Rawls refers to as “background justice”—against which individuals set and pursue valued ends in line with their philosophical, moral, or religious beliefs, their sentiments and loyalties, as well as their fundamental values and projects, among other things (what Rawls refers to as a person’s comprehensive doctrine). Under the second kind of reason, Rawls (2001) centers on the basic structure for its “profound and pervasive” influence on the life chances of citizens, given that it is integral to the structuring of individuals’ political, social, and economic possibilities (p. 55–56). Within the basic structure, Rawls intends his principles of justice as applying to the “basic institutions,” including a constitution and the system of government it defines, systems of property for regulating the use of goods, and economic markets for distributing productive resources.

Guided by his constructivist method, Rawls puts forward the “original position” as a suitable procedure for arriving at principles of justice suitable for regulating the basic structure of society. Importantly, however, a great deal of the “heavy lifting” of Rawls’s theory is done well before Rawls arrives at the original position. The device does not carry justificatory force in and of itself, but instead works to operationalize relevant features—referred to as “model-conceptions”—of persons and society that he lays out in advance.³ The first relevant model-conception is that of the “well-ordered society”—that is, a society (i) in which everyone accepts (and knows others also accept) the same principles of justice and (ii) its basic structure is believed by all to satisfy the principles of justice (Rawls, 1980/1999a, p. 309). The second relevant model-conception—the “moral person”—describes members of a given society that view themselves, in their political and social relations, as free, equal, and moral. For Rawls, persons are *free* if (i) they think they are entitled to make claims on common institutions in order

³It is important to note, however, that Rawls thinks societies and persons are more than these models. However, “if certain principles of justice would indeed be agreed to,” a constructivist account of justice must connect definite principles with particular conceptions of the person and society (Rawls, 1980/1999a, p. 308). Other conceptions of persons might be appropriate for reasoning about other moral principles, but insofar as we are concerned with principles of justice, we are, Rawls thinks, concerned with the model-conceptions he advances.

to fulfill their goals and higher order interests and (ii) they believe that they can revise or change their conception of the good at any given time. Further, persons are *equal* insofar as they recognize that everyone has an equal right to determine and evaluate the principles of justice that are to govern the basic structure of society and they are *moral* insofar as they possess what Rawls calls the two moral powers (discussed below) (Rawls, 2001).

Free and equal moral persons are also said to be both reasonable and rational. In crude terms, Rawls thinks a person has the capacity to be reasonable if they are prepared to advance standards, principles, or reasons for action believed to be justifiable to (reasonable) others. On this account, reasonableness falls somewhere between pure altruism (acting solely on behalf of the common good) and mutual advantage (cooperating with others to advance one's own ends) (Rawls, 1993, p. 50). By contrast, persons are rational when they exercise "powers of judgment and deliberation in seeking ends and interests peculiarly [their] own" (Rawls, 1993, p. 50). These ideas of reasonableness and rationality find their expression in Rawls's articulation of the idea of the two moral powers:

First moral power: the ability of individuals to exercise an effective sense of justice, that is, a capacity to recognize and act from justice's demands (reasonableness)

Second moral power: the capacity of individuals to possess and pursue a conception of the good, that is, to adopt some more or less complete set of valued ends and take up effective means to those ends (rationality).

In addition, the complementary ideas of reasonableness and rationality (and their expression in the two moral powers) help Rawls in reconciling concepts of equality and freedom that are often viewed by both critics and proponents of liberalism as in tension with one another. The reasonable gives expression to equality insofar as it recognizes that all persons have an equal claim on matters of justice; the rational expresses the idea of the freedom of individuals to set, pursue, and revise individual ends.

These model-conceptions set conditions for the design of the original position, which specifies "fair conditions under which the representatives of citizens, viewed solely as free and equal persons, are to agree to the fair terms. . .whereby the basic structure is to be regulated" (Rawls, 2001, p. 80). In this way, the original position incorporates "pure procedural justice at the highest level" as "the fairness of the circumstances under which agreement is reached transfers to the principles of justice agreed to" (Rawls, 1980/1999a, p. 310) (hence the name of Rawls's theory, *justice as fairness*). Within the original position, Rawls imposes additional constraints on deliberation. One set of conditions—"the circumstances of justice"—work to reflect (generally) our current historical circumstances, given that if the principles selected in the original position are to be useful, they must in designed, in part, to be applicable to our actual conditions in the actual world (Rawls, 2001, p. 84). Among the circum-

stances of justice are conditions of moderate scarcity and the necessity of social cooperation. They also include the fact of reasonable pluralism—an acceptance that a liberal democratic society will inevitably need to account for a wide array of reasonable comprehensive doctrines that will be different, often competing, and sometimes irreconcilable with one another. Finally, Rawls also stipulates that parties in the original position must employ public reasoning, that is, the reasons given for selecting particular principles over others must be justifiable to all whom the principles apply (in this case, citizens in a liberal democratic society).

Rawls must also model the ideas of reasonableness and rationality in the original position. To model the idea of rationality, Rawls charges parties in the original position with securing sufficient means—or "primary goods"—for the exercise of their two moral powers. Rawls's index of primary goods is derived by ascertaining which things are generally necessary as both social conditions and all-purpose means not for advancing persons' interests generally under particular historical circumstances, but for enabling persons to exercise their moral powers specifically (Rawls, 1993, p. 314). The list of primary goods that Rawls adopts includes: basic rights and liberties; freedom of movement and free choice of occupation; powers and prerogatives of offices and positions of responsibility in political and economic institutions; income and wealth; and the social bases of self-respect. Among these primary goods, the basic rights and liberties provide "for the adequate development and full exercise of the two moral powers" (p. 45). For promoting the first moral power (an effective sense of justice), Rawls (2001) provides persons with equal political liberties and freedom of thought (p. 45). The second moral power (the capacity to adopt and pursue a conception of the good) is promoted through liberty of conscience and freedom of association (Rawls, 2001, p. 45). Rawls (1971) also affords special consideration to the primary good of self-respect, calling it "perhaps the most important primary good" (p. 386).

Reasonableness is modeled in the original position by situating parties behind a "veil of ignorance" that deprives parties of information regarding "their place in society, their class position, or social status," "their fortune in the distribution of natural talents and abilities," and "their own distinctive psychological dispositions and propensities" (Rawls, 1980/1999a, p. 310). Behind the veil, parties are also denied particular knowledge of their held beliefs and desired ends—in Rawlsian terms, parties know they have comprehensive doctrines, but do not know their doctrines' specific contents. Such restrictions, Rawls (1980/1999a) argues, are "required if no one is to be advantaged or disadvantaged by natural contingencies or social chance in the adoption of principles." (p. 310). Overall, these informational parameters serve to situate individuals as rationally autonomous and mutually disinterested, ensuring that deliberation between the parties is fair.

Once inside the original position, parties deliberate and select principles of justice for regulating the basic structure of a well-ordered society. Loosely following the method of ethics developed by Sidgwick, Rawls presents the parties with different sets of principles of justice rooted in different

philosophical traditions (including his own two principles of justice) (Rawls, 2001, p. 83). It is important to note that the original position is designed in such a way so that the deliberating parties would most reasonably select his two principles over all others—that is, Rawls stacks the deck in his favor. This is not, however, a defect. Rather, it is a feature, given that the important question for Rawls is not necessarily what principles are best, but what principles are best in view of “one interpretation of the initial situation which best expresses the conditions that are widely thought reasonable to impose on the choice of principles yet which, at the same time, leads to a conception that characterizes our considered judgments” (Rawls, 1971, p. 105). This feature lays bare the fundamental importance of the assumptions Rawls builds into the model-conceptions that inform the design of the original position. If one is critical of the principles Rawls’s parties adopt, it is not necessarily their reasoning inside the original position that should be criticized, but, rather, the assumptions and constraints that Rawls builds into his model-conceptions in the first place.

Ultimately, Rawls proposes two principles of justice:

1. Each person has the same inalienable claim to a fully adequate scheme of equal basic liberties, which scheme is compatible with the same scheme of liberties for all; and
2. Social and economic inequalities are to satisfy two conditions: First, they are to be attached to offices and positions open to all under conditions of fair equality of opportunity, and second, they are to be to the greatest benefit of the least-advantaged members of society (the difference principle).⁴

Rawls intends these principles to specify a fair distribution of primary goods in society. The first principle guarantees individuals equal basic civil and political liberties as well as the fair value of the political liberties (i.e., similarly able and motivated people should have the same prospects for political participation). The second principle provides for the effective actualization of the first: It ensures fair equality of social, professional, and economic opportunity and permits social, professional, and economic inequality only if such inequalities work to the benefit of the least advantaged (the difference principle). Further, Rawls’s (2001) two principles are lexically ordered: The first principle is necessarily preceding the first, whereas the first part of the second principle (fair equality of opportunity) is necessarily preceding the second part (the difference principle) (p. 43). The basic civil and political liberties have special priority and cannot be compromised for second principle considerations.

As previously shown, much of the theoretical “heavy lifting” of Rawls’s theory is done well before parties begin to select principles of justice within the original position, represented in his ideas of moral persons as free and equal, reasonable and rational, and prepared to deliberate about principles

⁴This articulation of the two principles of justice appears in Rawls (2001, p. 42–43).

of justice. By putting forward an index of primary goods and charging parties in the original position with securing their fair share of such goods, Rawls is able to give expression to persons’ rationality. By excluding from consideration information regarding persons’ specific place in society, Rawls is able to give expression to persons’ capacities for reasonableness. Once inside the original position, Rawls further endeavors to construct conditions under which reasoning about principles of justice can be construed as fair, employing various informational restrictions—including the ideas of public reason and the veil of ignorance. Finally, Rawls constructs the original position in such a way as to make the selection of his principles inevitable, reinforcing the importance of his foundational assumptions and model-conceptions.^{5,6}

Applications of Rawls to Information and Technology: Overview

This section offers a comprehensive overview of engagements with Rawls based on more than 150 scholarly articles from databases and journals dedicated to considerations of information and technology ethics, information/technology studies, philosophy of information, philosophy of technology, technology and human values, and related areas from 1990 to 2014.⁷ In addition to these sources, outside articles

⁵It should be noted that discussion of Rawls’s work on international justice—especially as discussed in *The Law of Peoples* (1999b)—is absent here. This is for two reasons: (i) It necessitates a subsequent discussion that is, for the moment, outside the scope of this overview and (ii) within the review of applications of Rawls in the literature, only Drahos (1996) makes any significant reference to Rawls’s work on international justice (where it is briefly discussed). This does, however, suggest that Rawls’s international work may deserve more thorough or explicit attention from scholars interested in advancing Rawlsian theory within the context of information and technology globally. (Many thanks to a reviewer for pointing this out.)

⁶Since the publication of *A Theory of Justice* in 1971, Rawls’s work has spawned a great deal of subsequent discussion and secondary literature, only a small amount of which is referenced later in this article. Though a full accounting of this secondary literature is outside the scope of any article-length piece, the following citations represent some notable contributions and discussions: for prominent and wide-ranging discussions, see Daniels (1989) and Freeman (2003); for communitarian critiques, see MacIntyre (1981), Walzer (1984), Taylor (1989), and Sandel (1998); for capabilities critiques, see Sen (2009) and Nussbaum (2004); for leftist critiques, see Cohen (2008) and Doppelt (1981); for disabilities critiques, see Nussbaum (2004) and Terzi (2010); for feminist critiques, see Jaggard (1983), Okin (1989), and Nussbaum (2003).

⁷Consulted databases include *Library, Information Science, & Technology Abstracts (LISTA)* and the digital library of the Association of Computing and Machinery (ACM), both of which contain a wide range of publications relevant to ethics, information, and technology. Consulted journals include *Ethics and Information Technology*; *Journal of Information Ethics (JIE)*; *International Review of Information Ethics (IRIE)*; *Philosophy and Technology*; *Information, Communication, and Ethics (ICE)*; *Science, Technology, and Human Values: Journal of the Society for Social Studies of Science (ST&HV)*; *Journal of the American Society for Information Science and Technology (JASIST)*; and *First Monday*. Many of the more than 150 discovered articles are cited here, though some were omitted for the sake of space (especially if entries were redundant or references to Rawls were misleading or particularly fleeting)—hence the “reasonably comprehensive” qualification.

were consulted if they were frequently cited in works culled from the primary search—though, admittedly, the number of outside articles is small. As the overview demonstrates, references to Rawls in the areas of ethics, information, and technology are common. They are not, however, scatter-shot—rather, they tend to fall into one of four categories: (i) Rawls as a figurehead or representative of contemporary Western philosophy, in particular, social contract theory; (ii) Rawls as an oppositional figure, that is, as representative of an argument or position to be resisted; (iii) Rawls as an authority for a particular normative concept, such as the idea of procedural justice or the priority or liberty; and (iv) Rawls as method, that is, as a method for reasoning about and arriving at moral rules or principles. Each of these four areas will be discussed here.

Rawls as Figurehead

Rawls is commonly cited as a figurehead for Western, liberal philosophy or social contract doctrines. This type of reference often stands alone and serves to situate an author's work in relation to liberal philosophy generally without explicitly engaging Rawls's work (Carbo & Smith, 2008; Chang, 2011; Hongladarom, 2008; Kling, 1996; Laudon, 1995). Garg and Camp (2012), for example, invoke Rawls as representative of "Western philosophies" generally (p. 10), whereas Hildebrandt (2011) and Duff (2005) cite him as a contemporary example of deontological ethical reasoning. Clarke and Roache (2012) mention Rawls as typical of contemporary liberal political philosophy, and Levy (2012) situates Rawls as an authority on the historical roots of liberalism. Similarly, Reed and Sanders (2008), Litschka and Karmasin (2012), and Heeney (2012) recognize Rawls's place in a liberal social contract tradition alongside Hobbes, Locke, and Rousseau (p. 1136). Hamlett (2003), Hands (2005), and Brabham (2012) admit his work as representative of certain debates concerning deliberative and participatory democracy.

Rawls is also often invoked as a figure worth appealing to in future discussions. In these instances, a work describes an ethical or political dilemma in relation to information technology and cites Rawlsian justice as a possible solution. In Wheeler's (2003) critical discussion of the ACM Code of Ethics, for example, Rawls's political liberalism is cited as one possible way of systematically thinking through complex moral and political issues. Jain and Boehm (2005) suggest Rawls as potentially useful for attending to human values and software engineering. Finally, Kahn et al. (2010) cite uses of Rawls by developmental psychologists as a future direction for philosophically grounded research in the field of human-robot interaction.

Rawls as Oppositional Figure

The inverse of figurehead approaches, oppositional uses reject Rawls's framework as faulty or limiting. Here, Rawls's work is often contrasted against an already existing critique—most commonly, Sen's "capabilities approach"—

in order to better illustrate the alternative position. Examples of this approach include: capabilities analyses of morality and robots as caretakers (Borenstein & Pearson, 2010; Vallor, 2011); Coeckelbergh's (2011) articulation of the capabilities approach as a suitable foundation for a comprehensive "ethical-anthropological framework"; Johnstone's (2007) application of the capabilities approach for normative analyses of technology generally; and Britz, Hoffmann, Ponelis, Zimmer, and Lor's (2013) discussion of capabilities in an information-based rights framework. Outside of capabilities discussions, Rawls is also cited as incompatible with a feminist ethics of care (Capurro, 2008; Froelich, 2004). In a particularly clear example, Allen (2013) rehearses both capabilities and feminist critiques of Rawls's institutional focus in her discussion of frameworks for assessing disaster response efforts by nongovernmental organizations. In these cases, Rawls's work is only indirectly criticized—it is simply presented to reinforce or justify the choice of an alternative framework.

In other cases, Rawls's work is not only used to punctuate or illustrate an alternative approach, but is directly challenged as well. Hands (2005), for example, criticizes Rawls's model of public reasoning as an "idolatry of the state" that mischaracterizes civil society as residing solely in the relationships between citizens and state institutions, and not also between citizens themselves (n.p.). Similarly, Noveck (2005) challenges Rawls's "idealization" of group deliberation behind the veil of ignorance (n.p.). More broadly, Brothers (1999) finds the liberal approach typified by Rawls wholly inadequate for addressing issues of social justice in a global information society. Atkinson (2001) cites Rawls's use of the veil of ignorance as emblematic of a "neutral" liberal ideology that limits our thinking about library services.

Oppositional applications have also been prevalent in intercultural information ethics, where Rawls's Western liberal commitments are taken as a signal of his ultimate incompatibility with other cultural commitments. Ess (2007), for example, argues that Rawls expects people to "[bracket their] diverse metaphysical beliefs" so that they might engage "with [their] fellow citizens simply on the basis of what is politically expedient" (p. 21). Wong's (2012) discussion of ICTs and the good life depends heavily on criticisms of Rawlsian liberalism made by Michael Walzer (1984)—namely, that Rawls's framework is not attentive to the social and cultural embeddedness of individuals.

Rawls as Authority on Normative Concepts

Outside of figurehead or oppositional uses, Rawls's work is frequently cited for its clear articulation of particular normative concepts. Sometimes, scholars of information and technology simply endorse Rawls's normative prescriptions wholesale. For example, Johnson and Miller (2002) invoke Rawls's two principles of justice as support for promoting equal opportunity in professional computing. Most examples, however, are not so broad. Instead, specific dimensions of Rawls's theory are discussed and endorsed as

authoritative or normatively appropriate, namely: his articulation of procedural justice; his formulation of the difference principle; his discussions of basic liberties and the priority of liberty; and the idea of an overlapping consensus.

Procedural justice: Computer scientists interested in developing computational models of legal reasoning have turned to Rawls's definition of procedural justice as a model (Gordon, 1993; Leenes, 2001; Roth, Riveret, Rotolo, & Governatori, 2007; Zeleznikow, Bellucci, Schild, & Mackenzie, 2007). According to this work, procedural justice "is concerned with making and implementing decisions according to a fair process" (Zeleznikow et al., p. 238). Put another way, just outcomes are the result of fair processes and are not assessed independently of the procedures from which they issue. A representative example is Lodder and Herczog's (1995) "DiaLaw," which builds on a definition of law as "purely procedural" (in the Rawlsian sense) to create a dialogical approach to modeling legal reasoning in computing environments.

Basic liberties and the priority of liberty: Rawls's account of basic liberties and their priority has featured prominently in different works (Primeaux, 1998; Taebi, 2011). For example, Laird (1993) cites Rawls's assertion that, in democratic societies, certain basic political liberties cannot be traded off for other goods (e.g., trading voting rights for money). Similarly, Franke (2012) invokes the lexical ordering of Rawls's two principles to argue against justifications of censorship that appeal to second-principle considerations (such as economic efficiency or property rights). Vaccaro and Madsen (2009) draw on van den Hoven and Rooksby's (2008) interpretation of Rawls to articulate an "informational liberty" (alternatively described as a "right to know"). In a different vein, Matlage (2007) discusses Rawlsian basic liberties in the context of intellectual property rights, arguing that Rawls's "treatment of basic liberties recognizes the incommensurability of certain primary (usually material) goods and the basic liberties of individuals" (p. 21).

Difference principle: Computer scientists often appeal to Rawls's difference principle—alternatively referred to as the "maximin" principle (i.e., maximizing the minimum) in these works—to argue for fair distributions of computing resources within networks without appealing to utilitarian principles (Crowcroft & Oechslin, 1998; Dramitinos, Stamoulis, & Courcoubetis, 2004; Ephrati, Zlotkin, & Rosenschein, 1994; Radunović & Boudec, 2007). In a different manner, scholars working in areas of information or digital divides often appeal to the difference principle to show how certain inequalities with regard to access to information or technology are unjust (Bose, 2012; Britz & Ponelis, 2005; Duff, 2006; Fallis, 2004; Hodel-Widmer, 2006). Wolf and Grodzinsky (2006) and Misra (2012) also cite the difference principle in this way, arguing that software engineers ought to take into account the special considerations of the least advantaged. In a unique application, Ottinger (2013) cites the difference principle as a potential alternative model for assessing the environmental risks of technological development.

Additional considerations: Though the above features represent the most commonly consulted dimensions of Rawls's work, other features have been invoked as well. Bärwolff (2009) and Collste (2008), for example, cite Rawls's conception of justice as generally preferable from a normative perspective. Fallis and Whitcomb (2009) briefly cite Rawlsian rationality and the advancing particular ends. Mathiesen (2013) has appealed to Rawls's definition of a right as something that can be owed to a rights holder as a matter of justice. Dell and Venkatesh (2012) rely on Rawls's distinction between the reasonable and rational to show that the exercise of reasonableness should be emphasized in social design settings. In a discussion of reconciling conflicting human values within value sensitive design and related design methodologies, Burmeister, Weckert, and Williamson (2011) cite Rawls's discussion of the tension between the values of equality and efficiency. Eschenfelder, Glenn Howard, and Desai (2005) have focused on Rawls's conception of civil disobedience in order to discuss practices of digital rights management software circumvention. Palm (2009) has used the idea of just background conditions in order to normatively assess workplace surveillance practices. Finally, Rawls's idea of an overlapping consensus has also figured into discussions of ethics, information, and technology—van de Poel and Zwart (2010) apply it in the context of research and development (R&D) whereas Hausmanninger (2004) and Søraker (2006) draw on it in normative discussions of the Internet (though they arrive at different conclusions).

Methodological Applications

In methodological applications, an author (or authors) adopts a method or procedure from Rawls's body of work for a particular applied context. For example, Collins, Miller, Spielman, and Wherry (1994) "use the reasoning that Rawls applied to general societal ethics in the specific context of software fairness, modifying his ideas as needed to apply to computing" (p. 85). Similarly general approaches are taken by Lockhart (2001), Johnson and Miller (2002), and Murphy (2012). More specifically, Powers (2003) uses Rawls's distinction between two concepts of rules to systematically identify norms and standards at play in a particular online community (see also Tavani, Grodzinsky, & Spinello, 2003). Most methodological uses of Rawls, however, are not so broad. Rather, they tend to attend specifically to Rawls's method of wide reflective equilibrium (discussed below) or the original position and its veil of ignorance.

Wide reflective equilibrium: Rawls (2001) articulates the idea of "wide reflective equilibrium" to address conflicts when "the implications of the judgments we render on one question [are] inconsistent or incongruent with those we render on other questions" (p. 30). In a state of wide reflective equilibrium, a person "has carefully considered alternative conceptions of justice and the force of various arguments for them" (Rawls, 2001, p. 31). Consequently, "we suppose this person's general convictions, first principles, and particular

judgments are in line; . . .the reflective equilibrium is wide, given the wide-ranging reflection and possibly many changes of view that have preceded it” (Rawls, 2001, p. 31). In short, a person is said to have reached a state of wide reflective equilibrium when they have brought their general moral and ethical principles more or less “in line” with their considered judgments about particular cases or situations. For example, the reasoning employed by parties in Rawls’s original position represents one version of this method, given that parties move back and forth from considerations about specific primary goods to broader moral theories (like utilitarianism or *justice as fairness*) that suggest or justify particular distributions or societal arrangements.

Various works have recognized the value of wide reflective equilibrium for reasoning about not only justice, but a wide range of ethical issues. van den Hoven (1997) has argued that wide reflective equilibrium represents an appropriate methodological approach for computer ethics, and others have followed him in this assertion (Bynum, 2000; Himma, 2008; Tavani, 2001). Elia (2009), in his discussion of ICTs and transparency, describes the method as particularly valuable for “testing broad moral principles against empirical data, situation difference, and intuitions or judgments regarding specific cases in an ongoing and potentially revisionary way” (p. 147). van de Poel and Zwart (2010) and Doorn (2010) explicitly deploy the method in their attempts to morally assess particular R&D practices. Tidwell (1999) uses the method to discuss how the World Wide Web can support ethical debates between professional communities. Additionally, Clarke and Roache (2012) cite wide reflective equilibrium as a useful way of thinking through moral dimensions of human enhancement technologies.

Original position and the veil of ignorance: The most common methodological engagement with Rawls is through the device of the original position. Culnan and Regan (1995) rely on Rawls’s characterization of “mutually disinterested” persons in the original position to stress the importance of preserving individual privacy in the face of massive political campaign mailing lists in the United States. Introna (2000) and Olivier (2002) invoke the original position as a way to ask what information privacy policies persons might choose under ideal conditions. Vartiainen and Siponen (2010) recommend the veil of ignorance as a useful tool for helping students think about moral dimensions of pirating software. Johansson (2011) relies heavily on Brandt’s (1972) modification of the veil of ignorance for assessing the morality of unmanned armed vehicles. Kaddu (2007) employs a modified original position and veil of ignorance to advocate for a free flow of information in society. LePoire (2005) suggests a version of the veil for resolving tensions between development, risk, and uncertainty when developing technological solutions to social problems. Cooke (2005) cites the original position as perhaps valuable for generating an ethical defense of lesbian, gay, bisexual, and transgender-specific library and professional organizations, whereas Chopra and Dexter (2009) develop a particularly robust application of

original position reasoning while generating their defense of “freedom zero” of the free software definition.

In less-detailed cases, other scholars have simply emphasized the original position’s value as a framework for addressing ethical issues generally. Floridi (1999), for example, admits the original position as a rare example of a patient-oriented approach to moral reasoning in a typically agent-centered Western philosophical tradition (see also Floridi, 2006, 2010). Wallace (1999) holds up the veil of ignorance as reinforcing the value of anonymity for helping people make ethical decisions. Lercher (2008), in a discussion of moral dimensions of data-mining practices in health care and insurance industries, endorses the original position for limiting the role of risk taking in the selection of principles of justice. In a different vein, Visala (1996) uses the original position to defend a “universalizable” moral discourse and subsequently attempts to unite a Habermasian model of communicative rationality with a Rawlsian model of rational decision making. Finally, Moor’s (1999) framework of “just consequentialism” specifically relies on the impartiality of original position reasoning. For Moor, principles of justice should guide in developing ethical policies for using computer technology that protecting these fundamental goods (comparable to Rawls’s primary goods). To preserve this idea of justice, Moor develops a minimal impartiality test grounded in Gert’s (1998) “blindfold of justice,” itself a modification of Rawls’s veil of ignorance.

Applications of Rawls to Information and Technology: Major Proponents

Beyond narrow or passing engagements with Rawls’s work, five scholars have emerged as notable proponents of Rawlsian thought in informational and technological contexts. In the mid-1990s, Peter Drahos began appealing to Rawlsian thought in discussions of information justice. In particular, Drahos (1996) relied on Rawls’s two principles to develop a systematic account of intellectual property rights and just distributions of informational goods. Around the same time, Jeroen van den Hoven began advocating for the value of Rawls’s work (van den Hoven, 1994). His later discussion with Emma Rooksby (see van den Hoven & Rooksby, 2008) is, to date, perhaps the most comprehensive account of information as a primary good in the Rawlsian sense. Philip Brey has stressed the value of Rawls for thinking through moral dimensions of information and technology. Johannes Britz (along with frequent coauthors Shana Povelis and Peter Lor) has, on various occasions, relied on Rawls’s two principles of justice as a model for thinking through just distributions of information goods on a global scale. Alistair Duff has also promoted the use of Rawls for studying issues of social justice in a global information society (or, as he often has it, a “post-industrial” society). Duff’s major work—*A Normative Theory of the Information Society* (2012)—represents one of the most detailed interpretations of Rawls to applied issues of information distribution broadly.

In *A Philosophy of Intellectual Property*, Drahos (1996) addresses problems of information, intellectual property rights, and social justice through a Rawlsian lens. In order to account for information within a Rawlsian scheme of distributive justice, Drahos argues that information should be considered a primary good. On his telling, persons need more than equal rights and liberties in order to develop and pursue plans and make decisions—they also need information (p. 175). Consequently, Drahos (1996) asserts that rational persons would want more and not less information given that—as with rights, liberties, opportunities, and resources (Rawls's other primary goods)—information is indispensable to pursuing one's valued ends given that, “after all, the act of planning requires information” (p. 174).

Drahos accounts for information as a Rawlsian primary good at two different levels: domestic and international. At the domestic level, Drahos (1996) suggests a “freedom of information” to sit alongside other basic liberties, like freedom of expression (p. 176). Here, the equal relevance and import of information for individuals finds explicit protection through Rawls's lexically preceding first principle. At the same time, Drahos emphasizes the economic value of information. He cites positive economics and Rawls's difference principle as providing some justification for certain productive inequalities in the distribution of information: Inequalities in the distribution of information may be justified so long as they provide incentives to produce more information or goods that, ultimately, improve the well-being of the least advantaged (Drahos, 1996, p. 177). However, Drahos (1996) is also quick to emphasize that certain inequalities in the distribution of information could never be justified given that, under a Rawlsian scheme, second-principle considerations cannot take priority over first-principle ones (p. 177–178). Instead, property rights in information should be viewed “as a tool to preserve political liberties and maximize access to, and the distribution of, primary goods such as information” (Drahos, 1996, p. 178). To work this way, Drahos (1996) believes that parties in the original position would adopt a scheme of property rights in information that severely limited monopoly rights (p. 179). Because monopoly rights in information limit the degree to which information diffuses throughout the population, they have the potential to generate unjust inequalities between information haves and have-nots by undermining the ability of the latter group to effectively exercise their first-principle rights and liberties. For this reason, parties in the original position, Drahos argues, would likely adopt a minimal (as opposed to maximal) scheme of intellectual property rights.

At the international level, Drahos adjusts his view of informational justice to accommodate the differences between Rawls's domestic and global theories of justice. He believes parties at the global level would also adopt a severely limited scheme of intellectual property rights, though their reasons for doing so would be different. At the global level, Rawls abandons his domestic original position

and develops an alternative procedure where the representative parties are “peoples”—not individual rational persons (Rawls, 1999b). On Rawls's account, because there is no such thing as a global basic structure (i.e., a world government), it does not make sense to design an original position for arriving at principles of justice to govern a global basic structure in the same way that his domestic theory is designed to govern the basic structure of domestic institutions. Instead, parties in a global original position come together to deliberate about terms for governing relations between states, so that the appropriate representatives in the original position will be “peoples” and not individuals. These peoples, Rawls argues, would be most interested in developing some basic rules and procedures for governing cooperation between states, as well as establishing some minimal institutions and agencies responsible for enforcing these basic rules. In discussing global intellectual property agreements, Drahos emphasizes Rawls's argument that peoples in a global original position would likely adopt a position of noninterference, that is, that states should not interfere in the inner workings of other states' domestic structures (so long as those structures meet certain minimal standards of decency). Drahos argues that robust protectionist schemes of intellectual property rights would be barred given that they would unduly interfere in domestic property structures and undermine the autonomy of individual states (Drahos, 1996, p. 190).

van den Hoven

Jeroen van den Hoven has engaged Rawlsian theory on multiple fronts. Broadly, he believes that Rawls's systematic construction of principles of justice for well-ordered, democratic societies helped pave the way for considering issues of design in ethics (van den Hoven, 2010, p. 76). For van den Hoven (2010), this “design turn” goes beyond offering simple applied ethical analyses to also address “the economic conditions, institutional and legal frameworks and incentive structures that need to be realized if our applied analyses are to stand a chance in their implementation and thus contribute to bringing about real and desirable moral changes in the real world” (p. 76). Whereas work in this vein is largely focused on institutional design, he believes it simultaneously raises issues relevant to the design of socio-technical systems and technological artifacts (van den Hoven, 2008, p. 59; van den Hoven, 2010, p. 76). Additionally, van den Hoven (1997) has argued that Rawls's method of wide reflective equilibrium (described earlier) is the most appropriate methodology for considering ethical issues in the context of computers and other advanced ICTs (see also van den Hoven, 2008, p. 56–57).

van den Hoven's most thorough and pointed engagements with Rawls position information as a primary good (1995; see also van den Hoven & Rooksby, 2008). As with Drahos earlier, van den Hoven argues that information qualifies as a primary good in the Rawlsian sense through its role in persons' life planning (van den Hoven & Rooksby, 2008,

p. 382). Unlike Drahos, van den Hoven goes beyond simply showing the instrumental value of information to also differentiate between different types of Rawlsian primary goods in his justification that information should be added to the index. Recall that Rawls distinguishes between different types of primary goods: basic liberties, opportunities, and income and wealth (all-purpose means). Citing Rawls's assertion that the basic liberties are necessary background institutions for the exercise of the second moral power, van den Hoven and Rooksby (2008) argue that access to information should be protected alongside established basic liberties like free speech or freedom of movement. Given the lexical priority Rawls affords to protection of these basic liberties, van den Hoven is able to find and defend a basis within Rawls's theory for information policies that promote equitable access.

Whereas access to information is amenable to Rawls's index of basic liberties, information and ICTs also represent opportunities and resources that can be, van den Hoven thinks, further accommodated under Rawls's second principle of justice. In this way, the formal right to access information already outlined is given substantive expression, given that otherwise "a guarantee of equal liberty to seek information will not be sufficient in itself to ensure that all citizens have access to all relevant information" because certain mechanisms are needed to ensure that people's opportunities to exercise their information liberties are roughly equal (van den Hoven & Rooksby, 2008, p. 385). In describing access to information as a sort of opportunity, van den Hoven is able to further accommodate information under the equal opportunities protections afforded by Rawls's second principle of justice. van den Hoven's work also attends to a number of critiques that have been leveled against Rawls's work. In particular, the work of Amartya Sen and Thomas Pogge, as well as (though in a different way) communitarian Michael Walzer have figured heavily into his thoughts on information, technology, and justice. Thomas Pogge's (1989) prominent socioeconomic critique has informed van den Hoven's efforts to define information as a primary good, and he readily admits the challenge of supplying people with effective means to the realization of basic liberties (including a right to access information). If some and not others have the means to exercise their basic liberties, the overall worth of liberty remains unequal regardless of formal protections. van den Hoven and Rooksby (2008) recognize this challenge, noting that "in high-technology information societies, people [need to be] educated in the use of information technologies, and afforded access to information media sufficient for them to be able to participate in their society's common life" (p. 389). More recently, van den Hoven has helped develop the use of Sen's capabilities approach in the context of technological design (Oosterlaken & van den Hoven, 2011). Finally, van den Hoven has also, at different points, cited criticisms of Rawls by Dworkin (choice-sensitivity) and Garfinkel (positionality) and suggested their implications for information and information technology.

Brey

Phillip Brey's work is often concerned with clarifying and synthesizing analyses of information and technology issues across disparate disciplines or contexts. He has, for example, proposed broader normative analyses of the Internet and new media, seeking to develop an axiology of technology—that is, a theory of values in technology—that might help researchers, ethicists, and designers systematically consider issues of power and value for both existing and emergent technologies. He is also interested in developing methods and heuristics for uniting otherwise disconnected debates and issuing normative judgments in a systematic and coherent manner. This interest led him to develop a method of disclosive computer ethics that aims to systematize analyses of morally opaque features of technological systems (Brey, 2000, 2012). One of the strengths of this method is that it offers researchers and ethicists a clear path for surfacing otherwise obscure or overlooked features of technology that may have moral import. Once surfaced, morally problematic features can be subject to a theoretical analysis according to established theoretical frameworks—he often cites Rawls's theory of justice as helping to morally assess the justness of a technological artifact or system through appeal to the ways it generates "an unequal distribution of primary social goods according to Rawls's theory of justice" (Brey, 2000, p. 13).

Unlike Drahos or van den Hoven, Brey does not attempt to thoroughly or systematically account for information within a Rawlsian framework. Instead, he is concerned with describing or accounting for informational and technological phenomena in ways that are congenial to Rawls's system as Rawls himself describes it. For example, he often speaks of information or access to technology as relevant additions to Rawls's index of primary goods—but he is careful to justify how this might be according to Rawls's own criteria (and not by critiquing the construction of Rawls's index). Primary goods also feature prominently in his conception of empowerment. In "The Technological Construction of Social Power," Brey (2008) advances a theory of technology and power that is intended to serve as a foundation for the development of a more-robust critical theory of technology. Here, individual agents are socially empowered for Brey (2008) if they are "free to determine [their] own goals and choose [their] own actions, and . . . can exercise social power in relation to others to help attain these goals" (p. 6). Later, Brey (2008) relies on Rawlsian primary goods to further concretize this notion of empowerment as both "having the power to use one's primary goods to one's own ends" and "the successful acquisition of a relevant share of primary social goods to more effectively further one's ends" (p. 16). Consequently, Brey asserts that justice demands the adoption of design methods and regulations that promote the empowerment of individuals in the sense just described. Though he does not explicitly reference Rawls, it is clear that he has Rawlsian justice and the difference principle in mind in arguing that technology design should promote the interests of the least advantaged (Brey, 2008, p. 21).

In addition, Brey (2006, 2007) has also adopted the Rawlsian idea of comprehensive doctrines to describe the value systems or ideologies held by individuals, groups, or institutions when they make claims as to the goodness or badness of information and technology. In his axiology of new media, Brey relies on Rawls's concept of comprehensive doctrines to make sense of the lenses through which different individuals, groups, or institutions make value judgments about new media content and practices. For Brey (2007), as for Rawls, comprehensive doctrines contain a thick conception of the good—detailed systems that define what one finds both intrinsically and instrumentally valuable—and some more or less comprehensive set of accompanying beliefs and norms of conduct (p. 7). A normative axiology of new media, then, “utilizes a certain value system or thick conception of the good to critique particular value implications of technology or culture” (p. 9). Examples of explicit comprehensive doctrines that may be adopted in order to critique the value implications of new media include comprehensive religious doctrines (e.g., Christianity, Judaism, or Islam), secularized consumer-oriented doctrines (i.e., conceptions of the good promoted by marketers, advertising agencies, and other similar institutions), or political doctrines (e.g., liberalism, socialism, or communitarianism). Brey (2006) similarly relies on the concept of comprehensive doctrines in exploring the social and cultural implications of the Internet in particular—he argues that making explicit the content and commitments of one's comprehensive doctrine is integral to understanding a given appraisal of the Internet or new media.

Britz

Johannes Britz (2004, 2008) is largely concerned with developing normative prescriptions for addressing the moral dimensions of a global information society. Early articulations (see Lipinski & Britz, 2000) of this idea are rooted in interpretations of information and Rawlsian justice offered by Drahos (1996) and van den Hoven (1995), though Britz later moves away from these interpretations of Rawls's principles (Britz, 2008). Throughout these works, Britz attends to the tension between the control of information and access to information. On the control side exist individual creators, publishers, and other intellectual property holders, as well as government agencies and affluent or “information-rich” states; on the access side are users of information—citizens, students, other creators, and developing or “information-poor” states. In the context of global economic relations, this conflict plays out between “the right to own and control” information asserted by affluent countries and transnational corporations and “the right of access to information” claimed by developing nations often disadvantaged or further marginalized by global information policies (Britz, Lor, & Bothma, 2006). This tension between control and access parallels the tension between liberty and equality found in Rawls's work. Control, on Britz's account, is concerned with the freedom of information creators and intellectual

property holders to dictate the flow of their property whereas issues of access raise important questions about equality and the claims of users can make against the ownership and control rights of creators.

Attending to this tension, Britz and various coauthors put forward principles tailored specifically for addressing social justice and information, including:

1. A fundamental right of access to information enshrined alongside other basic liberties (Britz, 2008; Lipinski & Britz, 2000; Lor & Britz, 2007; Ponelis & Britz, 2008);
2. Following Rawls, all people should have access to the same scheme of rights, including rights to communicate and to access information (Britz et al., 2006; Lor & Britz, 2007, 2012);
3. Any protection of individual rights to control information should be justified by appeal to social utility or the common good and should not exacerbate the gap between information rich and information poor or require unfair compensation (Britz & Ponelis, 2005; Britz et al., 2006; Lipinski & Britz, 2000; Lor & Britz, 2007); and
4. Inequalities in the distribution of information—or in the distribution of benefits and burdens in an informational society—must be justified according to agreed-upon norms or rules, like Rawls's difference principle (Britz, 2004, p. 202; Britz, 2008).

Britz extends his concerns beyond these distributive principles to address important ideas of recognition, contribution, and participation in an information society. For example, he argues that appropriately recognizing the equal worth and dignity of all people should constrain any contemporary principles of justice (Britz, 2008, p. 1175). Additionally, Britz (2008) is keen to the ways in which issues of justice might be obscured by existing structures and institutions. “These preset conditions make it difficult,” he writes, “to change or alter society according to the moral imperatives set by justice” (Britz, 2008, p. 1174). Britz (2008) argues—following Lötter (2000)—that in-depth analyses are needed to examine injustices obscured by embedded structures.

In contrast to Rawls, Britz at times emphasizes ideas of desert that Rawls tends to de-emphasize. Britz's (2008) emphasis is clear in his definition of social justice: “to give a person or a group—in this case, all those who are part of the global Information Society—what they deserve” (p. 1174). Rawls (2001), on the other hand, is careful to distinguish between different kinds of desert and specify those that are irrelevant for social justice and which are not (p. 73). Of the types of desert Rawls outlines, one—moral desert—cannot be reconciled with his system of justice. Because he admits that persons will have conflicting conceptions of the good, they will not be able to “agree on a comprehensive doctrine to specify an idea of moral desert for political purposes” (Rawls, 2001, p. 73). Britz's articulation of desert is far less explicit, though he seems to rely on a heavily moralized view of desert, as when he argues that “everyone should get what they deserve—be it good or bad” (Britz, 2008, p. 1175).

Alistair Duff has advanced a framework for addressing the problem of a just distribution of information in affluent Western democracies. Duff cites an informational dimension of digital divide debates often obscured by discussion of devices or the Internet alone and he seeks to “[postulate] a way of thinking about how to approximate a more ‘inclusive’ information society” (p. 605). To address this divide, Duff (2011, 2012) appeals to Rawls (as well as the philosopher R.H. Tawney) to develop the “Rawls-Tawney theorem”—a normative framework modeled directly on Rawls’s theory of justice (but limited in certain ways by the fraternal ethos of Tawney’s work). As with Drahos and van den Hoven earlier, Duff (2011) appeals to the Rawlsian notion of primary goods, insisting that “in the postindustrial era . . . information has graduated into a primary good in Rawls’s sense” (p. 607). In this way, information can be treated as “an identifiable and separable good” of the type that can properly be subject to a distributive scheme like the one articulated by Rawls (Duff, 2011, p. 609). He further asserts that, within the domain of information as a separable good, certain types of information are more important than others. Duff (2011) thinks that other information and technology theorists that have made use of Rawls have failed to “make clear whether [information] falls under [Rawls’s] first or second principle of justice” and “when they do thus specify, they tend to lump all information under either the first or the second, rather than pause to ask whether different types of information belong under separate principles” (p. 609). He does not give any particular reason as to why we must delineate between different types of information, but he is convinced that not doing so generates “weaknesses . . . in most current neo-Rawlsian information society theory” (p. 609).

To address this supposed weakness, Duff manufactures a hierarchical classification scheme that divides information into three types: A, B, and C. Type A information includes information relevant to citizenship, such as electoral information and information regarding political and legal rights. Type B information is “within the orbit of social justice, [but] not so vital that it must be distributed exactly equally” and includes domestic and foreign news, as well as general scientific, technical, and medical information (Duff, 2011, p. 609). Finally, type C information includes “all other information” (Duff, 2011, p. 609). Though he specifically cites soft news and entertainment as examples, type C would presumably include all literary, artistic, and other cultural information not captured by the political, legal, scientific, or medical interests of types A and B. Finally, Duff deems this last category of information as unimportant in terms of social justice. “In a world of scarce resources,” Duff (2011) writes, “the state cannot be burdened with the distribution of football scores, celebrity photo shots and the like” (p. 609).

Ultimately, Duff’s system is designed to articulate a just distribution of information according to his hierarchical classification scheme. His Rawls-Tawney theorem is as follows:

First Principle: Each person has an equal right to Type A information

Second Principle: Inequalities in the social distribution of Type B information are permissible if and only if such inequalities: (a) maximize the informational resources of the worst-off group, (b) are subject to equality of access, (c) are not extensive enough to cause class divisions (the Tawney proviso). (The distribution of Type C information, comprising all other information, can be safely left to market forces.) (Duff, 2011, p. 609)

Formally speaking, the theorem emulates Rawls’s two principles of justice, given that the first principle appears to take priority over the second. Further, Duff’s second principle follows the multipart form of Rawls’s second principle because it accounts for both a version of the difference principle and equality of opportunity. Finally, type C information is altogether excluded from consideration, whereas the influence of Tawney can be seen in the second principle (the Tawney proviso). For Duff (2011), this proviso is important because he believes that Rawls ultimately permits “very considerable socioeconomic inequalities” that, over time, might undermine the achievement of social justice (p. 608). To account for this problem, Duff (2011) stipulates that not only should justifiable inequalities work to the benefit of the least advantaged (as under Rawls’s difference principle), but they should also not be allowed to grow so large as to generate class divisions (p. 608). Beyond the emulation of Rawls’s principles in his Rawls-Tawney theorem, Duff (2006) has also advanced a set of “neo-Rawlsian coordinates” for researchers to consider when considering the application of Rawls’s work to a range of issues in an informational, or “post-industrial,” society.

Discussion and Possible Paths Forward

The literature reviewed here shows that applications of Rawls’s work to information and technology issues have been diverse, but, at times, converge upon similar themes. Outside of figurehead or oppositional citations, many uses are concerned with Rawls’s original position and—especially the major proponents—focus on the just distribution of information as a discreet and commodifiable good. The most robust accounts in this area focus on information as a Rawlsian primary good; on these accounts, information should count as a primary good because it is integral to rational life planning and for furthering human interests in an informational—or post-industrial—society. The instrumental value of information finds expression in the articulation of rights of access to information, sometimes cast as a negative right (i.e., that one should not be hindered in the pursuit of certain kinds of information) and other times a positive right (i.e., that access to certain types of information should be made accessible or facilitated by the state or other responsible agencies). The salient point here is that insofar as Rawls has been substantively marshaled for use, it has largely been to (i) lean on his device of the original position and/or (ii) to discuss the distribution of information as a

primary good. I will refer to this focus as the “standard account” of Rawls in discussions of justice, information, and technology.

The standard account’s focus on distributions is, in many ways, unsurprising, given Rawls’s own emphasis on the distributive dimensions of social justice. Rawls (1971) himself describes his work as “[providing] in the first instance a standard whereby the distributive aspects of the basic structure of society are to be assessed” (p. 8). However, major proponents of the standard account have tended to adhere to Rawls’s prescriptions without interrogating their foundations. They accept Rawls’s normative assumptions without offering particular consideration to the model-conceptions that underwrite justice as fairness and their relevance for the information or technological contexts within which they are applied. Put another way, the standard account tends to approach Rawls’s two principles of justice as largely settled. Indeed, it is the assumed “practice-independence”—that is, its applicability despite contextual or practical concerns—that Rawls’s theory that seems, at times, to lend justice as fairness its real normative force; through his sophisticated use of original position reasoning, Rawls’s principles seem to emerge from, as Sangiovanni (2008) puts it, a point of view that keeps us from constraining principles of justice by social and political arrangements that may be, “at best, merely the product of arbitrary historical contingency or, at worst, the result of past injustice itself” (p. 137). Specific features of practices or contexts, like information cultures or technological constraints, are secondary concerns—they only become relevant once we seek to implement an independent conception of justice already worked out.⁸

This is not to say that contextual considerations have been entirely absent. Proponents of the standard account have been careful to point out that Rawls’s ideas were not formulated with advanced networked or information societies in mind. Rather, Rawls’s theory was worked out to address problems of distribution against a backdrop of industrial social and economic practices typical of affluent Western democracies in the mid-20th century—hence its focus on the distribution of rights, opportunities, and material wealth in the form of income and property. However, the response to the limits of Rawls’s industrial perspective has not been to revisit the foundational assumptions of his theory in order to assess their continuing relevance for societies dominated by sophisticated networks and technologies designed to support flows of information. Instead, the opposite has happened: Rather than reinterpreting Rawls in light of new contextual considerations, the standard account seeks

to reinterpret contemporary informational or technological phenomena in terms congenial to Rawls’s system.

This approach is particularly evident in Drahos’s interpretation of intellectual property rights as well as various interpretations of information as a Rawlsian primary good (as in the works of van den Hoven, Brey, Britz, and Duff). The assumption here is that Rawls’s powerful practice-independent conclusions are to be preserved and contextual considerations reinterpreted accordingly. As a consequence, the standard account of Rawls implicitly endorses the idea that principles of justice are to be worked out first and contextual considerations attended to second. It should be noted, however, that such an argument fails to fully appreciate Rawls’s own motivations for developing an index of primary goods. Rawls denies that primary goods account for things deemed generally necessary for advancing persons’ interests under particular historical circumstances. In light of this, simply noting—as Drahos, van den Hoven, Brey, Britz, and Duff all variously do—that information, because of its vital importance today, should be added to the index is perhaps shortsighted. Rawls did not arrive at his index of primary goods by simply thinking long and hard about what available goods might best advance persons’ interests generally. Consequently, it is not clear that we can simply add information to the index just because we have thought long and hard about its importance as an all-purpose resource in an information society. Rather, one must keep in mind that Rawls’s theory is designed to best promote the effective exercise of persons’ two moral powers—that is, their capacities for a sense of justice and to adopt and pursue a conception of the good.⁹

In addition, the reviewed engagements have also tended to foreground the authority of the original position and its veil of ignorance for Rawls, ignoring the device’s justificatory foundations. Though it carries illustrative force, most of Rawls’s theoretical heavy lifting is done well before parties begin to deliberate inside the original position. Importantly, the model-conceptions that he develops and advances (free and equal persons, a well-ordered society) and their expression (two moral powers, primary goods) are not constructed in the original position or behind the veil of ignorance. Instead, they are simply laid out, their justification derived from Rawls’s constructivist method generally. This is not to say that a rearticulation of Rawls’s model-conceptions or two moral powers would necessarily invalidate the conclusions of standard account. Rather, it is only to note that insofar as the principles Rawls arrives at fundamentally depend on the articulation of these model-conceptions in the first place—and whether or not they are capable of accounting for persons as producers and consumers of information has

⁸It should be noted, however, that not all interpretations of Rawls view him as ignoring certain contextual or socially contingent features. His introduction of the “circumstances of justice” into the original position, for example, can be read as accounting for some level of social and political context. In addition, proponents of the “practice-dependent” interpretation of Rawls have endeavored to show how *justice as fairness* can be read as methodologically dependent on a notion of social embeddedness (see, e.g., James, 2005; Ronzoni, 2007).

⁹At times, Drahos and van den Hoven are keen to Rawls’s justification for an index of primary goods in making explicit the ways in which information supports the exercise the second moral power. However, they still fall short of reconsidering Rawls’s model-conceptions of persons and society in light of the informational and technological practices they seek to address.

not been sufficiently addressed, suggesting a direction for future work.

In clarifying the motivations behind Rawls's theory, I do not mean to refute the idea that information should be considered a primary good subject to principles of distributive justice; indeed, attending to the justice of distributions of informational goods is vital to the pursuit of justice today. However, this focus on distributions represents a particular (if necessary) limit: By reducing issues of social justice, information, and technology to purely distributive terms, all we are left to talk about are problems of distribution. But, as both critics and proponents of Rawls have pointed out, the focus on distributions tends to obscure or overlook other issues that are similarly—if not more—important to the realization of social justice. As Iris Marion Young (2006) describes, “while patterns of the distribution of resources, opportunities, and income are very important issues of justice, theoretical focus on them tends to deflect attention from important aspects of structural processes” (p. 91). She cites as examples the problems of the social division of labor, structures of decision making power, and the elevation of certain judgments to normative standards—that is, processes in which “the attributes, compartments, or ways of life that are ‘normal,’ in the sense of exhibited by . . . dominant social segments, come to also have the connotation of being the ‘best’” (Young, 2006, p. 95). Currently, the standard account inherits similar blind spots. It does not consider the structures or processes that pattern distributions as also evaluable according to principles of justice. Conceiving of information as a primary good, for example, cannot tell us much about the ways in which information is collected, framed, analyzed, presented, or packaged—only about its dissemination. Consequently, the structures and systems that allow people to access to information—or the ways these systems may promote the distributions of some types of information while at the same time hindering others—have overlooked in the standard account of Rawls, information, and technology.¹⁰

The importance of nondistributive dimensions of justice is well developed by critics of Rawls's work. Many of these critiques, however, have also gone overlooked by proponents of the standard account. For example, feminist critiques of Rawls have long been aware of the unfair social division of reproductive labor and the raising of children, a burden that—historically speaking—has disproportionately fallen on women. Leftist critics have pointed to problems of

decision-making power with relation to productive technologies in society, arguing that Rawls permits control of such technologies to concentrate into relatively few hands, leading to unjust imbalances in power. Further, disabilities critics have shown how normative standards of ability shape social and physical environments in ways that are biased against certain groups of people. For example, public buildings that lack access for wheelchairs impose a normative standard of mobility that excludes many otherwise capable persons. These debates share an attention to the ways that the design of social, economic, and physical institutions assign roles and duties, structure decision-making power, and impose normative standards in ways that are relevant to social justice but are not necessarily reducible to distributive terms.

It should be noted, however, that some proponents of the standard account do, at times, account for problems of justice in nondistributive terms. Brey, in particular, is committed to systematically exposing the values and biases embedded within technological artifacts and systems—he is attuned to the ways in which not only the use, but also the design of technology can create and sustain relations that empower some users and disempower others. Similarly, van den Hoven orients us toward the ways in which design is relevant to justice by making explicit the fact that Rawls's principles of justice are intended to regulate not individual human action, but, rather, the design of the basic structure. Britz, too, is cognizant of nondistributive dimensions of justice, like recognition and contribution. Indeed, it is not difficult to see how the design of technological systems recognizes some (while rendering others invisible) or more readily facilitates the contributions of certain people while making participation more difficult for others. Whereas the work of Drahos and Duff limits us to thinking about purely distributive concerns with regard to information, Britz, Brey, and van den Hoven draw some paths forward for considering justice in information and technology outside of distributions.

It should also be noted that insofar as these authors do pay attention to nondistributive issues, they often do not propose Rawlsian strategies for attending to them. For example, in his discussions of privacy, van den Hoven appeals not to Rawls, but to the work of communitarian philosopher Michael Walzer (1984). Similarly, Britz and van den Hoven have, as of late, turned their attention to Sen's capabilities approach, scaling back on their reliance on Rawlsian thought (Britz et al., 2013; Oosterlaken & van den Hoven, 2011). At first glance, this abandonment of Rawls when addressing nondistributive dimensions of justice seems to point to limitations of the Rawlsian framework itself. The overview of oppositional engagements with Rawls, for example, showed that many scholars resist Rawls in favor of the capabilities approach. This shift is, in some ways, unsurprising, given that the capabilities approach is predicated (in part) on overcoming perceived limitations of justice as fairness (Sen, 1979, 1990, 2009). Famously, Sen (1979) argues that Rawls's focus on primary goods might be appropriate if all

¹⁰As one reviewer rightly pointed out, a focus on one thing (like distributive justice) does not automatically deny the importance of another thing (like nondistributive dimensions of justice). This is true. However, an overwhelming focus on one feature of a theory can, even inadvertently, serve to obscure or distract from the importance of another feature. Given the dominance of primary goods-focused interpretations like, for example, van den Hoven and Rooksby (2008), I think this is the case here. Further—and as noted in the main text—many of the sharpest critiques of Rawlsian justice's distributive focus (in particular, feminist and disabilities critics) have also gone largely overlooked by scholars cited in the literature review. The relative inattention to these important discussions is another way the importance of nondistributive dimensions of justice can, I think, be said to be obscured.

people possessed roughly similar abilities to use such goods: “if people were basically very similar then an index of primary goods might be quite a good way of judging advantage” (p. 215). The problem, however, is that people are not very similar. In fact, “people seem to have very different needs varying with health, longevity, climatic conditions, location, work conditions, temperament, and even body size (affecting food and clothing requirements)” (Sen, 1979, p. 216). Against a primary goods metric, the capabilities approach emphasizes the fulfillment of human needs not in terms of subjective well-being or resources, but on the capabilities of individuals to convert available goods—like information—into substantive freedoms (Britz et al., 2013, p. 107–108; Robeyns & Brighouse, 2010).

Certainly, problems of informational and technological literacy—that is, the ability of different individuals to make more or less effective use of available information and technology—seem better accounted for under a capabilities model than one rooted in Rawlsian primary goods. I would suggest, however, that the abandonment of Rawlsian ideas in favor of the capabilities approach, however, has been somewhat premature. Whereas the capabilities approach provides valuable insight, it ultimately hinges on a narrowly teleological conception of technology as instrumental to development and human flourishing. But the use of technology is not simply instrumental—it is also intimately bound up with morality (see, e.g., Verbeek, 2009). Neither the standard account of Rawls nor the capabilities approach are able to account for the ways in which technology both mediates our perception of morally relevant aspects of particular situations and actively shapes our responses to them. Given that the problem of social justice is both a moral and practical problem, technological mediation has implications for both conceiving of and achieving justice. Conceiving of technology as merely instrumental is ultimately unsatisfactory. Any viable theory of social justice today ought to consider the how values embedded in the design of technological artifacts and systems might actively promote—or hinder—social justice.

Against the standard account’s focus, the breadth of Rawls’s work and its wide range of minor applications outlined in the literature review suggest that there may be additional resources available within Rawls’s work and its surrounding debates—a suggestion that has been echoed elsewhere. Weber (2010), for example, has argued that scholars interested in intercultural information ethics have ignored important developments and clarifications in the area of group and minority rights generated by debates over Rawls’s work (i.e., Kymlicka, 1989). In the remainder of this article, I briefly discuss two additional areas—the basic structure and the value of self-respect—that might be fruitfully inform discussions of nondistributive dimensions of social justice, information, and technology. The following discussions are, admittedly, brief sketches. However, they are not intended to be complete arguments; I only mean to point to two places where Rawls’s work may offer addi-

tional insight for scholars interested in liberal justice, information, and technology.

Basic Structure as Infrastructure

In spite of van den Hoven’s (2010) acknowledgment that Rawls’s focus on the basic structure equips us with powerful tools for thinking about ethics in the context of design—scholars have largely overlooked the importance of the argument from the basic structure. At the same time, scholars from the area of science and technology studies have shown how the sociotechnical practices enabled by various infrastructures organize and make useful resources necessary for the operation and upkeep of political, economic, and social practices (Bowker & Star, 1999; Bowker, Baker, Millerand, & Ribes, 2010; Ribes & Polk, 2012)—practices that make up and sustain the very background conditions with which Rawls is concerned. These discussions may offer new insight into how to best understand the relationships between institutions, individuals, and practices that make up Rawls’s basic structure. For example, the conventions of practice and the deployment of standards that allow infrastructures to connect a range of institutional and individual activities and become ubiquitous connect to Rawls’s notion of the basic structure’s *pervasiveness*. Additionally, the constraints generated by the proliferation of infrastructural standards, combined with the tangible disruptions caused by breakdowns in infrastructure, capture Rawls’s idea of the *profundity* of the basic structure. Further, understanding that infrastructures are built on installed bases—inheriting the capacities and limitations of the bases they are built on (Star & Ruhleder, 1996)—lends empirical weight to Rawls’s claim that, though any single transaction between individuals may be considered just, a great many transactions accumulating over time may ultimately lead away from (and not toward) justice. Consequently, Rawls’s discussions of justice and the basic structure may offer normative insight for those interested in the relationship between infrastructures and justice.

Self-Respect: The Most Important Primary Good

Although primary goods are discussed heavily in the standard account, not all of Rawls primary goods receive the same degree of consideration. In particular, the relationship between information and self-respect—Rawls’s most important primary good—have not received sustained attention. Consequently, the ways in which sociotechnical relations can influence the development of self-respect have been left unexplored. Discussions of privacy, for example, highlight the ways in which technological advancements can threaten individual dignity, integral to a sense of self-respect (Benn, 1971; Bloustein, 1984). Moreover, the design of information technology routinely endorses certain abilities and strategies as normatively appropriate and others as marginal or inappropriate. Questions regarding the values embedded in the design of information systems (i.e., Friedman, Kahn, & Borning, 2006) offer an entry point to examining how the promotion of certain values over others can similarly

promote the development of self-respect for some people and hinder it for others. For example, the routine promotion of certain normative standards over others (e.g., in the design of social networks that prioritize binary sex and make the expression of non-normative sexes difficult) offers some and deprives others of the social bases of self-respect. Ultimately, such a pattern of promotion and demotion of certain values can perpetuate already entrenched injustice by informally deterring certain types of people from effectively engaging with one another through technology or information systems, thwarting the equal opportunity that others—like van den Hoven and Rooksby (2008)—would otherwise seek to promote. A focus on the relationship between Rawls’s notion of the social bases of self-respect may offer some insight into issues of justice tied to the normative standards imposed by informational and technological systems.

Conclusion

Rawlsian analyses of information and technology are conducted under the assumption that, despite their empowering potential, new ICTs “may also maintain, and even exacerbate, existing inequalities as they are grafted onto preexisting socio-economic structures” (van den Hoven & Rooksby, 2008, p. 377). The picture that emerges in these analyses is one of information and technology as important Rawlsian primary goods—vital instruments for the pursuit and achievement of a wide range of human ends. Further, there exist plentiful depictions of Rawls’s original position reasoning, his veil of ignorance, and his two principles of justice. Normatively speaking, these discussions are concerned with attending to the gap between information or technology “haves” and “have-nots.” This focus on distributions is unsurprising, given Rawls’s own emphasis on distributive justice.

However, much work on Rawls, information, and technology adopts Rawls’s distributive prescriptions without due consideration to the assumptions that underwrite his theory. Scholars in this area have failed to attend to the relevance of Rawls’s foundational assumptions for the sorts of complex networked relationships afforded by advanced ICTs today. This focus on distributions works to obscure or make invisible other dimensions that are equally important to the realization of social justice. Similarly, conceiving of information as a primary good cannot tell us much about the ways in which information is collected, framed, analyzed, presented, or packaged—only about the ways in which it is disseminated. By reducing informational and technological goods to just (or mere) things to be distributed according to certain principles, standard discussions of Rawls, information, and technology are unable to address the structures or processes that pattern distributions. Consequently, the structures and systems that allow for access to information—or the ways these systems may promote the distributions of some types of information while at the same time hindering others—go overlooked from the standpoint of Rawlsian justice. By refocusing our attention on the foundations of *justice as fairness* and on overlooked features like his focus on

the basic structure of society or the value of self-respect, Rawls’s expansive body of work stands to offer scholars of information and technology fresh lenses through which to examine pressing issues of social justice today.

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