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ORIGINAL PAPER

Towards a just and fair Internet: applying Rawls' principles of justice to Internet regulation

David M. Douglas

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Abstract I suggest that the social justice issues raised by Internet regulation be exposed and examined by using a methodology adapted from that described by John Rawls in *A Theory of Justice*. Rawls' theory uses the hypothetical scenario of people deliberating about the justice of social institutions from the 'original position' as a method of removing bias in decision-making about justice. The original position imposes a 'veil of ignorance' that hides the particular circumstances of individuals from them so that they will not be influenced by self-interest. I adapt Rawls' methodology by introducing an abstract description of information technology to those deliberating about justice from within the original position. This abstract description focuses on information devices that users can use to access information (and which may record information about them as well) and information networks that information devices use to communicate. The abstractness of this description prevents the particular characteristics of the Internet and the computing devices in use from influencing the decisions about the just use and regulation of information technology and networks. From this abstract position, the principles of justice that the participants accept for the rest of society will also apply to the computing devices people use to communicate, and to Internet regulation.

Keywords Rawls · Distributive justice · Rights · Social contract · Internet regulation

D. M. Douglas (✉)
University of Twente, Enschede, The Netherlands
e-mail: d.m.douglas@utwente.nl

Introduction

The structure of the Internet is under greater scrutiny by users and governments alike as various stakeholders (including users, Internet service providers, corporations, and states) attempt to increase their control over it. A few recent examples illustrate the scale of these debates. Tim Berners-Lee has recently promoted efforts for citizens of individual countries to draw up a 'Bill of Rights' for Internet users in their countries (Kiss 2014). Proposals that the International Telecommunication Union (ITU) and the UN should play a greater role in Internet governance have been fiercely rejected by European and North American governments, among others, due to concerns about how this may impact on the liberty of Internet users (Cerf 2013). Despite this, the National Telecommunications and Information Administration in the US (2014) has announced that it intends to pass its control over the Internet domain name system (DNS) to the international community. Finally and most visibly, the assumptions made by individuals about the security and privacy of Internet communications and services have been challenged by recent disclosures about the widespread interception and collection of global Internet traffic by the National Security Agency (NSA) in the US (Greenwald and MacAskill 2013).

These controversies and incidents show that we are far from a consensus on Internet regulation. The early dreams of an Internet free from regulation and control by traditional governments, powerfully expressed in writings such as Barlow's *Declaration of the Independence of Cyberspace* (1996), are now long gone. What remains are urgent questions about how the Internet should operate and how best to regulate it so that it conforms to our expectations.

I claim that focusing on the characteristics of the Internet obscures these questions by placing too great an

emphasis on how the Internet currently operates rather than considering how it *should* operate. For instance, calls for Internet access to be a human right are often ambiguous about what 'Internet access' means in this context. 'Internet access' might be understood as the ability to connect a computer to a network using Internet protocols, access to the World Wide Web, or access to a full suite of Internet applications such as email, web services, online gaming, and so on. This ambiguity obscures the moral and political concerns about the communication needs of individuals and groups, and what restrictions on communicating information (if any) states and network operators may legitimately impose. Exploring what our notions of justice require from information networks may highlight the hidden assumptions about users and communication that have influenced the design and implementation of the Internet and the tools that utilize it. It also helps to clarify what exactly is necessary to satisfy a proposed human right to access the Internet.[1]

I suggest that the social contract tradition in political philosophy offers a useful approach to exploring what a fair and just Internet would look like. Social contract theories use thought experiments of idealized situations where individuals agree on the terms by which they will form a society. This agreement is the 'social contract' that describes a just society that has the consent of those who belong to it. Social contract theories offer an idealized conception of society that serves as a useful benchmark for comparing existing societies and social institutions against them.

For a social contract for the Internet, I will draw on the social contract theory Rawls presents in *A Theory of Justice* (1971). Rawls' account is highly influential and has inspired a vast literature exploring its claims and justifications. Rawls describes a methodology for arriving at an unbiased agreement on the principles of justice that should inform the institutions of society. His methodology uses what he calls the 'original position' as its starting point, where the individuals who must agree on the form society should take have no knowledge about their individual circumstances in society. This 'veil of ignorance' prevents individuals in the original position from making self-interested decisions about society by denying them information about who they will be within the society they design. Rawls argues that for this reason, the individuals are motivated to ensure that the position of the worst-off in society will at least be tolerable as there is a chance that each individual taking part in these discussions could be one of the worst-off.

Applying social contract theory to issues in Internet regulation is nothing new. Barlow's *Declaration of the Independence of Cyberspace* (1996) explicitly states that a social contract between Internet users should be the means by which the network is governed. Rawls' theory itself has also been used to evaluate issues of social justice in information technology [for instance, Duff (2006, 2011) and van den Hoven and Rooksby (2008)]. My approach here contributes to the literature in two ways. Firstly, it offers an abstract account of the Internet that removes most of the details that may obscure or derail discussions of how information networks should be regulated. Using abstract conceptions of 'computing devices' and 'information networks' instead of 'computers' and 'the Internet' addresses concerns about how specific details of how the Internet and the systems using it may obscure our thinking about how they should be used. Secondly, my approach offers an alternative to basing claims for Internet regulation on human rights. Claims that access to the Internet should be a human right are often vulnerable to objections of 'rights inflation', where additions to the broadly accepted set of human rights risk undermining their value as absolutes.[2] My approach avoids these objections by allowing claims about Internet regulation to be based on a social contract that all would accept rather than on the human rights of those involved.

The outline of this paper is as follows. I begin with a brief description of Rawls' theory and his method for eliminating bias in decisions about justice. I then describe how information technology can be introduced into the deliberations made behind the veil of ignorance. This step introduces the concept of 'computing devices' and 'information networks' as aspects of society that need to be considered in the social contract. The remainder of this paper discusses the possible outcomes from using Rawls' principles of justice to guide Internet regulation and considers some objections to this approach.

Rawls' theory of justice

Rawls's theory contains a richness and depth that any brief account of it cannot hope to adequately capture it. At best I can hope to outline the aspects that are important for my argument. In essence, Rawls' theory is based on what he calls 'justice as fairness': fair principles of justice will be agreed to in fair circumstances where only the relevant moral and practical reasons will influence the decision (Rawls 1971). Rawls' work presents both a methodology for deciding on the principles of justice that should underpin society and its' institutions (the public rules defining the actions, responsibilities, and expectations of the various offices that exist within society) and a set of

[1] I thank an anonymous reviewer for this point.

[2] Cerf (2012) raises this objection, for example.

principles of justice that he argues would be adopted after using his methodology. Rawls' methodology is important for how it attempts to ensure fairness by removing bias and self-interest from decision-making about justice.

Rawls' methodology relies on the concept of a contract made between rational beings to base his principles of justice. Instead of looking back to an imaginary past to see how society might have been formed (as Locke and Rousseau did in their social contracts), Rawls uses what he calls 'the original position' as a scenario for determining a just arrangement of society. The original position is intended to capture the perspective of the 'noumenal self', the "free and equal rational being" who's decisions are unaffected by bias and circumstances (Rawls 1971, pp. 255–256). This concept draws on Kant's distinction between the physical body (the phenomenal self) that is affected by casual laws and the non-physical mind or rational being (the noumenal self) that is not. Rawls' methodology does not require this to be an actual distinction; only that it is possible for someone to adopt this perspective for the purposes of the thought experiment.

Like the state of nature, the original position is a hypothetical scenario where individuals devise the contract by which they agree to form a society and to be bound by its laws (Rawls 1971). The participants in the original position act as representatives of those who will live in the society that will follow the theories of justice and the political institutions that emerge from their discussion.[3] The participants have no knowledge of who they might be in that society: their individual circumstances and whatever benefits or disadvantages they may have are unknown to them. The participants are behind what Rawls (1971) calls a 'veil of ignorance' (p. 12). Hiding this information makes the participants' decisions fair and impartial by removing the sources of prejudice and self-interest that may affect their judgment (Rawls 1971). This allows the participants to better fulfill the unbiased perspective of the noumenal self. Due to this uncertainty about who they might be outside of the veil of ignorance, the participants will agree on a theory of justice that offers the best circumstances for the worst-off in that society, as they could be one of the worst-off themselves. The combination of the original position and the veil of ignorance serve to make the interests of the worst-off the interests of everyone, as any of the decision makers could belong to this group once the veil is lifted and they enter into the society they have developed.

To guide the participants in their decision-making, Rawls (1971) introduces the concept of primary goods, which he describes as things any rational person would want, regardless of what her goals for her own life are. The more primary goods someone has, the likelihood that she can achieve her own life plan increases, and so a rational person will prefer institutions where she has more primary goods instead of less. Primary goods include rights, liberties, powers, opportunities, wealth, income, and self-respect. The participants in the original position each seek to ensure that they will possess as many primary goods as they can. The possibility that they themselves might be the worst-off in society motivates the participants to ensure that the principles of justice and the institutions of society provide the worst-off with acceptable amounts of primary goods.

As a result of the deliberations carried out in the original position, the participants will have to choose between different principles of justice that will serve as the foundation for how the institutions of their society should be arranged. Rawls (1971) argues that the participants in the original position will settle on the following principles of justice:

1. Each person is to have an equal right to the most extensive total system of equal basic liberties compatible with a similar system of liberty for all.
2. Social and economic inequalities are to be arranged so that they are both:
   (a) to the greatest benefit of the least advantaged, consistent with the just savings principle, and
   (b) attached to offices and positions open to all under conditions of fair equality of opportunity (p. 302).

These two principles can be called the Principle of Equal Basic Liberties and the Difference Principle respectively.[4] The basic liberties described in the first principle include the rights to vote and be eligible to run for public office, freedoms of speech and assembly, freedoms of conscience and thought, freedom of the person, the right to own private property, and freedom from arbitrary arrest and the seizure of possessions (Rawls 1971). These principles are then used to evaluate the institutions within that society.

How might the Internet be represented within the framework of primary goods and Rawls' principles of distributive justice? As Duff (2011) notes, several authors have argued that information should be added to the list of primary goods given by Rawls. For example, van den Hoven and Rooksby (2008) propose access to information as a primary good, which they define as "a level of *access*

[3] For the purposes of this paper the representatives in the original position can be thought of as specific individuals who will inhabit the society created through the social contract they develop.

[4] Whether adopting the methods of the original position and the veil of ignorance will necessarily lead us to these principles of justice are questions I will not address here.

to an informative object such that that access would be sufficient to produce knowledge" (emphasis in original) (p. 381). Access to information allows individuals to gain the knowledge necessary to devise and perform their own life plan. van den Hoven and Rooksby (2008) also rightly argue that access to information should be classified as a basic liberty, and so should be distributed following the Principle of Equal Basic Liberties. This also permits some limitations on the information can access, if those limitations permit everyone to enjoy the same liberties. For instance, the liberty to hold property is limited by the restriction that you cannot arbitrarily take what someone else owns away from them, otherwise there is an unequal liberty in holding property (since you can keep yours and she cannot keep hers). Similarly, van den Hoven and Rooksby (2008) state that an equal liberty to access information can be constrained by privacy protections for personal information and restrictions on the use of intellectual property.

Opportunities to access information can be also distributed according to the Difference Principle (van den Hoven and Rooksby 2008). In this context, this means that inequalities in access to the Internet are permissible only if they to the benefit of the worst-off in society. Combining this with the Principle of Equal Basic Liberties, this proposes that everyone should have an equal liberty to access the Internet, while permitting inequalities in how it is accessed provided that everyone benefits from permitting these inequalities.

The four-stage sequence

Rawls recognizes that a gap exists between formulating general principles of justice and the laws and regulations that implement them in society, and offers a four-stage sequence to overcome this gap. This sequence gradually introduces further information to those behind the veil of ignorance, until finally all information is revealed and the participants discover their actual circumstances within society.

Rawls (1971) distinguishes between three kinds of facts: social theory from first principles (which are all that is available in the original position), general information about a particular society, and specific information about individuals. The second and third kinds of facts are gradually revealed as the four-stage sequence progresses.

The four-stage sequence consists of:

1. The original position. Only general social theory is made available to the participants, allowing them to act as their 'noumenal selves' by removing potential sources of bias in their decisions (Rawls 1971, p. 255). This stage was explained in the previous section.
2. General information about the society is now revealed to the participants. This stage serves as a constitutional convention where the participants act as delegates to decide on a just political constitution that reflects the principles of justice agreed upon in the first stage.
3. This is the legislative stage where laws are proposed that implement the decisions made in the constitutional stage. The participants here act as legislators who evaluate laws and policies in light of the principles of justice accepted in the first stage and the constitution accepted in the second. Rawls (1971) states that the representatives can move between the constitutional and legislative stages to resolve problems that emerge.
4. The judicial stage makes all relevant information available to the participants. The participants act as judges and administrators who apply the laws and policies accepted in stage 3, and as the citizens who abide by them (Rawls 1971).

A brief example should help to illustrate how this process works. As discussed in the previous section, the participants in the original position decide on a set of principles that will judge the society will create. For the sake of the argument, I will assume that they select Rawls' two principles of justice. Now that this is decided, the discussion moves to the second stage, the 'constitutional convention'. While the participants are still unaware of who they might be within society, they are now informed of their society, such as the natural resources available to it and the level of economic development (Rawls 1971). With this information, they can begin to formulate how the requirements of justice already decided upon can be implemented given the resources available to their society. As a result, they devise a constitution for their society that will serve as the benchmark for the legislative and judicial stages that follow.

The legislative and judicial stages are similar to how laws are written and revised in constitutional governments.[5] The constitution serves as the basis for the laws and judicial decisions in society. If serious issues emerge between the principles of justice and the laws that follow the constitution emerge, the constitution itself may be amended to better reflect what the principles of justice require.

[5] An idealized view of the relationship between the constitution of the United States, the laws of the US Government, and the decisions of the US Supreme Court is a helpful analogy to keep in mind here. The government can impose laws which the Supreme Court may find unconstitutional if they are challenged, and amendments to the constitution are possible if there is political agreement on the need to do so.

Introducing information technology into the four-stage sequence

I propose that an abstract description of information technology should be introduced in stage 2, with more specific information about it introduced in stages 3 and 4 as necessary. First the significant features of information technology need to be defined. This description needs to be general enough so it does not presuppose arbitrary features, but not so general that it does not allow us to make useful decisions about how it should governed and regulated. The primary good of access to information that van den Hoven and Rooksby (2008) present is an excellent starting point to which abstract concepts of the Internet and how we access it can be added.

The phrase 'information technology' itself provides a starting point: it involves artefacts that deal with storing, transmitting, and presenting information to those who utilize them. Such artefacts might store information by recording it in a form from which it can be retrieved later, transmit it by conveying it to another artefact that might store, transmit, or present it, or present information in a way intelligible to the user of the artefact. Not every artefact covered by the term information technology will have all of these attributes: a telephone line transmits information, but does not by itself store or present it (these functions would be fulfilled by sound recorders and telephones, in this case).

What makes computers different from the information technologies that preceded them is their capacity to act upon instructions given to them (i.e., their capacity to be *programmed* and to perform *computation*). Computers can control the information they store, transmit, and present according to the instructions contained in their programming. This creates the possibility of such devices performing actions without the user's knowledge. If even the scale and complexity of the software running on modern computing devices is ignored, suggesting that users have complete knowledge of what the computing devices they possess are doing and how it will respond to transmitted instructions from other devices via a network places a heavy burden on the user. It is more realistic to claim that the device may act in ways in which the user is unaware. This claim can be phrased as the possibility that a computing device may *store* and *transmit* information that she is aware of.[6]

The transmission of information requires a medium through which the computing devices can communicate. This medium is represented as an information network: a series of connections between devices that allows for information to pass between them. The information accessible to a computing device is significantly limited if it does not have access to such a network. At best, such a device can access and present information that the user can physically input into it via physical storage media (such as portable hard drives, compact discs, flopping disks, cassettes, and so on). Connecting to an information network expands the range of information accessible to any given device significantly. It also creates greater opportunities for others to gain access to the information on a user's device. Someone can only access the information stored on an unconnected device if she has physical access to it, increasing the likelihood that the user knows that the data stored on it has been accessed (and by whom). The accessibility of the information stored on a connected device will depend on the programming of the device and whether there are any safeguards that prevent information from being shared with any other computing device that attempts to access it. This possibility increases the risk of the user's privacy being invaded.

The complexity of the software running on modern computers and the scale of computer networks are just two examples of how information technology is a social product: it is not the work of isolated individuals but the result of the social organization and co-operation necessary to create and maintain it. This brings information technology into the realm of distributive justice as something that the distribution of can be controlled by society. The usage and distribution of information technology should reflect the same notions of justice that guide the rest of society.

An objection here is that information networks do not necessarily have to be social products and thus subject to the requirements of distributive justice. Anarchistic networks made up of uncoordinated individuals are an alternative possibility. Wireless mesh networks are a means of forming and maintain an unplanned network along these lines, for example (Akyildiz et al. 2005). This objection is correct in noting the possibility that *public* information networks are not an inevitable outcome of having networkable computing devices. I see two responses to this objection. Firstly, the technology and resources necessary to create private networks will be result of developing public network infrastructure, as suggested by the history of the Internet's development. This is a contestable claim, especially given how many uses of the Internet have emerged through private developers, and it is vulnerable to the response that an equivalent to the Internet could have emerged through private, uncoordinated means. The second, and perhaps more convincing response, is to suggest that the principles of distributive justice discussed here would be useful if the private individuals who create such a

[6] It could not, by definition, *present* information that the user is unaware of. Presentation necessarily involves making someone aware of whatever is being presented. Whether it is *understood* is another matter.

network themselves decide to make it accessible to others. These principles maintain their value as a guide for deciding how formerly private resources that are granted to society at large can be fairly accessed and distributed.[7]

From these general points about information technology we can along with the other information supplied in stage 2, the participants are given the following description of information technology:

1. Each individual may possess one or more computational devices that she uses to access and store information. (These are *computing devices*).
2. The information stored on these devices may be transmitted to other computing devices via a network. (Such networks are *information networks*).
3. The actions described in points 1 and 2 may occur with or without the knowledge of the possessor of the computing device.
4. Computing devices and information networks are products of social co-operation.

This definition contains the points that computing devices store and present information, and information can be transmitted between them via a network. It also states that users may be unaware of the information that their devices are storing and transmitting. The breadth of this description captures the significant aspects of these devices without confining it to the particular features of specific devices that are in use. This prevents the particular characteristics of specific devices and networks from influencing the decisions of those behind the veil of ignorance. It is irrelevant at this stage whether these devices are desktop PCs, laptops, tablets, or smartphones. While these devices differ significantly in their capabilities, the issues of justice concerning the use of the information they access, store and transfer remain the same at this point.

An immediate objection is that this description of information technology is abstract to the point of vacuousness. This objection claims that by refusing to define these devices in anything but the vaguest of terms, my account loses what is important about information technology from the perspective of social justice. My response is that this vagueness is necessary to avoid implicit bias in the decisions made about how we should use information technology. Historical accidents and arbitrary choices dominate information technology: the choice of 'big-endian' or 'little-endian' byte ordering (Tanenbaum 2006), the ubiquity of the concepts originating in the Unix operating system (Lanier 2010), even the QWERTY keyboard layout, to name just a few. The insights from disclosive ethics about how implicit biases affect the design of artifacts also suggest that we should be cautious in identifying particular aspects of information devices as necessary and non-arbitrary (Introna 2011). As the deliberations at this stage are intended to serve as the basis for a constitution, there should be as few assumptions made about the characteristics of information technology as possible. More specific information about the form these devices and networks take can be introduced in stages 3 and 4 where such details are necessary for drafting legislation and implementing law.

My reasoning for including information devices and networks in stage 2 rather than in stage 1 (the initial original position) is modesty about the role of information technology in society. The changes information technology makes to society are notoriously difficult to predict, as a casual glance over the historical literature on how computers will affect society will confirm. This will be unconvincing to anyone who considers information technology to be a radically disruptive force in society. If this is the case, information about devices and communication networks will have to be included in stage 1 of the deliberations, joining the other fundamental facts about society that Rawls considers necessary for meaningful yet unbiased decisions.

I do not wish to claim that this is not the only such description of information technology that could be presented to participants at the second stage of Rawls' four-stage sequence. I do suggest, however, that any such a description must share the broad characteristics of the account I have developed here: that 'information devices' are capable of recording, storing, and transmitting information across a network, such devices are the result of social cooperation and are not necessarily possessed by every individual within society, and that such devices are capable of performing these actions both with and without the knowledge of whoever possesses them.

From information networks to the Internet

How do these concepts of information devices and networks translate into policy on the Internet? As the deliberations move to stages 3 and 4 of the sequence, we can begin to distinguish between different kinds of information devices and networks and consider whether different forms of regulation are appropriate for them.

With Rawls' principles of justice in mind we can reach some general conclusions about what justice requires from information technology. Computing devices and information networks should encourage the acquisition of primary goods, or at least should not undermine the user's possession of such goods. The access to information networks that information devices expand the possibilities for each individual's access of information and her ability to

[7] I thank an anonymous reviewer for raising this objection.

produce knowledge. The information stored by these devices and conveyed across these networks should be in accord with the rights individuals possess, and should follow the Principle of Equal Basic Liberties. As these devices are capable of revealing information about their user to others, the participants will want to have control over what information these devices may reveal about them. As access to information is a primary good, individuals will want their devices to be open to receiving information. Such information will also assist them in pursuing their own life plan. Information networks should similarly promote access to information. The rules governing the information exchanged by their devices will also conform to the social institutions that they have devised for the rest of society. From this position, the institutions that govern the exchange of information between computing devices should be just.

From this we can derive a definition for what a just information network requires:

> A just network allows for accessing and exchanging information in ways that support the primary goods of those who use it and are in accordance with the principles of justice.

And similarly, for the devices used to access an information network:

> Computing devices must allow users to control information in ways that are consistent with their own conception of the good and are in accordance with the principles of justice.

The vagueness of these definitions is appropriate for stage 2 (the constitutional stage) of the deliberations, as they can be refined into specific legislation and policies in the following stages. Like the principles of justice, they serve as guidelines for drafting and revising the more specific policies that will emerge when more information is revealed to the participants in this decision-making process.

The participants would also seek to address the problems raised by the additional uncertainty over whether they will possess an information device in society. (Recall that point 1 of the abstract description of information technology states that "Each individual *may* possess one or more devices"). This forces the participants to address the inequalities raised by the 'digital divide' between those who have access to information technology and those who do not. These concerns are addressed by the requirements that access and use of information devices and networks must follow the principles of justice. If possessing information devices and access to information networks are desirable, the worst-off in society will now be the worst-off group in society envisioned in stage 1 (the original position) who additionally do not possess information devices. The participants will therefore be motivated to ensure that the disadvantages of belonging to this group will not be intolerable.

The constitutional stage (stage 2) appears to reflect what the World Wide Web Foundation (n.d.) is promoting with its' 'Web We Want' campaign, where individuals are encouraged to come together to discuss how the Internet should be regulated. I suggest that adopting a methodology similar to the one I have described would be a useful tool for assisting these deliberations, especially as a method of reassuring non-participating stakeholders that self-interest is not motivating the participants' decisions.

There is a major objection to using Rawls' methodology that I must address: that Rawls' scope for social justice does not include international justice, which would be necessary for addressing concerns about Internet regulation. Rawls confines this methodology to determining justice within a society, rather than between different societies. It operates only on a national rather than an international level. Rawls (1985) himself states that his theory of justice for institutions is applicable only to "modern constitutional democracies" (p. 224). This is a significant problem for using this method to examine questions of justice about the Internet given the international issues it raises.

Rawls' methodology can be adapted to address this problem, and many authors have used Rawls' framework as a starting point for developing theories of international justice (Blake and Smith 2013).[8] For issues about international Internet regulation, the participants would be representatives of the populations of individual countries but without any knowledge of which country they are representing. They will be given information about the general circumstances and social norms of individual countries, as well the relative inequalities in wealth and influence of different countries. The worst-off group would then be the people of the most-disadvantaged country.

There remains the problem of governments that disagree with the liberal assumptions that underpin Rawls' theory and his conception of primary goods and basic liberties. While making the participants representatives of the populations instead of the governments of different countries may offer a partial solution where government policies do not reflect the wishes of their people (i.e., governments that rely on the use or threat of force to remain in power), it does little to resolve this problem if the population shares their illiberal views. The concept of 'overlapping consensus' that Rawls (2005) develops in his later work *Political*

[8] Rawls (1999) himself describes a different approach to international justice in *The Law of Peoples*. I will not discuss it further here due to limited space and scope.

Liberalism offers a possible response to this problem. Overlapping consensus seeks acceptance of the institutions themselves and how they operate from a variety of perspectives (Rawls 2005). While the controversies concerning Internet regulation suggest that such consensus will be difficult to reach, nonetheless it offers a method for countries and groups with diverse political and social commitments to find common ground despite their differences.

Conclusion

In this paper I outlined how Rawls' theory of justice can be applied to questions about the just regulation of information networks. I argued that the abstract conception of information technology described here used in conjunction with Rawls' theory removes concerns about how the practical details of technology obscures our thinking about how networks such as the Internet *should* operate. Using an abstract approach such as the one presented here helps us to use what we have learned from the history of the Internet and the development of information and communication technology to inform our thinking about how they should operate rather than confining it.

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