Sci Eng Ethics (2009) 15:407–429
DOI 10.1007/s11948-009-9145-2

ORIGINAL PAPER

Democracy, Individual Rights and the Regulation of Science

J. Weinstein

Received: 21 January 2006 / Accepted: 8 April 2009 / Published online: 13 June 2009

Abstract Whether the US Constitution guarantees a right to conduct scientific research is a question that has never been squarely addressed by the United States Supreme Court. Similarly, the extent to which the First Amendment protects the right to communicate the results of scientific research is an issue about which there is scant judicial authority. This article suggests that a crucial guidepost for exploring both these uncharted areas of constitutional law should be whether restrictions on scientific research or communication truly implicate fundamental individual rights or instead primarily concern issues of general social welfare—issues that in a democracy are properly decided by the representative branches of government or their delegates, not by the judiciary.

Keywords First Amendment · Freedom of speech · Judicial scrutiny · Scientific speech · Scientific research · Freedom of thought and inquiry · Substantive due process

Introduction

Does the United States Constitution recognize a right to engage in scientific research? Does the First Amendment protect communication of the results of such research? Neither of these related questions has ever been squarely addressed by the United States Supreme Court. In this paper I will not attempt to fully explore either of these uncharted areas of the law or come to any definite conclusion. Instead, I will discuss various approaches to these questions and offer a few tentative suggestions about how to decide cases that are likely to arise in these areas. But

J. Weinstein (✉)
Sandra Day O'Connor College of Law, Arizona State University,
1100 South McAllister Avenue, P.O. Box 877906, Tempe, AZ 85287, USA
e-mail: james.weinstein@asu.edu

before turning to what must of necessity be a somewhat technical discussion of American constitutional law, it might be helpful to make some general observations about individual rights guaranteed by the United States Constitution.

The Nature of American Constitutional Rights

Virtually every right recognized by the United States Constitution is a right against government, be it federal, state or local, not against private entities, whether individuals or large corporations. Thus no matter how restrictive or unreasonable, bans on scientific research or communication imposed by private employers or other non-governmental entities simply do not implicate *constitutional* rights.

Moreover, as Ronald Dworkin has explained, rights "are political trumps held by individuals" over collective welfare concerns (Dworkin 1977, p. xi). Thus to say that someone has a right means that this person possesses an interest that government may not infringe just because society would be better off. Precisely why certain individual interests should be vindicated even at the cost of general social welfare is a large and difficult question, though most explanations boil down to a deep moral commitment to human dignity. But whatever the merits and justification for American fundamental rights jurisprudence, it is crucial to bear in mind that recognizing a constitutional right to conduct research or to disseminate scientific information might well frustrate general social welfare. Thus an overarching question in the discussion of American constitutional law that follows—and one that might have relevance for other liberal democracies as well—is whether the interests threatened by suppression of research or by censorship of scientific information is truly an *individual* interest rather than some social utility concern masquerading as an individual right. It is one thing to say that the commitment to human dignity or some other deep moral reason for protecting basic individual rights justifies a reduction in overall general welfare; it is quite another matter to insist that society should bear this cost when no fundamental individual interests are at stake.

Individual Rights and Judicial Review

Whether government regulation of scientific research or the dissemination of scientific ideas and information truly implicates individual rights or is instead largely a question of balancing social welfare concerns is also relevant to the crucial question of *who* decides what limitations may properly be placed on these activities. In the United States, as well as in many other (but not all) liberal democracies, the judiciary is assigned the primary role of vindicating fundamental individual rights, and is thus empowered to invalidate laws and regulations that infringe upon these rights even when these provisions represent the will of the majority. A perennial question in American constitutional law is the legitimacy of such counter-majoritarian judicial authority. While a complicated mix of theoretical and pragmatic considerations may well justify courts frustrating the will of the majority when fundamental individual rights are truly implicated, judicial overruling of the popular will is more difficult to justify when what is really at stake are competing

social policy concerns. In a democracy, the task of resolving competing and often incommensurate general welfare concerns is more legitimately left to the people themselves through referenda and initiatives, to their representatives in legislative bodies, or, in appropriate cases, to expert administrative agencies to which the legislature has delegated authority.

Because a familiar argument for a constitutional right to research rests on the right to publish the results of such research, the level of First Amendment protection afforded scientific speech will be discussed first, followed by a discussion of whether there is a constitutional right to conduct research.

First Amendment Protection of Scientific Speech

First Amendment Basics

The First Amendment to the United States Constitution reads in relevant part: "Congress shall make no law… abridging the freedom of speech, or of the press." Originally only a restriction on the federal government, this amendment is now, by virtue of the Fourteenth Amendment, applicable as well to state and local government.

It is well established that government in the United States may not constitutionally suppress speech—scientific or otherwise—in books, journals or other modes of mass communication, or in a public forum such as street corner or town square, just because it finds the *ideas* expressed to be controversial or offensive. As the United States Supreme Court explained in upholding the right of a protestor to burn an American flag: "If there is a bedrock principle underlying the First Amendment, it is that the Government may not prohibit the expression of an idea simply because society finds the idea itself offensive or disagreeable" (*Texas v. Johnson* 1989, p. 414). Indeed, except in fairly narrow and well-defined instances, government may not suppress ideas in these settings even if it reasonably fears that these ideas will persuade someone to engage in harmful, dangerous or even illegal activity (*Brandenburg v. Ohio* 1969).

Constitutional prohibitions aside, government in the United States and in most other liberal democracies typically has no interest in suppressing the communication of scientific *ideas* (e.g., the hypothesis that the universe is expanding). True, scientific ideas will occasionally offend some deeply held religious or political belief, such as that God created humans or that there is no significant genetic differences between the races. Significantly, however, despite the widespread hostility to Darwin's theory of human evolution and the resulting prohibition in some places of teaching this theory in public school in the early part of the twentieth century, government in the United States never attempted by force of law to prevent scientists from discussing this theory with each other or from sharing it with the general public. Similarly, despite the intense hostility in many quarters to the implicit suggestion in *The Bell Curve* (Hernstein and Murray 1994) that there might be a genetic component to the different IQ scores of blacks and whites, no jurisdiction in the United States has attempted to ban the sale of this controversial

book. Accordingly, rather than discuss hypothetical bans on the publication of scientific ideas that deeply offend social mores, it will be more profitable to focus on restrictions on scientific speech that government in liberal democracies arguably has both the desire and constitutional authority to ban.[1]

Problematic Facilitative Speech

A species of scientific speech that fits this description is the dissemination of *information* that could facilitate an activity that government has the power to prevent.[2] Examples of such problematic facilitative speech are publications that could assist other nations in building a hydrogen bomb (*United States v. Progressive, Inc*. 1979), that help criminals encrypt messages (*Junger v. Daley* 2000), or that allow people to defeat the anti-copying encryption on DVDs in violation of the copyright laws (*Universal City Studios, Inc. v. Corley* 2001).[3]

May government forbid the publication of such problematic facilitative information? The answer depends on the level of protection that the First Amendment affords the communication of scientific information. In this discussion, "protection" of speech means immunity, or a presumption of immunity, from suppression.[4] This inquiry, in turn, depends on the extremely difficult and contentious question of how to best view the overall structure and purpose of American free speech doctrine.

[1] Unlike commercial speech or obscenity, scientific speech is not a juridical category defined in the case law. Nor will any attempt be me made here to rigorously define the term "scientific speech." Rather, that term will be used informally in this paper to mean communication about experiments, investigations or hypotheses, as well as communication about the application of science and technology.

[2] For a lucid discussion of the distinction between persuasive and facilitative speech, see Scanlon 1972, pp. 211–212. Of course, problematic facilitative speech is not limited to *scientific* speech Depending on the connection with core free speech values, these other varieties of facilitative speech might be more or less protected than is facilitative scientific information. For an excellent and exhaustive discussion of the First Amendment issues raised by facilitative speech, see Volokh (2005).

[3] Another type of scientific speech that government desires and has the power to suppress are false or misleading scientific claims made in connection with advertisements for commercial products. See, e.g., *National Commission on Egg Nutrition v. FTC* 1977 (court upholds enforcement of Federal Trade Commission order requiring trade association to cease and desist from disseminating advertisements containing statements to the effect that there was no scientific evidence that eating eggs increased the risk of heart and circulatory disease). Such cases, however, do not deal with the value of scientific speech as such but rather turn on the well-established First Amendment rule that false or misleading commercial advertising is not entitled to First Amendment protection (*Central Hudson Gas v. Public Service Commission* 1980). Accordingly, unlike an egg trade association, a person not associated with the egg industry would likely have a First Amendment right to publish an article in a scientific journal claiming that that there was no scientific evidence that eating eggs increased the risk of heart disease. Yet another type of scientific speech that the government might want to suppress and arguably has the power to do so consistent with the First Amendment is publication of data produced by highly unethical experiments such as those performed by Dr. Josef Mengele on Auschwitz prisoners. See Mostow (1994).

[4] The primary focus will be on regulations that *directly* forbid *private* speakers from communicating scientific information to other scientists or to the public. Space limitation do not permit exploration of indirect restriction on speech, such as governmental refusal to disclose information within its control, or restrictions imposed by means other than coercive laws, such as by contractual agreements. Nor is there space to consider restrictions on the speech of scientists employed by the government.

The All Inclusive Approach

A common but in my opinion inaccurate view of American free speech doctrine is what one commentator aptly dubs the "All Inclusive Approach" (McDonald 2005, p. 1009). On this view, virtually all speech, including the facilitative speech under consideration here, is highly protected, making it extremely difficult for government to suppress. Under this approach "all speech receives First Amendment protection unless it falls with[in] certain narrow categories of expression … such as incitement to illegal conduct, intentional libel, obscenity, child pornography, fighting words and true threats." The All Inclusive Approach holds, moreover, that unless the speech falls into one of these forlorn categories, any law that regulates speech because of its content (i.e., because of its communicative impact) will be subject to "strict" judicial scrutiny. Such scrutiny requires the government to prove that it has a "compelling" interest in restricting the speech and that there is no less speech restrictive alternative available to vindicate this interest. Very few laws survive the application of such exacting scrutiny (McDonald 2005, p. 1014).

The Selective Approach

A very different and in my opinion much more accurate view of American free speech doctrine is the "Selective Approach." This view posits that the level of protection afforded various types of expression depends on the free speech *values* that regulation of that speech implicates. Under this approach, speech will be rigorously protected only if its regulation threatens a core free speech value, not merely a peripheral one. Accordingly, in contrast to the All Inclusive Approach, under which all content-based regulations (except for a few well defined exceptions) trigger "strict scrutiny," only those that regulations that implicate a basic free speech norm will be subject to such exacting judicial review.

Professor Park's Problematic Publication

In cases in which the dissemination of scientific information will likely cause some catastrophic harm, such as the publication of how to make or disperse a lethal bio-toxin, it makes little difference whether the All Inclusive or the Selective Approach is adopted. Under either approach the government would obviously have a compelling interest in preventing the publication of this information. Harder cases arise when the harm likely to be caused by the dissemination is real and substantial but not catastrophic.

To explore this latter type of case, let's imagine that Professor Bletchley Park, a prominent mathematician at a leading university, wants to publish on his web page a paper that contains new and useful ideas about cryptology theory and practice. However, to fully explain these ideas he needs to demonstrate in detail how he decrypted the "Content Scramble System" or CSS, that prevents copying of movies on DVDs. Unfortunately, if he posts the article, the knowledge of how to defeat CSS will become known not just to those interested in new developments in cryptology but also to the multitudes of movie viewers interested in defeating the anti-copying

encryption on DVDs in violation of copyright law. Assuming that federal law prohibits publication of information on how to defeat CSS, does Professor Park nonetheless have a First Amendment right to publish this information?

Under the All Inclusive Approach, Professor Park would clearly have such a right. Because his speech does not fall within one of the narrow exceptions to First Amendment protection, the government may not, in the absence of extraordinary circumstances, suppress this speech because of its communicative impact. And the law here plainly seeks to suppress the speech because of its communicative impact—the fear that the article will inform a wide audience how to defeat CSS in violation of copyright law. But while preventing copyright violations may be an important government interest, it is hardly a compelling one.

The Selective Approach is far less mechanical. It requires, to begin with, identification of what core values inform American free speech doctrine.

Free Speech and Democracy

It is generally agreed that there are three candidates for core free speech values: "advancing knowledge and 'truth' in the 'marketplace of ideas,' facilitating representative democracy and self-government, and promotion of individual autonomy, self-expression and self-fulfillment" (Sullivan and Gunther 2007, p. 744). While commentators vigorously disagree about the extent to which the other two values inform free speech doctrine, there is a consensus that at least the commitment to democratic self-governance is a core First Amendment norm. As the Supreme Court has explained, because speech "concerning public affairs is …the essence of self-government," such expression "has always rested on the highest rung of the hierarchy of First Amendment values" (*NAACP v. Claiborne Hardware Co.* 1982, p. 913).

In its narrowest but most powerful conception, this core democratic principle recognizes the right of every individual to participate in the speech by which the people of the United States govern themselves. It is this commitment to participatory democracy that explains why the First Amendment restricts government from regulating the content of speech—though not as the All Inclusive theory would have it, the content of virtually all speech. Rather, government is generally prohibited from regulating the content of speech only on matters of public concern occurring in settings essential to democratic self-governance, such as in books, magazines, the Internet, or in public fora such public sidewalks or the speaker's corner of public parks—expression that the Supreme Court and commentators have referred to as "public discourse" (Post 1988, p. 604).

This right to participate in public discourse free of government-imposed content regulation is a fundamental right that can be infringed, if at all, only in truly extraordinary circumstances. For instance, even if the government could persuasively demonstrate that protests in the United States against the war in Iraq both dispirit American soldiers and encourage the insurgents to continue fighting, antiwar protests could not be forbidden on these grounds.

Any connection between Professor Park's speech and democratic self-governance is not obvious. He is not decrying the overprotection of intellectual property

under the copyright laws; or the greed and unfairness of the movie companies in not allowing freer copying; or even the law forbidding dissemination of information on how to defeat CSS. But even if he were engaged in such a critique, it would be fatuous to argue that he needs to reveal this information to effectively present his views or otherwise fully participate in public discourse. A very different—and very difficult—case would be presented if the publication of the scientific information were both necessary to adequately explain a matter of public concern and facilitative of illegal or harmful activity.[5] Such a case would implicate the core democratic norm underlying the First Amendment. But most cases in which the government tries to suppress scientific information because of its potential to facilitate harm or wrongdoing will, like the hypothetical case under consideration, not involve speech that is part of public discourse.

Thus if we were to look exclusively at *the content* of Professor Park's speech, any connection with democratic self-governance would be tenuous at best. But this is not a sufficient assessment. To fully evaluate the connection between any given instances of expression and democracy, it is also crucial to consider the mode of communication. As Robert Post has explained, in modern democratic societies certain modes of communication form "a structural skeleton that is necessary, although not sufficient, for public discourse to serve the constitutional value of democracy." For this reason, "it is assumed that if a medium [is] constitutionally protected by the First Amendment, each instance of the medium would also be protected" (Post 1995, pp. 1253–1254).[6]

Nevertheless, as I have explained elsewhere, although there are good reasons "to presume that any particular message in a medium essential to democratic communication is in fact part of this democratic dialogue," this presumption is rebuttable (Weinstein 2004, p. 1120). For instance, even though newspaper editorial columns are undoubtedly an essential medium for public discourse, a journalist who used such a column to tout a stock that he secretly purchased would have no First Amendment immunity against the laws forbidding stock manipulation (*United*

[5] A recent real life example of speech that is both part of public discourse and arguably facilitative of illegal and extremely harmful activity is revelation that the National Security Agency has been secretly accumulating a massive database of the telephone numbers dialed by millions of Americans. While this revelation certainly is crucial to democratic self-governance, it also arguably impaired national security by alerting terrorists of this operation (MacArthur 2007). Another real life example arose with respect to a scientific article modeling a bioterrorist attack on the United States milk supply (Wein and Liu 2005). The federal government asked the journal not to publish the article because it feared information contained in the article could be useful to terrorists wanting to poison the milk supply. After delaying publication while it reviewed the government's concerns, the journal decided to publish the article, concluding that "[a]ll of the critical information in this article that could be useful to a terrorist… are [sic] immediately available on the World Wide Web through a simple Google search" (Alberts 2005). Since the authors were in part criticizing the current lack of security measures in the industry, they were to this extent involved in democratic self-governance. For other examples, both hypothetical and real, of speech that is arguably both part of public discourse and facilitative of a crime or other activity that government can legitimately forbid, see Volokh (2005, pp. 1114–1123).

[6] The importance of the medium in which a given instance of speech occurs to the process of democratic self-governance is in my view the best explanation of why the Supreme Court rigorously protects nudity in film and cable television—media that are in its view part of the "structural skeleton" of public discourse—but not in live performances by erotic dancers on the stage of "strip club." Compare *Playboy Entertainment Group, Inc. v. United States* (2000) with *City of Erie v. Pap's A.M.* (2000).

States v. Wenger 2005). Similarly, despite the importance of film as a medium of democratic communication, legally obscene pornographic films are nonetheless entitled to no First Amendment protection (*Paris Adult Theatre I v. Slaton* 1973).

Because Internet websites have become an important medium for democratic communication, Park's use of that medium might endow his speech with a presumption of protection that would not arise if he were selling this information in a shop on main street. A similar presumption would arise if he published his article in a scientific journal. Nonetheless, this presumption is, in my view, rebutted here because the content of the speech is manifestly far a field from any attempt to participate in democratic self-governance and is therefore outside of even the "structural" zone of protection just described.

So far this discussion has focused on Professor Park's right as a *speaker* to participate in democratic self-governance. But the *audience* also has an interest in receiving this information. It could be argued that irrespective of any desire by Professor Park to participate in public discourse, the information contained in his article will nonetheless supply others with information that they need to participate in society's collective decision making Again, it is difficult to imagine how this particular instance of speech would serve this purpose, although it is of course possible that the new ideas about cryptology that cannot be fully expressed in light of the restriction might become relevant to some public issue. However, if one considers not just this specific speech but rather the negative impact on the flow of information useful for public discourse that might result if *this type of speech* were suppressed, a connection with democracy becomes more plausible (Irwin 2005, pp. 1483–1484).[7] Indeed, the Supreme Court afforded limited protection to ordinary commercial advertising precisely because of its overall incidental contribution to public discourse (*Virginia State Board of Pharmacy v. Virginia Citizens Consumer Council, Inc.* 1976).

But even if some degree of First Amendment protection is warranted to maximize information flow that might potentially enrich public discourse, this interest is *instrumental* to democracy not, as is the right to participate in democratic self-governance, *constitutive* of it (Dworkin 1996, pp. 200–201). The same is true of the prophylactic protection of media essential to public discourse that gives rise to the presumptive protection of any speech within such media. Accordingly, whatever level of protection the various iterations of the democratic norms underling the First Amendment might bestow on speech such as Professor Park's, it is not a core free speech right that can be overridden only by a clear demonstration of some extraordinary governmental interest.

The Marketplace of Ideas

In contrast to the tenuous relationship between the communication of scientific information in Professor Park's article and democratic participation, there is a solid connection between such speech and the search for truth in the marketplace of ideas.

[7] Actual examples of scientific speech that could contribute to public decision making are discussed in Footnote 5, above.

This rationale posits that society will make progress, morally as well as materially, politically as well scientifically, if all ideas are allowed to compete unimpeded by government regulation. Although this rationale has long informed American free speech doctrine, it is surely not a core one. Otherwise, the First Amendment would not permit the government to distort the marketplace of ideas through propaganda; or to subsidize pro-democracy speech or speech promoting racial tolerance while refusing to fund pro-communist or racist speech; or to maintain a national communications policy that allows media concentration.

Another problem with the marketplace of ideas rationale is that the entire premise that a completely unregulated market of ideas will lead either to discovery of truth or to social progress is highly contestable (Weinstein 2004, p. 1101 & note 52). But most importantly for this discussion, the marketplace of ideas rationale justifies free speech *instrumentally* in terms of the good it will produce for society as a whole, not as a true individual right.

Despite the lip service that the Supreme Court has paid to the marketplace of ideas, I believe that if ever squarely presented with the question, the Court would conclude, for the reasons just mentioned, that speech that promoted only this value is entitled to less rigorous protection than that accorded the speech by which citizens govern themselves. Such a result would be consistent with a recent case that refused to apply any meaningful scrutiny to a copyright law that arguably robbed the pubic domain of important ideas and information (*Eldred v. Ashcroft* 2003).

Individual Autonomy, Self-Expression and Self-Fulfillment

The possibility that the promotion of the related norms of individual autonomy, self-expression, and self-fulfillment might constitute a core free speech value under the Selective Approach leads directly to the All Inclusive Approach. In fact, in would lead to a Super All Inclusive Approach, for as a prominent proponent of an autonomy-based free speech jurisprudence has conceded, commitment to the "development of the individual's powers and abilities" or to "the individual's control of his or her own destiny through making life-affecting decisions" is inconsistent with the entire concept of "unprotected speech" such as obscenity and fighting words. (Redish 1982, pp. 593, 625). Indeed, although proponents of the All Inclusive Approach seldom articulate the values on which this approach relies, the best explanation of its enormous scope is a broad, undifferentiated interest in self-expression, self-realization and personal autonomy.

There is, however, a somewhat more refined version of this theory that is worth considering, one that emphasizes the importance of the free flow of ideas and information to facilitate individual decision making. To the extent this theory is concerned with decision making on matter of pubic concern, it is identical with the audience-based argument from democracy considered above. But this theory goes further and encompasses *private* decision making as well. Supporting this view is the Court's decision to afford some as yet indeterminate level of protection to ordinary commercial speech because such expression aids both private as well as public decision making (*Virginia State Board of Pharmacy v. Virginia Citizens*

Consumer Council, Inc. 1976). The Court might well afford similar protection to the public distribution of scientific information that might aid private decision making, be it medical, economic or on some other matter that affects individual interests.

Choosing Between the All Inclusive and the Selective Approach

Speech is simply too ubiquitous with far too many real world consequences for there to be a rule that, except for a few narrowly defined exceptions, all human utterances are virtually immune from content regulation. One need only consider the large range of speech that government routinely regulates without interference from the First Amendment—everything from laws prohibiting competitors from sharing price information, to regulations on what business can put in their proxy statements or on the labels of the products that they sell; from restrictions imposed by copyright law on what people can publish, to limitations on what lawyers can say in the courtroom—to quickly realize that there is a multitude of "exceptions" to the All Inclusive Approach (Weinstein 2004, p. 1098). Indeed, a more accurate picture of First Amendment protection is the photonegative of All Inclusive approach: it is the highly protected speech that is the exception, with most other speech regulable with virtually no constraint from the First Amendment.[8]

In routine cases the All Inclusive Approach might well yield correct results (with correctness measured in terms of coherence of the overall pattern of decided cases and the values that best explain that pattern). But in hard, novel cases this approach will often overprotect speech. Thus the few relevant cases on the books suggest that, contrary the result yielded here by the All Inclusive Approach, a scientist probably does not have a right to post information on how to defeat the anti-copying encryption on DVDs, even if necessary to fully explain some discovery. For instance, the United States Court of Appeals for the Second Circuit upheld against a First Amendment challenge an injunction forbidding a website owner from posting computer software that decrypts this protection or from including hyperlinks to other websites that made such programs available (*Universal City Studios, Inc. v. Corley* 2001). And the California Court Supreme Court came to the same conclusion in a similar case (*DVD Copy Control Ass'n v. Bunner* 2003).

These cases, it is true, are distinguishable from Professor Park's situation. Both cases involved the posting of an actual computer program that could be used to defeat DVD copy protection, not just information which would enable someone to create such a program. More significantly, neither website owner was a scientist seeking to share useful information that would advance general knowledge; indeed, the website owner in the federal case was a self-proclaimed "hacker." Whether these differences would be sufficient to immunize Professor Park's publication from legal sanctions is a difficult question. Precisely because it is so difficult, it is a

[8] For criticism of the All Inclusive Approach, both generally and as a method for determining the protection afforded scientific speech, see Post (2000, pp. 715–717).

question that cannot be answered by facile application of the supposed general rule against content-based regulation.[9]

Does Professor Park Have a First Amendment Right to Publish this Information?

Yet to be determined is whether under the Selective Approach Professor Park would have right to publish this information free from government sanction. Unlike the All Inclusive Approach, the Selective Approach does not purport to mechanically produce definite answers in hard cases. Nonetheless, it does suggest that Park probably does not have such a right.

As previously mentioned, there is at best a tenuous connection between his speech and democratic self-governance. Although the importance of web pages as a medium for public discourse would create a presumption of strong First Amendment protection, this presumption is rebutted here in light of the weak connection with democratic discourse. Thus under this values driven approach Park's speech should be afforded only moderate protection. It entitled to some limited protection because this particular instance of speech directly contributes to the marketplace of scientific ideas. But if the only free speech interest at stake, with no true individual right in the balance, then the government's legitimate interest in preventing copyright violations should easily prevail. In such a case there would be merely a conflict between two social policy concerns—the advancement of science and the proper degree of legal protection for intellectual property. This is precisely the type of conflict whose resolution should properly be left to the legislature.

As noted above, however, although this particular instance of scientific speech does not contain information that is likely to be useful to public decision making, expression of *this type* of speech arguably does. This potential connection with democratic self-governance, though not part of public discourse, arguably justifies somewhat greater protection than would be the case if the expression simply advanced scientific knowledge. Nonetheless, the immediate and unquestionable harm to legitimate property rights should be sufficient to outweigh the rather speculative harm to information flow relevant to democratic self-governance that might occur if scientific speech such as Park's is suppressed.[10]

[9] Several years ago there was a series of First Amendment challenges to federal restriction on posting encryption source code on the Internet that the government feared might enable terrorists and other targets of national security investigations to conceal their communications. The indeterminate results of the cases show just how difficult First Amendment questions raised by facilitative scientific speech can be. See *Junger v. Daley* (2000) (reversing summary judgment against plaintiff challenging the constitutionality of a federal regulation restricting him from posting encryption software on his website but reserving issue of what level of First Amendment scrutiny is applicable); Bernstein v. United States Department of Justice 1999a/b) (2-1 decision finding this regulation to be an unconstitutional prior restraint). Later this same year, the *Bernstein* decision was withdrawn and rehearing granted by the full court. Before the rehearing could take place, the regulation was amended to exempt "publicly available" encryption source code, which deprived the plaintiff of standing to continue to challenge the regulation (*Bernstein v. Dep't of Commerce* 2004).

[10] Not all commentators would agree with this conclusion. Professor Eugene Volokh, for instance, believes that the search for truth about scientific questions should be as protected by the First Amendment core political speech (Volokh 2005, p. 1155). He would thus most likely conclude that Park would have a constitutional right to publish this information.

Appropriate Cases for Judicial Intervention to Protect the Dissemination of Scientific Information

The modest judicial scrutiny just described is not, however, toothless. Even when restrictions on the dissemination of facilitative scientific information implicate only peripheral or secondary free speech values, courts might invalidate weakly justified restrictions. Suppose, for instance, that the government tried to ban the publication of a study on adultery because it contained information on how to hide an extramarital affair from one's spouse. Strong governmental interests like protecting national security, or even merely substantial ones like protecting private property rights, will usually be sufficient to outweigh contributions to the marketplace of ideas or the instrumental, audience-based interest in democratic self-governance that might be implicated by the suppression of public communication of typical scientific information. But, as is discussed in more detail below, the interest in general morality is usually not sufficient to justify infringements of activity entitled to even modest constitutional protection.

Similarly, even modest judicial oversight might result in invalidation of a restriction on scientific speech if the government's argument that the publication will jeopardize some substantial interest is implausible. A slight variation on *United States v. Progressive, Inc*. 1979, one of the few decided cases involving scientific speech, provides an example. In that case the government successfully obtained an injunction against the publication of a technical article on hydrogen-bomb design. Although the article was based entirely on declassified documents and other information in the public domain, the government successfully argued that this collation of information would nonetheless allow other nations to move faster towards obtaining a hydrogen bomb. On appeal, however, the government abandoned the case because similar information had subsequently been published by others. Suppose, however, that the government had continued to press its case, arguing that the mere invocation of national security should always be sufficient to obtain an injunction against publication of speech of this type. Under these circumstances, a court might well have been justified in holding that the First Amendment prohibits suppression of this publication.

Is There a Constitutional Right to Research?

Suppose that in violation of a federal law making it a crime to clone a human being Dr. Franklyn Stein conducts research on this subject and eventually succeeds in cloning a human. If Dr. Stein were prosecuted for violating the ban on cloning, could he successfully assert a defense based upon the United States Constitution? The answer to this question depends on whether the United States Constitution recognizes a right to engage in scientific research, and if so, the weight and scope of this right.

In Search of the Source of a Constitutional Right to Research

While the weight of the right to communicate the results of scientific research may be in dispute, its existence and source are not—it is part of the right of free speech

guaranteed by the First Amendment. In contrast, the source of a purported right to engage in research is uncertain, and therefore so is its very existence.[11]

Those who argue for a fundamental right of research locate this right in one of three Constitutional sources: (1) as expressive conduct protected by the First Amendment; (2) as an "essential precondition" to the exercise of the First Amendment right to free speech; or (3) as part of the right of free thought and inquiry, implicit in either the First Amendment or in the liberty specially protected by the Fifth and Fourteenth Amendments. Of these three potential sources, the right of free thought and inquiry is the most tenable source of a constitutional right to research.[12]

Research as Expressive Conduct

American free speech doctrine rests on a sharp and sometimes arbitrary dichotomy between speech and conduct. As I have explained elsewhere (Weinstein 1999, pp. 31–32), "speech" for First Amendment purposes is any activity that makes use of a conventional mode or medium of communication, such as talking, singing, dancing, parading, writing or even playing an instrument or painting a picture. "Conduct" is residually defined as all other human activity. Such a rigid dichotomy, however, classifies as speech activity having little or no free speech value (e.g., solicitation to murder), while at the same time designating as conduct activity with considerable free speech importance (e.g., flag burning as a form of political protest). The Supreme Court has therefore subdivided the category of speech into "protected" and "unprotected" speech, and the category of conduct into "expressive" and "nonexpressive" conduct. Expressive conduct is entitled to some degree of First Amendment protection; nonexpressive conduct receives no such protection.

While research may sometimes contain elements that would certainly qualify as speech—taking notes or talking to collaborators—research is nevertheless not essentially a communicative activity, or at least not any more so than a host of other activities that would be classified as conduct. Accordingly, Dr. Stein's actual cloning of a human being would be categorized as "conduct" for First Amendment purposes. If he were prosecuted not just for the cloning activity itself, but also for taking notes on the experiment or telling another scientist about it, he might be able to raise a First Amendment claim as to *those elements* of his activities. However, his actual cloning procedures would still be considered conduct.

The next step of the analysis is to determine whether these procedures qualify as "expressive" or "nonexpressive" conduct. In order for conduct to "possess sufficient communicative elements to bring the First Amendment into play," there must be "an intent to convey a particularized message," as well as a great likelihood "that the message would be understood by those who viewed it" (*Spence v. Washington* 1974, pp. 411–412). Unlike activities such flag or draft card burning, or

[11] The word "science" appears but once in the Constitution, in the Copyright Clause, which gives Congress the power to promote science by granting copyright to writings by authors.

[12] I have previously explored the possible constitutional bases for a right to research in Weinstein (2007, pp. 542–550).

even nude dancing intended to convey an erotic message, the actual cloning procedure would ordinarily not manifest an intent by anyone to express a "particularized message"; nor is there a great likelihood that anyone observing this procedure would understand that some such message was being conveyed. The same is true not only of the final cloning procedure itself but of any experiments or research that preceded the actual cloning, and, indeed, of almost all research typically conducted by scientists. As one commentator aptly concludes: "[The expressive conduct] arguments fail for the simple reason that scientific experimentation consists of the application, not the communication, of scientific ideas" (Irwin 2005, p. 1498).

Research as an "Essential Precondition" of Speech

Even if scientific research is ordinarily not *itself* sufficiently communicative to trigger First Amendment protection, several commentators have argued that this activity should nonetheless receive constitutional protection because it is an essential precondition for dissemination of information. According to a leading proponent of this view: "If the First Amendment serves to protect free trade in the dissemination of ideas and information, it must also protect the necessary preconditions of speech, such as the production of ideas and information through research" (Robertson 1977, pp. 1217–1218).

If a central purpose of the First Amendment were in fact to "protect free trade in the dissemination of ideas and information," either in pursuit of truth or general social progress, or to assure "a free flow of information for public and private decisionmaking" (Robertson 1977, p. 1216), then a tenable argument could be made that the First Amendment must also protect a right to research. But as discussed above, the pattern of decided free speech cases belies the view that a commitment to the pursuit of truth in the marketplace of ideas is a core free speech norm. Similarly, although the Supreme Court's commercial speech cases are best explained as assuring the free flow of information needed for public and private economic decision making, the limited level of protection afforded such speech is inconsistent with any claim that assuring information flow is a core free speech norm. In any event, as the Supreme Court observed in rebuffing an "essential precondition of speech" argument in another context: "There are few restrictions on action which could not be clothed by ingenious argument in the garb of decreased data flow." Accordingly, the Court held that "[t]he right to speak and publish does not carry with it the unrestrained right to gather information" (*Zemel v. Rusk* 1965, p. 17).

Although the Court has repeatedly refused to recognize a general right to gather information as an "essential precondition" of speech, it has in a few narrow circumstances extended First Amendment protection to conduct that is not itself expressive but is nevertheless essentially linked to some core First Amendment activity. Notably, however, in every instance in which the Court has extended First Amendment protection nonexpressive conduct it has done so not because the activity was a necessary precondition to truth seeking in the marketplace of ideas or the interest in the free flow of ideas or information, but rather because it was essential to the proper functioning of democratic self-governance.

For instance, the Court has extended First Amendment protection to expenditure of money by individuals or political groups to express views about political candidates or other matters of public concern. It thus found that a federal law restricting such spending imposed "direct and substantial restraints on the quantity of political speech … at the core of our electoral process and of the First Amendment freedoms" (*Buckley v. Valeo* 1976, pp. 19–20, 39). Similarly, the Court recognized a right of the press to access to criminal proceedings so "that the individual citizen can effectively participate and contribute to our republican system of self government" (*Globe Newspapers v. Superior Court* 1982, pp. 604–605). Significantly, however, this right to gather information relative to "governmental affairs" has been narrowly confined to access to places or proceedings that have traditionally been open to the public. Thus the press does not have a right of access to prisons in order to inform the public about prisoner abuse allegedly occurring therein (*Houchins v. KQED, Inc.* 1978).

Branzburg v. Hayes 1972, a "reporter's privilege" case, is often relied on by those who argue that scientific research should be afforded First Amendment protection as an essential precondition of speech. Consistent with the cases just discussed, however, *Branzburg* shows that it is most unlikely that the Supreme Court would extend First Amendment protection to scientific research under this rationale. In *Branzburg*, several reporters argued that if they were forced to reveal confidential sources to a grand jury, other confidential sources would be deterred from furnishing publishable information, thereby restricting "the free flow of information protected by the First Amendment." The majority opinion, however, firmly rejected the claim of a privilege not to testify asserted in that case, suggesting that the First Amendment would protect newsgathering only against "[o]fficial harassment of the press undertaken not for purposes of law enforcement but to disrupt a reporter's relationship with his news sources" (*Branzburg v. Hayes* 1972, pp. 707–708).

The argument that *Branzburg* offers significant protection to newsgathering arises from Justice Powell's unusual concurring opinion. *Branzburg* was a 5-4 decision, with Justice Powell joining the majority opinion rejecting the claim of reporter's privilege. Powell, however, wrote a concurring opinion stating that in each case in which a reporter objects to revealing a confidential source a court should "balance" freedom of the press against the obligation of each citizen to give relevant testimony in criminal proceedings (*Branzburg v. Hayes* 1972, p. 710). Still, despite the hint of greater First Amendment protection for newsgathering in *Branzburg*, it is highly unlikely that the Court would extend any significant First Amendment protection to scientific research based on its connection with speech. While newsgathering is arguably a necessary precondition to speech at the core of the First Amendment, scientific research is not. The press plays a crucial democratic role in checking governmental abuse by uncovering wrongdoing and by gathering information needed by the public to evaluate matters of public policy. Although scientific research may in a very different way be just as important to the lives of individuals as newsgathering, it does not share newsgathering's essential connection to democracy.

Scientific Research as Part of the Fundamental Right of Thought and Inquiry

In a recent article, Dana Irwin also concludes that freedom of speech guaranteed by the First Amendment is not a tenable source of a constitutional right to research (Irwin 2005, p. 1504). Rather, she locates a right to research in the freedom of thought protected by the First Amendment. Although not without problems of its own, such an approach is more promising than is the conventional attempt to derive a right to research from freedom of speech.

Irwin correctly notes that the Supreme Court has long held that the First Amendment protects a "sphere of intellect and spirit … reserve[d] from all official control" (*West Virginia Board of Education v. Barnette* 1943, p. 642). It is doubtful, however, that this protected sphere is broad enough to encompass a right of scientific research. Most of the Supreme Court decisions on which Irwin relies concern either political or religious *belief*, subject matter clearly covered by the First Amendment protection of speech and religion. And the few cases that do not concern such beliefs, deal with sexually explicit *speech* (Irwin 2005, pp. 1505–1515). A broader conception of freedom of thought, one that would include a general right of inquiry, which in turn would encompass scientific research, has no such connection to a right expressly recognized in the Constitution. Accordingly, if such a right exists, it would, in my view, be more properly found among those unenumerated liberty interests specially protected by the Due Process Clauses of the Fifth and Fourteenth Amendment.

Read literally, the Due Process Clauses in the United States Constitution seem to assure only that government afford people certain procedural safeguards before depriving them of liberty.[13] Nonetheless, under its so called "substantive due process" jurisprudence, the Court has long held that these provisions also prevent government from infringing certain unenumerated substantive rights. These fundamental liberty interests include reproductive freedoms such as the right to use contraception or to abort a pregnancy, and rights of intimate association such as the right to marry or of extended families to live together or of parents to make decisions concerning the care, custody and control of their children (Weinstein 2007, p. 544). In recent years, however, the Court has been reluctant to add to this select list of unenumerated fundamental liberty interests.

For instance, the Court has refused to recognize a fundamental liberty interest of even terminally ill people to determine the time and manner of their death (*Washington v. Glucksberg* 1997). A decade earlier, in holding that there was no fundamental right to engage in homosexual sodomy, the Court explained that it was reluctant to take an expansive view of its "authority to discover new fundamental rights imbedded in the Due Process Clause" because the Court "comes nearest to illegitimacy when it deals with judge-made constitutional law having little or no cognizable roots in the language or design of the Constitution" (*Bowers v. Hardwick* 1986, p. 194). Although the Court subsequently found that criminal sanctions

[13] The Fifth Amendment, which is applicable only to the federal government, provides that "No person shall … be deprived of life, liberty or property, without due process of law." The Fourteenth Amendment reads: "nor shall any State deprive any person of life, liberty or property, without due process of law."

against adults engaging in consensual homosexual sodomy violated the Due Process of Clause of the Fourteenth Amendment, it sedulously avoided declaring that there was a fundamental liberty interest to engage in such activity. Instead, the Court cryptically declared that the law at issue "furthers no legitimate state interest which can justify its intrusion into the personal and private life of the individual" (*Lawrence v. Texas* 2003, p. 560).

It is thus very doubtful that the Court would recognize a full-blown "fundamental" liberty interest to engage in scientific research analogous to the right to reproductive liberty it has found implicit in due process. Still, if presented with a sympathetic enough case, the Court might offer some limited substantive due process protection to certain aspects of the right to research. If, however, the Court were to recognize such a limited substantive due process right, very difficult questions would arise as to its scope and weight.

The Scope of a Right to Research Derived from the Right of Thought and Inquiry

With respect to the scope of the right, Irwin is surely correct that if this right exists at all, it must include at least the right to engage in an experiment consisting of "pure thought with no accompanying action," such as Schrödinger's famous thought experiment designed to explain quantum indeterminacy involving a cat in a steel chamber (Irwin 2005, p. 1479). On this view Dr. Stein would have the right to try to work out in his head "with no accompanying action" a process for cloning humans. But once one moves beyond thought experiments to *conduct* that either manifests or aids scientific thought and inquiry, it is very difficult to know where to draw the line between protected and unprotected activity. For instance, which, if any, of the following activities falls within the constitutional right to think and inquire about how to clone humans?: (a) recording notes of one's thoughts on this subject; (b) using a computer to model a procedure for cloning humans; (c) cloning a chimpanzee in order to gains some essential knowledge on how to clone humans; (d) actually cloning a human being.

One obvious solution is to draw a sharp and formal distinction between thought and conduct. Under this approach, pure thought would be immune from government regulation, while any physical manifestation of this thought or any activity in aid of it would be regulable. Because such a dichotomy would be easy to administer, there is a real chance that the Court would adopt it, at least as a formal matter. The downside of this approach is that any such right would be so narrow as to be practically useless. By its very nature, pure thought not manifested by conduct is very difficult for government to control, and consequentially is in need of little protection against government intrusion.[14]

The other obvious place to draw the line is at the opposite end of the spectrum. Under this approach, a scientist has a right (with several important qualifications to be considered shortly) to engage in any research or experiment that contributes to

[14] One means by which government has sought to punish thoughts is by requiring people seeking a government job or benefit to answer questions concerning their beliefs (e.g., *Schneider v. Smith* 1968).

solving whatever problem she is working on. On this view, since Dr. Stein has a right to think about how to clone humans, he has a correlative right to engage in conduct aiding this inquiry, including actually cloning humans. It would, in contrast, be quite difficult to draw a principled and workable line at any intermediate point on this continuum. For instance, if it infringes the right of inquiry to prohibit writing down one's thoughts in order to facilitate solving a problem, how can a ban on the use of a computer for the same purpose not do so? Conversely, if the state can constitutionally ban cloning of humans, can it not also prohibit a procedure that comes right to the edge of the forbidden result, such as cloning a chimpanzee?

A point in favor of recognizing a right to engage in any research or experiment that contributes to solving a scientific problem is that such a right is not as broad as might first appear. Even if virtually all conduct that facilitates scientific inquiry were considered to be within the scope of this right, the determination that a regulation infringes that right depends, as Irwin observes, on "whether the regulation directly intrudes upon scientific thought, or only interferes with it indirectly." She proposes that a regulation that "forecloses an entire line of inquiry" such as "a complete prohibition of a certain form of experimentation" should be considered a "direct" regulation, while a regulation that merely "dictates the manner or means by which an experiment is preformed" should be deemed an "incidental" one (Irwin 2005, p. 1524). Under this framework, a ban on stem cell research or cloning would be a direct intrusion on the right of inquiry. Conversely, a law prohibiting the use of a particularly toxic chemical, no matter what the experiment, would be considered an incidental restriction (as would laws of general applicability such as workplace safety or wage and hour laws).[15]

The Weight of the Right to Research

The next crucial question is the weight to be afforded this right to research. Irwin proposes that any direct infringement of the right be subject to strict scrutiny, with incidental infringements subject to intermediate scrutiny (Irwin 2005, pp. 1525–1531). Under strict scrutiny a regulation is presumptively unconstitutional and will be upheld only if the government can clearly demonstrate that the regulation is necessary to vindicating a compelling state interest. Intermediate scrutiny requires the government to demonstrate that the restriction is substantially related to an important governmental interest.[16]

Contrary to Irwin, I am fairly confident that if the Supreme Court were to recognize a right to research as broad as the one under consideration (which is

[15] It is not clear how Irwin would classify under her framework partial bans on particular types of research, such as, for instance, a ban on the use of all embryos for stem cell research created for that purpose. The Court's fundamental rights jurisprudence suggests that such a ban would be considered a direct infringement only if it imposed an "undue burden" on the right of inquiry. (*Planned Parenthood of Southeastern Pa. v. Casey* 1992; *Zablocki v. Redhail* 1978).

[16] The lowest level of scrutiny, referred to as minimum scrutiny, requires only that the government's interest be rationally related to a legitimate interest. This extremely lax standard, which almost never results in invalidation of a law or regulation, is the one ordinarily applicable to liberty interests other than those few recognized as fundamental or otherwise specially protected by the Due Process Clauses.

doubtful), it would not give it the weight it has afforded fundamental liberties such as reproductive freedoms, the right to marry or the right of parents to make decisions concerning their children. Although good arguments could be made that the right to inquire is as fundamental to individual autonomy as the right to control one's procreation or to raise a child, the Court would likely find that even a total ban on a line of research is not as serious an intrusion on individual autonomy as is, for instance, a ban on abortion. Looking to the other side of the equation, the Court would likely doubt its competence to accurately assess the dangers that might arise from unconstrained research. Thus if the Court were to recognize a broad right to research, it would probably give it a fairly modest weight. Specifically, it would likely subject direct infringements of the right to a rather weak form of intermediate scrutiny, with incidental infringements being subject to virtually no scrutiny at all.

Strict versus Intermediate Scrutiny

The hypothetical prosecution of Dr. Stein for successfully cloning a human provides an opportunity to consider how these various levels of scrutiny would apply in practice. In support of the constitutionality of the ban, the government would likely assert several interests, including preventing the risk that (1) the clone will have physical problems, such as deformity and premature aging; (2) the clone will suffer from psychological problems such as "a diminished sense of individuality and a decreased sense of privacy;" and (3) there will be decreased variation in the human gene pool, "leaving humans more vulnerable to disease and adverse environmental conditions" (Irwin 2005, pp. 1528–1529). It is fairly certain that none of these interests would pass muster under strict scrutiny, at least not as that test is ordinary applied.

The first two interests—fear that the clone will be either physically or psychologically abnormal—while important, are hardly compelling interests sufficient to justify infringement of fundamental constitutional rights. Surely the "diminished sense of individuality" that might affect identical twins would not be sufficient grounds to force a woman carrying twins to abort one of them. Nor is the fact that a child is certain (let alone at risk) to be born with a serious physical defect a compelling enough reason to force his mother to abort the pregnancy. While protecting the human gene pool from a loss in the genetic variation necessary for the health of the human race might, in the abstract, be a compelling government interest, strictly controlling the number of clones is a much less restrictive means of vindicating this interest than is a total ban on the procedure.

The cautious tenor of the Supreme Court's recent substantive due process jurisprudence makes it extremely doubtful that a ban on human cloning would come to the Court with the strong presumption against its validity inherent in a strict scrutiny analysis. Rather, the Court would at most balance the relevant interests without any presumption about the constitutionality of the regulation, a mode of analysis captured by intermediate scrutiny. Indeed, because of the difficult health and safety issues that would often be present in right-to-research cases, any presumption would likely be in favor of the constitutionality of laws restricting arguably dangerous research. Under such a lenient form of intermediate scrutiny,

the Court would likely find each of the asserted interests sufficiently important, and with the possible exception of the interest in preserving variation in the human gene pool, would also likely find the ban sufficiently related to those interests. Accordingly, the Court would likely uphold a ban on human cloning.[17]

Legal Moralism and Constitutional Rights

It can be fairly asked what meaningful protection such modest judicial scrutiny would afford the right to research. Significantly, it might render so called "legal moralism" an inadequate justification for prohibiting a line of research. "Legal moralism" is the view "that the law can legitimately be used to prohibit behaviors that conflict with society's collective moral judgments even when those behaviors do not result in physical or psychological harm to others" (Himma 2009). Where constitutional rights are not at stake, government in the United States may constitutionally prohibit an activity to on the ground that it conflicts with society's view of morality (*Paris Adult Theatre I v. Slaton* 1973).[18] Conversely, the government's interest in morality will ordinarily not be sufficient to justify infringing a constitutional right, even one of less than fundamental importance (*Lawrence v. Texas* 2003).

Suppose the harm-based justifications for banning cloning discussed above turned out to be untenable (i.e., there was no evidence that cloning would cause any physical or psychological defects or threaten the human gene pool). The government would then be left with arguing that such a method of human reproduction should be banned because it was immoral, a justification that would likely be deemed insufficient even under a lenient version of intermediate scrutiny appropriate to the protection of a liberty interest of moderate weight. Similarly, such modest scrutiny would likely result in the invalidation of a ban on moral grounds of all stem cell research, even on unused embryos created for in vitro fertilization that would otherwise be destroyed.

A ban on use of embryos created specifically for stem cell research would present a somewhat more difficult question. The government could argue that once created, an embryo is a human life that has interests of its own that would be violated by using it for experimentation or even for growing cells for the benefit of others. And even if embryos are deemed to have no interests of their own because not yet sentient, the government could argue that creating life for instrumental purposes promotes disrespect for the sanctity of all human life. The interest in protecting the sanctity of all human life, while closely related to the interest in general morality, is

[17] Interestingly, Irwin also concludes that the Court would, despite the application of strict scrutiny, uphold a ban on human cloning. This conclusion puts in doubt whether despite the label "strict scrutiny" Irwin's analysis really subjects the ban to the rigorous review the Court usually applies under that rubric. In any event, it is clear the scrutiny she applies in her analysis is something less rigorous than the Court ordinarily applies when a regulation directly infringes a fundamental liberty interest.

[18] See also *Barnes v. Glen Theatre, Inc.* 1991, p. 575 (Scalia, J., concurring) ("Our society prohibits, and all human societies have prohibited, certain activities not because they harm others but because they are considered … immoral. … [T]here is no doubt that, *absent specific constitutional protection for the conduct involved*, the Constitution does not prohibit [prohibitions] simply because they regulate 'morality.'") (emphasis added).

arguably something more substantial. While the abortion cases tell us that the governmental interest in protecting pre-viable embryonic life is not a compelling state interest sufficient to outweigh fundamental liberty interests, it may be weighty enough to outweigh a scientist's right to research.

In his contribution to this symposium Leon Kass reports that the proposals of the President's Council on Bioethics, of which he is a member, "would place the burden of persuasion on the innovators who would transgress existing moral boundaries, rather than on the defenders of those boundaries—in protecting the reproductive line between human and animal, in assuring women's uteruses are not used as experimental laboratories or organ farms, in guaranteeing to each child a normal biological link to one genetic mother (both of them adults), and in preventing the patenting or commodification of the living human organism, at all stages of development" (Kass 2009). While some of these proposals would seem to be instances of legal moralism (e.g., "protecting the reproductive line between human and animal"), others have justifications that are arguably based in preventing harm to others (e.g., "assuring women's uteruses are not used as experimental laboratories or organ farms.") To the extent, however, that any of these proposals can be justified only by the interest in morality apart from preventing harm to others, then recognizing even a moderately weighty right to research would likely make these proposals unconstitutional if enacted into law. More generally, and directly contrary to the express desire of Kass and the Council, recognition of such a right would put the "burden of persuasion" not on "the innovators who would transgress existing moral boundaries" but rather on the "defenders of those boundaries." Specifically, recognition of a constitutional right of even moderate weight would require these defenders of moral boundaries to demonstrate that the ban on the research that they propose is justified by something more than the view that the research conflicts with "society's collective moral judgments."

In the final analysis, though, and despite good arguments that can made to the contrary, the Court will in my view be reluctant to recognize even a modest right to research under its substantive due process jurisprudence. While it might invalidate an extremely intrusive but weakly justified regulation of scientific inquiry, it would probably do so on some narrow ground that would be difficult to generalize into a meaningful right to research.

Conclusion

Suppression of problematic facilitative scientific speech and bans on scientific research both present difficult constitutional questions and do so for the same reason. Both activities inhabit an ambiguous zone between the realm of fundamental individual rights, which government may not infringe without extraordinarily powerful justification, and the domain of ordinary policy decisions, which should remain fairly unconstrained by judicially enforceable constitutional rights. As between facilitative scientific information and ordinary scientific research, it is the latter that has the closer connection with interests of identifiable individuals. Although dissemination of scientific information might promote the *collective*

audience interest in public and private decision making, suppression of this information will rarely impair a core free speech interest of a particular individual. In contrast, bans on an entire line of scientific inquiry might well have direct impact on an individual researcher's interest in free thought and inquiry.

Despite its more tenuous connection with fundamental individual interests, facilitative scientific speech is, ironically, likely to receive greater constitutional protection than will scientific research. Peripheral to core free speech norms though they may be, these audience interests are at least part of a well-established right that is firmly rooted in the text of the Constitution. In contrast, the best argument for a constitutional right to research is grounded in substantive due process, a jurisprudence rooted neither in Constitutional text nor structure that, in the Court's own assessment, brings it close to illegitimacy. It is therefore unlikely that scientific research will at anytime in the near future receive any significant constitutional protection.

References

Alberts, B. (2005). Modeling attacks on the food supply. *Proceedings of the National Academies of Science, 102*(28), 9737–9738 (Editorial).
Barnes v. Glen Theatre, Inc., 501 U.S. 560 (1991).
Bernstein v. Dep't of Commerce, WL 838163 (N.D. Cal. Apr. 19, 2004).
Bernstein v. United States Department of Justice, 176 F.3d 1132, 1135 (9th Cir. 1999a), *withdrawn, rehearing granted en banc*, 192 F.3d 1308 (9th Cir. 1999b).
Bowers v. Hardwick, 478 U.S. 186 (1986).
Brandenburg v. Ohio, 395 U.S. 444 (1969).
Branzburg v. Hayes, 408 U.S. 665 (1972).
Buckley v. Valeo, 424 U.S. 1 (1976).
Central Hudson Gas v. Public Service Commission, 447 U.S. 557 (1980).
City of Erie v. Pap's A.M., 529 U.S. 277 (2000).
DVD Copy Control Ass'n v. Bunner, 75 P.3d 1 (Cal. 2003).
Dworkin, R. (1977). *Taking rights seriously*. Cambridge: Harvard University Press.
Dworkin, R. (1996). *Freedom's law: A moral reading of the American Constitution*. Cambridge: Harvard University Press.
Eldred v. Ashcroft, 537 U.S. 186 (2003).
Globe Newspapers v. Superior Court, 457 U.S. 596 (1982).
Hernstein, R. J., & Murray, C. (1994). *The bell curve: Intelligence and class structure in American life*. New York: Free Press.
Himma, K. E. (2009). *Philosophy of law, The Internet encyclopedia of philosophy*. Accessed May 21, 2009, from http://www.utm.edu/research/iep/l/law-phil.htm#SSH2a.i
Houchins v. KQED, Inc., 438 U.S. 1 (1978).
Irwin, D. R. (2005). Freedom of thought: The first amendment and scientific method. *Wisconsin Law Review, 2005*, 1479–1533.
Junger v. Daley, 209 F.3d 481 (6th Cir. 2000).
Kass, L. R. (2009). Forbidding science: some beginning reflections. *Science and Engineering Ethics* (this issue).
Lawrence v. Texas, 539 U.S. 558 (2003).
MacArthur, A. P. (2007). The NSA phone call database: The problematic acquisition and mining of call records in the United States, Canada, the United Kingdom, and Australia. *Duke Journal of Comparative and International Law, 17*, 441–481.
McDonald, B. P. (2005). Government regulation or other "abridgments" of scientific research: The proper scope of judicial review under the first amendment. *Emory Law Journal, 54*, 989–1091.

Mostow, P. (1994). Like building on top of Auschwitz: On the symbolic meaning of using data from the Nazi experiments, and on Non-Use as a Form of Memorial. *Journal of Law and Religion, 10*, 403–431.
NAACP v. Claiborne Hardware Co., 458 U.S. 886 (1982).
National Commission on Egg Nutrition v. FTC., 570 F.2d 157 (7th Cir. 1977).
Paris Adult Theatre I v. Slaton, 413 U.S. 49 (1973).
Planned Parenthood of Southeastern Pa. v. Casey, 505 U.S. 833 (1992).
Playboy Entertainment Group, Inc. v. United States, 529 U.S. 803 (2000).
Post, R. C. (1988). The constitutional concept of public discourse: Outrageous opinion, democratic deliberation, and hustler magazine. *Harvard Law Review, 103*, 603–686.
Post, R. C. (1995). Recuperating first amendment doctrine. *Stanford Law Review, 47*, 1249–1281.
Post, R. C. (2000). Encryption source code and the first amendment. *Berkeley Technology Law Journal, 15*, 629–723.
Redish, M. H. (1982). The value of free speech. *University of Pennsylvania Law Review, 130*, 591–645.
Robertson, J. A. (1977). The scientist's right to research: A constitutional analysis. *Southern California Law Review, 51*, 1203–1279.
Scanlon, T. M. (1972). A theory of freedom of expression. *Philosophy and Public Affairs, 1*(2), 204–226.
Schneider v. Smith, 390 U.S. 17 (1968).
Spence v. Washington, 418 U.S. 405 (1974).
Sullivan, K. M., & Gunther, G. (2007). *Constitutional law* (16th ed.). New York: Foundation Press.
Texas v. Johnson, 491 U.S. 397 (1989).
United States v. Progressive, Inc., 467 F. Supp. 990 (E.D. Wis. 1979).
United States v. Wenger, 427 F.3d 840 (10th Cir. 2005).
Universal City Studios v. Corley, 273 F. 3d 429 (2d Cir. 2001).
Virginia State Board of Pharmacy v. Virginia Citizens Consumer Council, Inc., 425 U.S. 748 (1976).
Volokh, E. (2005). Crime-facilitating speech. *Stanford Law Review, 57*, 1095–1222.
Washington v. Glucksberg, 521 U.S. 702 (1997).
Wein, L. M., & Liu, Y. (2005). Analyzing a bioterror attack on the food supply: The case of botulinum toxin in milk. *Proceedings of the National Academies of Science, 102*(28), 9984–9989.
Weinstein, J. (1999). *Hate speech*. Boulder: Westview Press, Pornography and the Radical Attack on Free Speech Doctrine.
Weinstein, J. (2004). Speech categorization and the limits of first amendment formalism: Lessons from Nike v. Kasky. *Case Western Reserve Law Review, 54*, 1091–1142.
Weinstein, J. (2007). Institutional review boards and the constitution. *Northwestern Law Review, 101*, 493–561.
West Virginia Board of Education v. Barnette, 319 U.S. 624 (1943).
Zablocki v. Redhail, 434 U.S. 374 (1978).
Zemel v. Rusk, 381 U.S. 1 (1965).