JULY 6, 2007 Lefcourt + Dershowitz
to Sloman

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BY FEDERAL EXPRESS

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Jeffrey Epstein

Dear Messrs. Sloman, Menchel and Lourie and Ms. Villafaña:

We write as counsel to Jeffrey Epstein to follow-up on our meeting on June 26, 2007. We thought the meeting was extremely productive and appreciate your giving us the opportunity to engage you on the facts, law and policy that will inform any decision you make on how and whether to proceed.

I. 18 U.S.C. §2422(b) Has No Applicability to the Facts Here.

Even assuming the facts as you believe them to be, as demonstrated below, a prosecution under 18 U.S.C. §2422(b) would violate the explicit terms of the statute, pose insurmountable constitutional barriers, and be unprecedented, unwise, and utterly inappropriate. This statute, with its mandatory minimum sentence[1] was designed to reach

[1] The statute in effect during the events at issue carries a mandatory five-year period of incarceration. The current ten-year mandatory minimum was instituted in 2006.

those who deliberately, knowingly, and intentionally target and exploit children through the internet. Though the literal language may superficially apply to a wider variety of behaviors, we submit that the statute cannot properly be used to prosecute what have traditionally been viewed as state offenses, even if some facility or means of interstate commerce can be said to have been used by someone at some point during the course of events.

1. Congress's Purpose

Section 2422(b), the so-called "Internet Luring Statute", addresses online enticement of children. The subsection was included in Title [redacted] of the Telecommunications Act of 1996, entitled "Obscenity and Violence", after the Senate Judiciary Committee held a hearing regarding child endangerment via the internet. *See* H.R. Conf. Rep. No. 104-458, at 193 (1996), *quoted in United States* [redacted] *Searcy*, 418 F.3d 1193, 1197 (11th Cir. 2005); *see also* K. Seto, "Note: How Should Legislation Deal with Children and the Victims and Perpetrators of Cyberstalking?" 9 *Cardozo Women's L.J.* 67 (2002).

In enacting the statute, Congress recognized that young people were using the internet in ever-increasing numbers, and it was proving to be a dangerous place. According to a DOJ study, one in five youths (aged 10 to 17) had received a sexual approach or solicitation over the internet in the previous year. One in 33 had received an "aggressive sexual solicitation", in which a predator had asked a young person to meet somewhere or called a young person on the phone. U.S.D.O.J., Office of Justice Programs, *OVC Bulletin*," Internet Crimes Against Children" (12/2001); www.ojp.usdoj.gov/ovc/publications/bulletons/internet_" 2_2001/internet _2_01_6.html.

Congress saw that, with so many children online, the internet created a new place – cyberspace – where predators could easily target children for criminal acts. Use of the internet, which occurs in private, and the secrecy and deception that acting in cyberspace permits, eliminated many of the risks predators face when making contact in person, and presented special law enforcement problems that are difficult for any local jurisdiction to tackle. The mandatory minimum sentence for a violation of this section was increased from five years to ten years in 2006, by virtue of the Adam Walsh Child Protection and Safety Act of 2006, which also eliminated any statute of limitations. *See* 18 U.S.C.

§3299.[2] The law was named in memory of Adam Walsh who, 25 years earlier, had been abducted from a department store and was later found murdered, and whose parents had become advocates for missing children. In his signing statement, President Bush noted that it increased federal penalties for crimes against children, imposing "tough mandatory minimum penalties for **the most serious crimes against our children**." 2006 U.S.C.C.A.N. S35, 2006 WL 3064686 (emphasis added). The five-year mandatory minimum it replaced was itself established as part of the PROTECT Act of 2003, another law designed to strengthen the government's ability to deal with certain dangerous sexual predators who exploited children in ways the states had been unable to address fully.[3]

2. General Overview

It must be remembered that §2422(b), by using the phrase "any sexual activity for which any person can be charged with a criminal offense",[4] in some sense incorporates all the sex offense laws of all 50 states, in all their variety and in all their ambiguity. This in itself raises questions of the utmost seriousness, implicating fairness and the due process clause. It also constitutes an extreme example of federal pre-emption, or, more precisely, the wholesale annexation of the enforcement responsibility of each of the 50 states' sex-related crime statutes – whether felony, misdemeanor or violation – wherever there has been use of the ever-present wires. To make every state sex "offense" involving a person under 18 potentially into a mandatory minimum ten-year federal felony without any statute of limitations is certainly not what Congress had in mind when it enacted §2422(b).

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[2] Other federal crimes with ten-year mandatory minimum involve very serious acts. *See, e.g.*, 18 U.S.C. §2113(e) (bank robbery where a person is killed or kidnapped); 18 U.S.C. §924 (involving discharge of firearm).

[3] Section 2422(b) has always carried a substantial penalty. When first enacted, the maximum sentence it permitted was ten years. Pub.L. 104-104, Title [redacted], Sec. 508, 110 Stat. 137. After that, the maximum was increased to 15 years. Pub.L. 105-314, Title I, sec, 102, 112 Stat. 2975 (Oct. 30, 1998 to April 29, 2003).

[4] A phrase which, by itself, and in the context of the remainder of the statute, raises mind-numbing questions as to what, exactly, is proscribed.

The bulk importation of complex bodies of state law is highly problematic, and strongly counsels that such matters should be left to the states except in those rare circumstances where both a federal interest is clear and weighty, and the states are for some reason incapable of acting. Like issues of family law, these issues are quintessentially of state concern within our federal system.

State laws regarding both sexual activity and the age of consent to engage therein are hugely varied, reflecting different histories, values, politics, and personalities. *See* Richard A. Posner & Katharine B. Silbaugh, *A Guide to America's Sex Laws* (1996). The various and shifting societal reasons underlying those laws, and the societal pressures operating in the area, where sexual mores change over time, complicate the matter even further. *See generally* Richard A. Posner, *Sex and Reason* (1992). The history of the Mann Act confirms the caution with which the federal government should approach this entire area. For example, historically, the Act was used by some prosecutors in some jurisdictions to prosecute acts – such as a man traveling with his paramour – which, we submit, never implicated a legitimate federal concern. *See generally* D.J. Langum, *Crossing the Lines: Legislating Morality Under the Mann Act* (1994).

Even where there is broad agreement that certain conduct should be criminalized, the various states treat the very same conduct differently; to apply such laws selectively by different federal prosecutors would undermine further what uniformity does exist. In New York, for example, a 50 year old man who patronizes a 15 year old prostitute is guilty of a Class A misdemeanor. New York Penal Law §230.04. If §2422(b) were read expansively, then such person would face a 10-year mandatory minimum if he used the telephone to set-up his date with the young prostitute, **even if the date never happened**. And that would be so even if the prostitute were 17 ½ (and despite the fact that in New York the age of consent is 17, since prostitution is a "sexual offense" in New York). Clearly, these are applications and outcomes Congress did not contemplate when it enacted the law.

Instead, these are matters best left to state law and state law enforcement. In the state, prosecutors and law enforcement authorities, who have far more experience dealing with sexual crimes, can exercise their discretion as to whom to prosecute and for what charges, taking into account both local attitudes and the wide range of circumstances that may exist when sexual offenses, or possible sexual offenses, involving minors were, or may have been, committed. That is particularly so since state laws generally permit the exercise of sentencing discretion, allowing the punishment to fit both the crime and the

perpetrator. Section 2422(b), with its ten-year mandatory minimum is far too blunt a tool to use in any circumstances except the narrow, clear-cut, and egregious circumstances Congress had in mind when it enacted this law.[5]

Though §2422(b) is susceptible to multiple interpretations, it was designed to address a specific a problem with which Mr. Epstein's case has nothing in common. If stretched to reach beyond the core concern of the statute, a host of problems immediately arise. A simple reading of the words of the statute leaves any reasonable reader with far more questions than answers as to what is illegal. Any attempt to apply the statute to Mr. Epstein's situation highlights the many problems of vagueness, overbreadth, and simple incomprehensibility lurking in or just below the statute's text.

3. The Statute's Text And Its Thrust

Section 2422(b) currently provides:

> Whoever, using the mail or any facility or means of interstate or foreign commerce, or within the special maritime and territorial jurisdiction of the United States knowingly persuades, induces, entices or coerces any individual who has not attained the age of 18 years, to engage in prostitution or any sexual activity for which any person can be charged with a criminal offense, or attempts to do so, shall be fined under this title and imprisoned not less than ten years or for life.

The statutory language and reported decisions confirm the statute's important, but narrow, focus: the luring of children over the internet. Unlike 18 U.S.C. §§2241 *et seq.*,

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[5] Penalties under state statutes criminalizing online enticement also vary widely. According to the National Center for Missing and Exploited Children, though the offense can be a felony in all states, 15 states permit misdemeanor sentences in some cases (generally where the victim is 14 or older). Nineteen states classify online enticement as a felony, but grant judges statutory discretion to sentence offenders to less than one year in prison /missingkids/servlet/NewsEventServlet?LanguageCountry=en... 6/28/2007.

§2422(b) does not establish any federal sex crimes with a minor. Section 2422's subject is not sex or sexual activity or face-to-face sexual exploitation of minors. Such behavior remains a matter of *state*, not *federal*, concern. The plain language of the statute mandates focus on the *communication* and demands that the knowing "persuasion", "inducement", "enticement" or "coercion" be done "**using** the mail or any facility or means of interstate . . .commerce" (emphasis added). Any other reading would violate constitutional principles of fair warning, notice, lenity and due process. Additionally, any broader reading would violate the clearly stated intent of Congress that enacted the law and the President who signed it. It would also exceed the authority of Congress under the Commerce Clause by federalizing virtually all state sex offenses involving people under the age of 18.

Section 2422(b) defines a crime of *communication*, not of contact. It makes unlawful a narrow category of communications, ones not protected by the First Amendment. Both the attempt and the substantive crime defined by §2422 are complete at the time when *communication* with a minor or purported minor takes place; the essence of the crime occurs *before* any face-to-face meeting or any sexual activity with a minor, and regardless of whether any meeting or activity ever occurs.

Turning the statute on its head by first looking at the alleged sexual activities and then seeking to find a mailing, a use of the wires, or the involvement of another facility or means of interstate commerce as a pretext for the invocation of federal jurisdiction would be without precedent and make a narrowly-focused statute into virtually a complete federalization of all state sex offenses involving minors.

4. The Statute Is Violated Only If A Facility Or Means Of Interstate Commerce Is Used To Do the Persuading Or Inducing

Though the statute raises several difficult issues of construction, on one point it is clear and unambiguous: To be guilty of a crime under §2422(b), the mail or a facility or means of interstate commerce must be used **to do the persuading or inducing**. As the Court wrote in *United States* [redacted], 165 F.3d Appx. 586, 2006 WL 226038 (10th Cir. 2006), to prove a violation, the government must show "(1) **the use of a facility of interstate commerce**; (2) **to knowingly persuade**, induce, entice or coerce, as well as the other elements. *See also United States* [redacted] *Bolen*, 136 Fed. Appx. 325, 2005 WL 1475845 (11th Cir. 2005).

The statutory language can bear no other construction. The words "whoever, using . . . knowingly persuades . . ." necessarily requires that the "whoever" must "use" the interstate facility to knowingly persuade. That is, the word "using" is in the present, not the past, tense. Thus, the "using" must occur at the same time as the "persuading". If the statute meant otherwise, it could and would have been drafted differently: "whoever having used the mail and knowingly persuades" or "whoever uses the mail and knowingly persuades". But, as it is written, the actor must use the interstate facility ***to*** persuade or ***to*** entice, or to attempt to do so; use of the instrumentality cannot be incidental or peripheral.

Indeed, assuming, *arguendo*, that the grammar and structure of the statute would allow another interpretation – which we believe it does not – nevertheless the obvious, straightforward reading controls. Anything else would violate the rule of lenity, requiring strict construction of penal statutes, as well as the requirement of fair notice guaranteed by the due process clause. [6] As Thomas Jefferson put it in 1823: "Laws are made for men of ordinary understanding, and should therefore be construed by the ordinary rules of common sense. Their meaning is not to be sought for in metaphysical subtleties, which may make any thing mean every thing or nothing, at pleasure".

According to one of the world's leading experts on grammar and specifically, the syntax and semantics of verbs, these rules of "ordinary understanding" and "common sense" dictate that

> . . . an English speaker, reading the statute, would naturally understand it as applying only to persuasion (etc.) that is done while "using the mail" (etc.). To understand it as applying to persuasion (etc.) done subsequent to the use of

[6] We note that the structure of this statute is radically different from the structure of §1341, the mail fraud statute. There, the statute first describes the fraud and recognizes the federal concern by requiring, for purposes of executing such scheme or artifice, that the defendant use the mail. Section 2422(b) on the other hand defines the crime as using the mail to knowingly persuade, etc. The difference in the language and structure of the two crimes clearly shows that with §2422(b), using the mail to knowingly persuade is the essence of the crime.

> the mail, phone, etc., would be an unnatural and grammatically inaccurate reading of the language. [7]

That the statute is so limited is also confirmed by the fact that prosecutors have clearly understood this limitation. After conducting extensive research, we find no case of a defendant being prosecuted under §2422(b) where he has used the internet or the telephone, and then, by *some other means*, such as personal contact, attempted to persuade, induce, or entice. On the contrary, all §2422(b) prosecutions we have reviewed are **premised** on a defendant's use of the internet (or occasionally the text messaging on a phone) **as the vehicle of the inducement**. *See, e.g., United States v. Murrel*, 368 F.3d 1283, 1286 (11th Cir. 2004) (government must ... prove that Murrell, using the internet, acted with a specific intent to persuade a means to engage in unlawful sex).

In fact, we have reviewed every indictment filed in the Southern District of Florida in which there is at least one allegation of a violation of §2422(b). To the extent the facts could be discerned from the indictment, we found no case brought where the use of the means of communication was remote from the persuading, coercion, etc. [8]

Such prosecutorial restraint is in full accord with the legislative intent, which, as set forth above, was to go after internet predators who use the means of communication to persuade, coerce, etc. That the statute also makes reference to the mails and facilities or means of interstate commerce other than the internet does not suggest that the statutory purpose was broader: it is a common *modus operandi* of internet predators to continue to pursue young people whom they first contact on the internet. If the statute were read to make it a crime to induce or persuade where the inducement or persuasion did not occur over the wires, the statute would sweep within it conduct that Congress had no intention of making a federal crime. Given the ubiquity of the telephone in modern life, especially

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[7] To confirm our view of the "plain meaning" of the words, we asked Steven Pinker, Johnstone Family Professor at Harvard University's Department of Psychology and a noted linguist, to analyze the statute to determine the natural and linguistically logical reading or readings of the section. Specifically, we asked whether the statute contemplates necessarily that the means of communication must be the vehicle through which the persuading or enticing directly occurs. According to Dr. Pinker, that is the sole rational reading in the English language. *See* Letter annexed at Tab "A" at 3.

[8] Annexed at Tab "B" is a chart in which each of the cases and its relevant facts are listed.

in the lives of young people, de-coupling the "persuasion/enticement" element from the "use of the interstate facility" would make virtually any sexual activity with a minor, chargeable under state law, a federal offense – with no statute of limitations and a mandatory ten-year minimum sentence.

Indeed, given that the interstate highway system is itself an avenue of interstate commerce, *United States v. Horne*, 474 F.2d 1004, 1006 (7th Cir. 2007), allowing a prosecution wherever a means or facility of interstate commerce is used and a forbidden inducement later occurs, would mean that anyone who used the interstate highways, and then, at some other time, induced a minor face-to-face to engage in forbidden activity (or attempted to do so), would be subject to the mandatory ten years. The complete federalization of sex crimes involving children would have occurred, though there is no indication whatsoever that such a sea change in the federal/state balance was intended or is even needed.

Moreover, such an expansive reading, even if permissible, would very likely exceed the Commerce Clause power as the Supreme Court presently construes it. In *United States v. [redacted]*, 514 U.S. 549 (1995), the Supreme Court struck down the Gun-Free School Zones Act, holding that it exceeded Congress's Commerce Clause authority. In so ruling, the Court reaffirmed a set of fundamental principles, including that the powers delegated to the federal government are few and defined, and that this "constitutionally mandated division of authority was adopted by the Framers to ensure protection of our fundamental liberties." *Id.* at 552, *quoting Gregory v. Ashcroft*, 501 U.S. 452, 458 (1991). The [redacted] majority concluded that the statute before the Court "upsets the federal balance to a degree that renders it an unconstitutional assertion of the commerce power." *Id.* at 580. In so ruling, the Court expressed its concern that an overly expansive view of the interstate Commerce Clause "would effectively obliterate the distinction between what is national and what is local and create a completely centralized government." *Id.* at 557.

Making it clear that the Court meant what it said in [redacted], five years later, in *United States v. Morrison*, 529 U.S. 598 (2000), the Court struck down the civil remedy provision of the Violence Against Women Act of 1994, ruling that it, too, was beyond Congress's Commerce Clause powers. Once again, the majority expressed concern that "Congress might use the Commerce Clause to completely obliterate the Constitution's distinction between national and local authority." *Id.* at 615.

To the extent that §2422(b) criminalizes the use of the internet (or telephone) by a sexual predator to target a vulnerable minor and to convince, or to try to convince, her to engage in conduct proscribed by law, the statute may not be unconstitutional on its face. *See United States v. Tykarsky*, 446 F.3d 458, 470 (3d Cir. 2006) (both §§ 2422(b) and 2423(b) "fall squarely within Congress's power to regulate the first two categories of activities described in [redacted]"). The statute would, however, be plainly unconstitutional if it were applied to situations like Mr. Epstein's, where neither the telephone nor the internet was used in that fashion, and where the use of the telephone was, *at most*, a tenuous link in a chain of events that may, or may not, have preceded or followed sexual contact with a minor.[9] In other words, if the instrumentality of commerce is not the vehicle used to facilitate the harm Congress is trying to address, but is simply a "jurisdictional hook," the hook is too weakly connected to the problem (sexual crimes against minors) to sustain the statute as a proper exercise of Commerce Clause power.

Questions about the nature of federalism, and, specifically, just how far the federal government may go into matters of traditionally state concern, will continue to arise and will be answered case-by-case. As Justice O'Connor said in her dissent in *Gonzales v. Raich*, 545 U.S. 1, 47 (2005), ". . . the task is to identify a mode of analysis that allows Congress to regulate more than nothing . . . and less than everything. . ." (O'Connor, J. dissenting). *United States v. Ballinger*, 395 F.3d 1218 (11th Cir. 2005), illustrates the difficulty of the task. In that case, the deeply split *en banc* Court considered whether and to what extent the Commerce Clause authority included the power to punish a church arsonist who had traveled in interstate commerce to commit his arsons.

Though clearly not settled, what is clear is that Congress's specification of a jurisdictional element such as the use of an instrumentality or channel of interstate

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[9] As can be readily noted on the chart at Tab "B", to the extent discernable, **every** case brought under §2422(b) in this district includes use of the internet. There are only four reported cases in the Eleventh Circuit involving use of the phones only: three of them concern telephone calls to travel agencies advertising overseas underage sex tours and involved explicit talk of sexual activity with known minors. A fourth is *United States v. Evans*, 476 F.3d 1176 (11th Cir. 2007) (11th Cir, 2007). But there, in facts far different from those presented here, the defendant "**admitted** using both a cellular telephone and a land-line telephone to entice Jane Doe to engage in prostitution" (emphasis added). That admission makes *Evans* no precedent for a prosecution here, since there is no evidence the phones were used "to entice".

commerce does not, in and of itself, end the inquiry. Where the use of such instrumentality is far removed from the conduct being targeted (in the case of §2422(b), sexual exploitation of children), the lack of any basis for federal jurisdiction presents itself squarely.

In Mr. Epstein's case, since the crime being considered (as Congress intended) is the use of the internet by internet predators to target and lure vulnerable children to engage in illicit sex, the law is arguably within Congress' Commerce Clause powers. But Mr. Epstein's conduct would be outside the law's scope. If you were to contend that *any* use of the telephone which is connected in any fashion to an act of sexual misconduct with a minor is within the statute's scope, Congress would then have reached well into traditional state spheres, and there is a powerful argument that Congress would have been acting in excess of its Commerce Clause authority.

Elimination of Constitutional uncertainty regarding §2422(b) depends upon confining it to situations where an instrumentality of interstate commerce has **itself** been used for an immoral or injurious purpose. Statutes must be read to eliminate serious doubts as to Constitutionality, as long as such a reading is not plainly contrary to the intent of Congress. *United States v. X-Citement Video, Inc.*, 513 U.S. 64, 78 (1994), *citing Edward J. DeBartolo Corp. v. Florida Gulf Coast Building & Constr. Trades Council*, 485 U.S. 568 (1988). At the least, to eliminate questions as to its constitutionality, §2422(b)'s reach must be limited to situations where there is a **very close connection** between the use of an instrumentality of interstate commerce and the persuasion or attempted persuasion that the statute makes a crime.

Moreover, even if, *arguendo*, the expansive reading of the statute would not violate the Commerce Clause – which current case law strongly suggests it would – nevertheless the **federal interest** in prosecuting sexual offenses involving minors where the facility or means of interstate commerce was not the vehicle for committing the crime is so attenuated that no such federal prosecution should be brought.

Here, there is no evidence that Mr. Epstein himself ever persuaded, induced, enticed, or coerced anyone under the age of 18 over the telephone or internet to engage in prostitution or other illegal conduct. Any prosecution would therefore have to be predicated on a theory that he was criminally culpable for a telephone call made by a third party. Such a theory of vicarious liability requires proof beyond a reasonable doubt that the person making the telephone call and Mr. Epstein shared the same criminal intent

and knowledge and, critically, that the shared intent and knowledge existed *at the time* of the communication in question. Absent proof beyond a reasonable doubt that Mr. Epstein had actual knowledge that the person making a telephone call would induce or persuade a specific underage person during the telephone call to engage in unlawful sexual activity or to engage in prostitution, there can be no federal crime.

If the telephone call in question were simply to *schedule* a topless massage, then the call lacked the essential element of inducement, persuasion, enticement, or coercion. If the telephone call in question was to schedule a topless massage (or even more) with a woman whose age was not known by Mr. Epstein to be under 18, it also fails to satisfy the requirements of §2422(b). If Mr. Epstein had not formed the intent to engage in unlawful sexual activity as of the time of the communication (even if he did form the intent thereafter), an essential element of the federal statute is again lacking. If the person making the call had knowledge or a criminal intent or belief not fully shared by Mr. Epstein (for example, Mr. Epstein did not know the telephone call was intended to induce a minor to engage in unlawful activity), the essential element of shared intent and shared knowledge is again lacking.[10] Finally, even if there were a call to schedule a second meeting with someone who had previously been to the Epstein residence, this call lacks the necessary element of persuasion, inducement, or enticing even if the person receiving the call hoped or expected remuneration from the return visit. That is so because the statute focuses on the content of the communication, not on any *quid pro quo* that occurs thereafter at a meeting. The latter conduct is exclusively within the ambit of state prosecution.

5. Other Reasons Why § 2422(b) Does Not Apply

As we demonstrate above, this statute is addressed to those who purposely and intentionally target children. Here, there was no such targeting. As the Sixth Circuit said in rejecting a First Amendment challenge to the statute: "The statute only applies to those who 'knowingly' persuade or entice, or attempt to persuade or entice, minors. *United States v. Bailey,* 228 F.3d 637, 639 (6th Cir. 2000). *See United States v. Panfil*, 338 F.3d

[10] Indeed, this last problem is best illustrated by any calls [redacted] may claim to have made to solicit persons to massage Mr. Epstein. Though Ms. [redacted] may have known the actual ages of the women whom she called at the time she called, and may therefore have known that one or more was in fact under 18, she was clear in speaking to detectives that she never communicated such information to Mr. Epstein. Rather, she understood Mr. Epstein wanted massages from women at least 18 years of age. (Video Interview of [redacted] on October 3, 2005).

1299 (11th Cir. 2003) (scienter requirement discourages "unscrupulous enforcement" and clarifies §2422(b)). Directed towards those who commit "the most serious crimes against children," it cannot properly be used as a trap for the unwary, sweeping within its net all who may – even unwittingly and unintentionally – communicate or otherwise interact improperly with persons who turn out to be minors.

A prosecution of Mr. Epstein would violate the teachings of *Bailey* and *Panfil*. As we believe we persuaded you at the June 26th meeting, Mr. Epstein never targeted minors. On the contrary, what he did – at worst – was akin to putting up a sign saying to all, come in if you are interested in giving a massage for $200. A few among those who accepted the general invitation may have in fact been under 18 (though they lied about that age and said they were 18), but that is, at its worst, comparable to "post[ing] messages for all internet users, either adults or children, to seek out and read at their discretion," which the courts have held does not violate §2422(b).

Thus, for this reason as well, Mr. Epstein's case is far outside the parameters of the §2422(b) cases that have been prosecuted. A key factor common to cases brought under §2422(b) is not present here: Prosecutions under this statute have focused on a sexual predator who used the internet to identify and to communicate with a child or purported child (or a person with influence over such child or purported child), and did so with the intent to arrange to engage in sexual activity with the child, with full knowledge that sexual activity with an individual of that age was illegal. In light of this common and well-accepted understanding, the cases decided under §2422(b) take as a given that its proper application lies ***only*** where the defendant knows or believes the person with whom he is interacting is a child.

Virtually all of the prosecutions brought under §2422(b) resulting in published decisions have involved undercover "sting" operations, involving an essentially standard fact pattern in which over an extended period of time and in the course of multiple conversations on line an undercover agent pretends to be a young teenager. In each of the cases, the prosecution had, from the very words used by the defendant, an all but irrefutable case showing the clear knowledge and intent of the defendant. A prototypical case is *United States* [redacted] *Farner*, 251 F.3d 510 (5th Cir. 2001), where the defendant participated, over time, in instant messaging, e-mail, and follow-up telephone calls with a person who identified herself as 14 years old, engaged in explicit internet conversation, sent her pornographic pictures, persuaded her to meet with him for sexual activity, arranged such a meeting, and traveled to the meeting place. The Fifth Circuit held that

defendant's §2422(b) attempt conviction was valid; it mattered not that the 14 year old was really an adult FBI agent engaged in a sting operation, for the defendant "believed Cindy to be a minor and acted on that belief." 251 F.3d at 512. Our own survey of the cases brought in this district under §2422(b) confirms that prosecutions in this District have also been all but limited to internet sting cases. *See* Tab "B".

In the context of this standard fact pattern involving the internet's use by predators, other Circuits, including the Eleventh, have been unanimous in holding that the non-existence of an actual minor was of no moment; defendant's **belief** that he was dealing with a minor was sufficient to make out the crime. *See United States v. Root*, 296 F.3d 1222, 1227-32 (11th Cir. 2002); *United States v. Sims*, 428 F.3d 945, 959 (10th Cir. 2005); *United States v. Helder*, 452 F.3d 751 (8th Cir. 2006); *United States v. Meek*, 366 F.3d 705, 717-20 (9th Cir. 2004). Likewise, the Circuits have rejected void for vagueness, overbreadth, and First Amendment challenges to the statute, brought in the context of these prototypical prosecutions where the internet was the vehicle of communication and enticement, and the defendant demonstrated in writing his belief that he was dealing with a child well below the age of consent. *E.g., United States v. Tykarsky*, 446 F.3d 458, 473 (3d Cir. 2006); *United States v. Thomas*, 410 F.3d 1235, 1243-44 (10th Cir. 2005); *United States v. Panfil, supra,* 338 F.3d at 1300-01 (11th Cir. 2003).[11]

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[11] There are approximately two dozen Eleventh Circuit cases that include a prosecution under §2422(b), most of which involve the prototypical fact pattern. *See, e.g., United States v. Morton*, 364 F.3d 1300 (11th Cir. 2004), *judgment vacated for Booker consideration*, 125 S. Ct. 1338 (2006); *United States v. Orrega*, 363 F.3d 1093 (11th Cir. 2004); *United States v. Miranda,* 348 F.3d 1322 (11th Cir. 2003); *United States v. Tillmon*, 195 F.3d 640 (11th Cir. 1999); *United States v. Panfil, supra*, 338 F.3d 1299 (11th Cir. 2003); *United States v. Garrett*, 190 F.3d 1220 (11th Cir. 1999); *United States v. Burgess*, 175 F.3d 1261 (11th Cir. 1999); *United States v. Rojas*, 145 Fed. Appx. 647 (11th Cir. 2005); *United States v. Root*, 296 F.3d 1222 (11th Cir. 2002).

United States v. Murrell, 368 F.3d 1283 (11th Cir. 2004), is in the same mold, except that, in that sting operation, the defendant communicated, not with the purported 13 year old girl, but with an undercover agent holding himself out to be the imaginary girl's father. The initial contacts between Murrell and the agent occurred in internet chatrooms named "family love" and "Rent F Vry Yng." Over time, Murrell sought to make arrangements with the girl's father to make his daughter available for sex in exchange for money. After the initial internet communications concerning renting the girl for sexual purposes, further negotiations between the defendant and the undercover occurred via the phone, per the defendant's suggestion. The Eleventh Circuit, framing the issue to be whether the defendant must communicate directly with the minor or supposed minor to violate §2422(b), answered the question in the negative, reasoning that "the

In light of this common and well-accepted understanding, the cases decided under §2422(b) take **as a given** that its proper application lies *only* where the facts demonstrate beyond dispute that the defendant knows or believes the person with whom he is interacting is a minor.

The Ninth Circuit has so held. *United States v. Meek,* 366 F.3d 705, 718 (9th Cir. 2004), held that the term "knowingly" refers both to the **verbs** – "persuades", "induces", "entices", or "coerces" – as well as to the **object** – "a person who has not achieved the age of 18 years," *citing United States v. X-Citement Video, Inc.*, 513 U.S. 64 (1994), and *Staples v. United States*, 511 U.S. 606 (1994). The *Meek* Court wrote:

> The statute requires mens rea, that is, a guilty mind. The guilt arises from the defendant's knowledge of what he intends to do. In this case, knowledge is subjective – it is what is in the mind of the defendant.[12]

The very lengthy sentence under §2422(b) speaks against strict liability, especially since it applies in cases where there is no sexual contact **at all** with **any person**, let alone with a real minor. The Eleventh Circuit's decision in *United States v. Murrell, supra*, reflects this same understanding of the statute. The *Murrell* court wrote that, under the "plain language" of §2422(b), "to prove an attempt the government must

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efficacy of §2422(b) would be eviscerated if a defendant could circumvent the statute simply by employing an intermediary to carry out his intended objective. *Id.* at 1287. Fact patterns similar to Murrell's exist in *United States v. Hornaday*, 392 F.3d 1306 (11th Cir. 2004); *United States v. Houston*, 177 Fed. Appx. 57 (11th Cir. 2006); *United States v. Searcy*, 418 F.3d 1193 (11th Cir. 2005); *United States v. Scott*, 426 F. 3d 1324 (11th Cir. 2005); and *United States v. Bolen*, 136 Fed. Appx. 325 (11th Cir. 2002).

[12] Several Courts of Appeal have held that, in a prosecution under **§2422(a)**, the defendant need not know that the individual that a defendant has persuaded, induced, enticed, or coerced **to travel in interstate commerce** is under the age of 18. *United States v. Jones*, 471 F.3d 535 (4th Cir. 2006), is one of these cases, though its facts are very different, and much more egregious than Mr. Epstein's. Assuming *Jones* was correctly decided and that the government need not prove defendant's knowledge under §2422(a), that still does not answer the question under §2422(b). The two are very different statutes, with different histories and different purposes. And §2422(a), unlike subsection (b), carries no mandatory minimum sentence, let alone ten years.

first prove that Murrell, using the internet, acted **with a specific intent to persuade a minor to engage in unlawful sex**." 368 F.3d at 1286 (emphasis added).[13] *United States v. Root, supra*, 296 F.3d at 1227, follows this pattern, and confirms that, at the time the defendant induces or entices the minor, he must intend to have sexual conduct with a minor or one he believes to be a minor *and* know that such conduct is proscribed. ("Root's statement to task force agents upon his arrest confirmed that he believed he would meet a 13-year-old girl for sex, which he said he knew was wrong but 'exciting'"). *See also United States v. Rojas*, 145 Fed. Appx. 647 (11th Cir. 2005) (unpublished). This *mens rea* requirement applies equally where the completed crime occurs.[14]

Where is the citation?

Finally, *actus non facit reum, nisi mens sit rea* – the act alone does not amount to guilt; it must be accompanied by a guilty mind. This principle of concurrence mandates that the *actus reus* and the *mens reus* concur in time. *See* Paul H. Robinson, *Criminal Law* §4.1 at 217 (1997) (concurrence requirement "means that the required culpability as to the element must exist at the time of the conduct constituting the offense"); LaFave, *Substantive Criminal Law* §3.11(a) (West 1986) (noting that Concurrence is a basic principle of criminal law and "the better view is that there is concurrence when the defendant's mental state actuates the physical conduct"). *See also United States v. Bailey, supra*, 444 U.S. at 402. In this case, the requisite *actus reus* is absent; likewise the required mental state. Even if those two fatal defects could be set aside, nevertheless, there was no concurrence of guilty mind and evil act, providing an additional reason why a successful prosecution under §2422(b) could not be brought.

6. Conclusion

In Mr. Epstein's case, there was no use of the internet to induce, etc., and, given the legislative history and purpose, that is itself dispositive. Nor does the case present any of the dangers associated with internet predators and cyberspace. Not surprisingly

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[13] Otherwise, the police could, for example, conduct a sting operation with a 17 year-old pretending to be an 18 year-old. Such an absurd operation is surely not intended by the statute.

[14] Even the completed crime does not require any sexual activity. Arguably, one commits the attempt offense when the actor, on the internet, asks a known or believed-to-be minor to have sex, even if she says no. The **completed** offense occurs when he takes an additional step, even before any sexual activity and regardless of whether one ever takes place.

then, the statutory language does not fit: Mr. Epstein did not use any facility of interstate commerce to do the forbidden act – to persuade, entice, induce, or coerce – nor did he attempt to do so. Others did use the telephone to make a variety of arrangements for Mr. Epstein's residence in Palm Beach, including getting the house ready for his arrival, checking movie schedules, and making telephone calls to schedule doctor's appointments, personal training, physical therapy and massages. Even if Mr. Epstein could be held responsible for the use of the telephone on his behalf, nevertheless, calls made by others regarding massages were not the statutorily proscribed persuasions or enticements of a known minor to do acts known to be illegal. Within his home, even if Mr. Epstein may arguably have persuaded or induced individuals to engage in forbidden conduct with him, he did not violate §2422(b). If he engaged in such persuasion or inducement, it occurred only face to face and spontaneously.

If such conduct constituted a crime, it would be a classic state offense. The state is the appropriate forum for addressing these issues. Though in our meeting it was asserted that cases under §2422(b) are often brought where there was simply use of a telephone, and casual use at that, it would not from our survey appear to be so on either count – that is, use of a telephone rather than the internet, and use of the means of communication remote from the enticing, etc. This is neither the defendant, nor the factual context, to break new ground.

II. Mr. Epstein Warrants Declination to Prosecute as Exercise of Discretion.

We believe strongly that no federal case would lie under the facts here. Moreover, as we discussed, there is a pending state case against Mr. Epstein which can be resolved in a way that vindicates the state's rights and obligations in this matter.

In considering an appropriate disposition in a case such as this, where the applicability of the statute, both legally and as a matter of policy, raise serious questions, and both the reliability and admissibility of much of the evidence is in doubt, it is useful to consider how best to use the broad discretion you enjoy in choosing whether to prosecute. In this regard, we suggest that having a greater understanding of who Jeffrey Epstein is as a person may help inform how best to proceed.

Jeffrey Epstein was raised in a middle class neighborhood in Brooklyn, New York, by hardworking parents. His father was a laborer and his mother a secretary. They lived comfortably, but were by no means well off. Mr. Epstein's parents instilled a strong work ethic in him, and growing up he held a variety of jobs to support himself, from

driving a taxi cab to working as a mechanic. Any notion that he was born with a "silver spoon in his mouth" should be dismissed.

Although Mr. Epstein is self-made and worked long and hard, he could not have achieved his successes without the personal guidance and support of others. These key people first identified the promise in Mr. Epstein and brought him to Bear Stearns and Company, Inc. There, starting in 1976 at the age of 23 as a floor trader's junior assistant, he became in 1980 a limited partner. Among the very many benefits that his experience there provided was an introduction to the people who ultimately became his clients.

Early in his professional career, Mr. Epstein realized the profound impact that even one person can have on the life of another. His gratitude for the assistance he personally received, and his sense of obligation to provide similar assistance and guidance to others, is in large part, the motive for the primacy of philanthropy in his life or his particular philanthropic interests. Mr. Epstein has devoted a substantial portion of his time, efforts and financial resources to helping others, both on an individual basis and on a more far reaching scope. Mr. Epstein gives generously, of both his time and his financial resources equally to individuals whom he knows personally and well and to those with whom he has had little or no personal contact. Just a few examples:

Some time ago, the two year old son of an employee was diagnosed with retinal blastoma. When told, Mr. Epstein not only gave the employee unlimited time off to attend to his son and promised whatever financial support was needed, but Mr. Epstein made the full list of his medical and research contacts available. The employee was put in contact with a former colleague who was then conducting eye research at Washington University. Mr. Epstein organized several meetings to determine how the colleague could be of assistance, including by arranging for further meetings with experts at Washington University. Though the employee's son lost one eye, he is now an otherwise normal twelve year old who attends private school along with his five siblings, the expenses of which are borne by Mr. Epstein.

Several years ago, a new employee with whom Mr. Epstein had little or no prior contact approached Mr. Epstein to request a change in his medical insurance. It was soon revealed that the employee and his wife were experiencing fertility problems and they were seeking treatments that cost nearly $15,000 per month. Mr. Epstein insisted on paying directly for the treatments, and did so month after month. After each unsuccessful cycle, Mr. Epstein sat with the employee, exploring available alternatives, including adoption, and encouraging the employee to continue additional cycles at Mr. Epstein's. Mr. Epstein referred the employee to medical experts with whom Mr. Epstein

was acquainted and assigned personnel to assist the employee with administrative and secretarial needs that arose in seeking a solution to the problem. Mr. Epstein is now the godfather of the employee's seven-year old twins.

Recently, both a second employee and a consultant of Mr. Epstein each confided that they and their respective spouses were experiencing similar fertility problems. Again, Mr. Epstein offered to pay the uncovered medical costs. The consultant and his wife are now expecting their first child. The second employee continues with infertility treatments.

Two years ago, a building workman approached Mr. Epstein with news that the workman's wife needed a kidney transplant and that the workman's sister-in-law in Colombia was a willing donor. The non English speaking workman had neither the financial resources nor the know-how to get the sister-in-law to the United States. Mr. Epstein arranged for immigration counsel to expedite a visa for the sister-in-law and purchased the plane tickets for the sister-in-law's visit to the United States. The surgery was a success and both patients recovered completely. The sister-in-law flew back to Colombia at Mr. Epstein's expense.

Mr. Epstein is a devoted advocate of personal improvement through education. As a former board member of Rockefeller University, Mr. Epstein has made available academic scholarships to worthy students, most of whom he has had no prior connection to whatsoever. In addition, Mr. Epstein covers the tuition required to send the family members of his employees to nursery, private elementary, middle and secondary schools and colleges. He has funded and personally encouraged continuing education programs for his adult employees and professional consultants.

Among his other acts:

- On a trip to Rwanda to inspect the genocide camps, Mr. Epstein approached the President of Rwanda and offered to help identify and then to fund two worthy Rwandan students to earn undergraduate degrees in the United States. The students, whom Mr. Epstein did not meet until after their second year of studies, both are expected to graduate with honors from the City University of New York in 2008. Notes from each of them are annexed at Tab "C".

- Even to those with less lofty goals, seeking only to advance in their chosen paths, Mr. Epstein freely gives of his time to provide guidance and, when appropriate, financial support. For example, Mr. Epstein has been meeting

monthly with a teenage building workman whose expenses of vocational school are being paid by Mr. Epstein. Each month, Mr. Epstein reviews the workman's school progress and discusses career opportunities. One of the monthly reports is annexed at Tab "D".

- In addition, Mr. Epstein blocks out time each week to meet with young professionals to discuss their career prospects and counsel them regarding appropriate next steps.

Although Mr. Epstein is deeply committed to helping others in very personal and meaningful ways, he has also sought to use his good fortune to help others on a broader basis. Mr. Epstein has sponsored more than 70 athlete wellness programs, building projects, scholarship funds and community interest programs in the United States Virgin Islands alone.

Moreover, Mr. Epstein has given generously to support philanthropic organizations across the United States and around the world, including America's Agenda; Robin Hood; Alliance for Lupus Research; Ovarian Cancer Research Fund; Friends of Israel Defense Forces; Seeds of Peace; the Jewish National Fund; the Hillel Foundation; the National Council of Jewish Women; and the Intrepid Fallen Heroes Fund – to name only a few.

In a feature article about Mr. Epstein in *New York Magazine*, former President Clinton aptly described Mr. Epstein as "a committed philanthropist with a keen sense of global markets and an in-depth knowledge of twenty-first-century science." President Clinton reached this conclusion during a month-long trip to Africa with Mr. Epstein, which Mr. Epstein hosted. The purpose of that trip was to increase AIDS awareness; to work towards a solution to the AIDS crisis; and to provide funding to reduce the costs of delivering medications to those inflicted with the disease.

Both before and after that trip to Africa, Mr. Epstein worked hard to achieve improvements in people's lives on a global basis. He actively sought advancement of his philanthropic goals through his participation and generous support of both the Trilateral Commission and the Council on Foreign Relations. As you may know, the Trilateral Commission was formed to foster closer cooperation among core democratic industrialized areas of the world in the pursuit of goals beneficial to the global population. The Council on Foreign Relations is an independent, national membership organization and a nonpartisan center for scholars dedicated to increase international understanding of world issues and the foreign policy decisions that affect those issues.

Mr. Epstein was part of the original group that conceived the Clinton Global Initiative, which is described as a project "bringing together a community of global leaders to devise and implement innovative solutions to some of the world's most pressing challenges." Focuses of this initiative include poverty, climate change, global health, and religious and ethnic conflicts.

Mr. Epstein has sought to improve people's lives through active participation in worthy scientific and academic research projects, as well. He spent hundreds of hours researching the world's best scientists, and he himself studied as a Harvard Fellow in order to increase his own knowledge in fields that he believed could provide solutions to the world's most difficult problems. He is committed to helping the right researchers find those solutions, especially in the fields of medical science, human behavior and the environment.

In the past four years alone, Mr. Epstein has made grants to research programs at major institutions under the supervision of some of the most highly regarded research professionals and scholars in their fields, including Martin Nowak, a mathematical biologist who studies, among other things, the dynamics of infectious diseases and cancer genetics; Martin Seligman, known for his work on Positive Psychology – that is to say the psychology of personal fulfillment; Roger Schank, a leading researcher in the application of cognitive learning theory to the curricula of formal education; the renown physicist/cosmologist [redacted] Krauss, and many others. Institutions funded include Harvard University; Penn State University; Lenox Hill Hospital (New York); the Biomedical Research and Education Foundation; the Santa Fe Institute; Massachusetts Institute of Technology; Case Western Reserve University; and Harvard Medical School's Institute for Music and Brain Science.

Moreover, Mr. Epstein has sponsored and chaired symposia that have provided a rare opportunity for the world's leading scholars and research professionals to share ideas across interdisciplinary lines. These leaders gather to discuss important and complex topics, including the origin of life, systems for understanding human behavior, and personal genomics.

In order to expand the pool of qualified research professionals actively engaged in addressing the world's numerous problems, Mr. Epstein co-founded, and served as a trustee and actively participated in the selection committee of, the Scholar Rescue Fund. The Scholar Rescue Fund (SRF) is a program of the Institute of International Education, the group that, *inter alia*, administers the Fulbright Scholarship program. The SRF provides support and safe haven to scholars at risk from around the world. Over the past

five years, SRF has made 155 grants to scholars from more than 37 countries. Scholars are placed at host universities in a safe country. More than 87 institutions around the world have hosted SRF scholars to date, including eight of the top ten universities in the United States. Most recently, SRF launched the Iraq Scholar Rescue Project to save scholars in Iraq, many of whom have been particularly targeted for kidnapping and death since the conflict there began. Mr. Epstein is a highly valued member of the selection committee. Just a few articles mentioning these and other projects are annexed at Tab "E".

Even a casual review of the good works large and small in which he has involved himself leads one to conclude that he has a powerful instinct to help others. He does this not simply because he can, but because he has a deeply ingrained desire to do so. In fact, he believes that, as a result of his good fortune, he is obligated to do so.

Since 2000, Mr. Epstein has funded educational assistance, science and research and community and civic activities. As you can see, his philanthropy is not limited to financial support. To the contrary, it has involved the dedication of a remarkable amount of his time and effort and has yielded admirable results. It is noteworthy that a majority of the people he has helped over the years have been those with whom he has had little or no contact, which further confirms that he derives no personal benefit from his good works, other than the personal satisfaction derived from using his good fortune to help others.

The sincere devotion to others evidenced by Mr. Epstein's philanthropic activities is no less apparent in his interpersonal relationships. Mr. Epstein has maintained both long term significant, intimate as well as professional relationships. He remains close personal friends with people with whom he went to high school and, to this day, maintains close business contacts with his former colleagues at Bear Stearns. Those who know Mr. Epstein well describe him admittedly as quirky but certainly not immoral; and overall as kind, generous and warm-hearted. They have remained staunch supporters despite the lurid media attention during this two-year investigation.

Mr. Epstein acknowledges that the activities under investigation, as well as the investigation itself, have had and continue to have an unfortunate impact on many people. With a profound sense of regret, Mr. Epstein hopes to end any further embarrassment to all who are and who may become involved in this serious matter. Resolution of the outstanding charges in the state would put an appropriate end to the matter for everyone.

LAW OFFICES OF
GERALD B. LEFCOURT, P.C.

Again, we and our colleagues thank you for your attention at the June 26 meeting. I welcome any questions or comments you may have and am available to discuss this and any other issues at your earliest convenience.

Very truly yours,

Gerald B. Lefcourt

Gerald B. Lefcourt

Alan Dershowitz

Alan Dershowitz

cc: Lilly Ann Sanchez, Esq.
Roy Black, Esq.

STEVEN PINKER
Johnstone Family Professor

DEPARTMENT OF PSYCHOLOGY
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Professor Alan Dershowitz
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June 28, 2007

Dear Alan,

I'm happy to offer the help of my knowledge in linguistics to determine the natural interpretation of a statute you have inquired about. My comments refer to how a literate English speaker would interpret the statute, based on research on the syntax and semantics of verbs. I consider myself an expert on this topic, having written about it in many scholarly articles and in three books: *Learnability and Cognition* (MIT Press, 1989), *Lexical and Conceptual Semantics* (coedited with Beth Levin; Blackwell, 1992), and *The Stuff of Thought: Language as a Window into Human Nature* (Viking, 2007).

The statute at issue is as follows:

> Whoever, using the mail or any facility or means of interstate or foreign commerce, or within the special maritime and territorial jurisdiction of the United States knowingly persuades, induces, entices, or coerces any individual who has not attained the age of 18 years, to engage in prostitution or any sexual activity for which any person can be charged with a criminal offense, or attempts to do so, shall be fined under this title and imprisoned not less than ten years or for life.

Your question, as I understand it, pertains to the temporal and causal relationship between the person's use of the mail (or other interstate/foreign instrument) and his knowingly persuading (inducing, enticing, etc.) the minor. Simplifying the various disjuncts and subordinate clauses so that we may concentrate on the semantics, the relevant part of the statute is effectively this:

> Whoever, using the mail etc., knowingly persuades a minor to engage in a criminal sexual activity, shall be fined and imprisoned.

So the question is: does this statute apply (1) to someone who uses the mail (or Internet or phone) *and subsequently* persuades a minor, in person, to engage in sex, or does it apply only to (2) someone who persuades a minor, *over the phone* (etc.) to engage in sex? That is, if John phones a woman asking her only to have dinner, and then, at dinner, persuades her to engage in illegal sex, does his behavior fall under the language of the statute?

Linguistically, this boils down to how the appositive gerundive phrase "using the mail" relates to the causative main verb "persuades." The gerundive phrase is playing the semantic role

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of *instrument*: something used as a means to the ends specified by the causative verb. So the question is how an instrument-phrase is ordinarily interpreted. We can clarify this by simplifying even further and substituting concrete events for the abstract ones in the statute:

> (a) John, using a hammer, broke the glass.

Now consider the following scenarios:

> (b) John uses a hammer to bang nails into a piece of wood. Then he puts the hammer down, reaches for a glass, and deliberately smashes the glass against the table.
>
> (c) With his right hand, John hammers in a nail. While he is doing this, he reaches for a glass with his left hand, and deliberately smashes the glass against the table.
>
> (d) John takes a hammer and deliberately swings it against the glass, breaking it.

It's clear that no English speaker would ever use the sentence (a) to describe scenario (b). Similarly, sentence (a) would almost certainly not be used to describe scenario (c): any English speaker would say "*while* using a hammer," not just "using a hammer." The only scenario that can be described by (a) is the one in (d). In other words, the event denoted by the instrumental gerundive phrase must *immediately precede* the event denoted by the causative verb, and the actor has to use the instrument *in order to* bring about the change indicated by the causative verb; that is, it has to be the means to an end.

There is an additional condition that has to be met. Consider scenario (e):

> (e) Mary is holding a glass. John stands behind Mary, and bangs a hammer against an iron bar. The noise startles Mary, who drops the glass, breaking it.

Here, too, it would be pretty weird to use sentence (a) to describe the scenario, even if John intended for the glass to break as a result of the scenario. As far as English verbs are concerned, the only means to the end that counts is the one that *directly* and *immediately* precedes the end. In addition, the way in which the means brings about the end has to be more-or-less stereotyped—the circuitous and unconventional means in this case (startling Mary) renders the sentence unacceptable.

Finally, to be as charitable as possible to alternative interpretations, consider scenario (f):

> (f) A glass is packed in a wooden crate. John smashes the crate with a hammer in order to open it. He reaches for the glass and hurls it against the floor, breaking it.

Even with this scenario it would be very odd to say "John, using a hammer, broke the glass." Once again, the use of the hammer has to the *immediate* cause of the breaking of the glass, not one separated from it by several links in a causal chain.

Getting back to the statute in question, I would conclude that it would naturally apply only to someone who used the Internet or phone (or other relevant facility) as the direct, immediate, and intended means to the end of persuasion: that is, the sexual come-on would have to be on the phone or in the Internet message. If one doubts this, one only has to consider a scenario in which John phones Mary to invite her to dinner, having no sexual intentions whatsoever, and during dinner is struck by her beauty and relaxed by the wine, and decides on

the spur of the moment to try to seduce her. No one could possibly describe that as "John, using the phone, seduced Mary," since he had no such intention at the time he used the phone.

These properties of the use of verbs—immediateness, means-ends, directness, stereotypy—have been discussed in the literature on the lexical semantics of causative verbs for almost forty years. They have also been confirmed in experiments that ask people whether they could use various sentences to describe particular scenarios. I append below a few of the references to the relevant scholarly literature.

My professional conclusion, in sum, is that an English speaker, reading the statute, would naturally understand it as applying only to persuasion (etc.) that is done while "using the mail" (etc.). To understand it as applying to persuasion (etc.) done subsequent to the use of the mail, phone, etc., would be an unnatural and grammatically inaccurate reading of the language.

I hope this helps to clarify your question. Please don't hesitate to be in touch if I can clarify or expand on this analysis.

Sincerely,

Steven Pinker

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Southern District of Florida Cases Charging 18 U.S.C.S. 2422 (b)

Case #	Defendant	Counts	Other Charges	Summary
97-8093	Paul Panunzio	2	2 counts 2422(b)	Use of internet to entice minor to engage in sex activity.
00-6034	John Palmer	2	18 U.S.C.S. 2252A(a)(5)(B)	Use of internet to entice minor to engage in sex activity.
01-0704	Michael Nyberg	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-0734	Franco Sabri	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-0756	Eduardo Alvarez	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-0783	Prem D'Sa	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit

				conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-0961	Jose Mayorga	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-0998	Gustavo Desouza	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-1004	Ferrys Miranda	1	[None]	D met u/c officer (posing as 12 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-1139	James Patterson	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-1174	Roberto [redacted]	1	[None]	Use of internet to entice minor to engage in sex

				activity.
01-6024	James Boutin	2	18 U.S.C.S. 2252A(a)(5)(B)	Use of internet to entice minor to engage in sex activity.
01-6107	Otis Wragg	1	[None]	Use of internet to entice minor to engage in sex activity.
01-6157	Kelly Jones	4	18 U.S.C.S. 2252A(a)(1); 18 U.S.C.S. 2252A(a)(2)(A); 18 U.S.C.S. 2252A(a)(5)(B)	Use of internet to entice minor to engage in sex activity.
01-6185	Byron Matthai	1	[None]	Use of internet to entice minor to engage in sex activity.
01-6203	Anthony Gentile	2	18 U.S.C.S. 2252A(a)(5)(B)	Use of internet to entice minor to engage in sex activity.
01-8073	Jerrold Levy	5	2 counts 2422(b); 18 U.S.C.S. 2252A(a)(2); 18 U.S.C.S. 2252A(a)(5)(B); 18 U.S.C.S. 2252(a)(4)	D communicated with u/c officer (posing as 14 y.o. boy) on internet; D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; D arrested at meeting site. Police obtained SW for D's home and seized computer. Police located another minor boy that D had previously communicated w/ and engaged in sexual activity w/; child pornography also found on computer. (Affidavit attached).
01-8097	John Estevez	1	[None]	D met u/c officer (posing as 13/14 y.o. girl) on internet chat service. D had sexually explicit

				conversations with ofc.; D gave u/c his cell phone #; u/c called D (3 taped phone calls); set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
01-8161	Carlos Navas	1	[None]	Use of internet to entice minor to engage in sex activity.
02-14077	Anthony Murrell	1	[None]	D met u/c officer (posing as a mother with a 13 y.o. daughter) on internet chat room; D was looking to be w/ a mother and daughter. D gave his phone # to u/c. D met same u/c (posing as dad with 13 y.o. daughter) in another chat room; D wanted to rent daughter. D gave his phone # to u/c and u/c called him to speak about arrangements. Next day D & u/c had further conversation thru the chat room. 4 days later D called u/c on phone making meeting arrangements & agreed to pay $300. D arrested at hotel meeting site. (Affidavit attached).
02-14080	Douglas Bourdon	1	[None]	Use of internet to entice minor to engage in sex activity.
02-14081	James Hornaday	1	[None]	D met u/c (posing as father with 2 minor children) in internet chatroom. D looking to have sex with family; u/c called D several times and D had sexually explicit conversations w/

				u/c. D also sent nude photos of himself for minors to see. .
02-20342	Brian Panfil	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; D asked u/c to call him once she reached the meeting point; u/c called; D arrested at meeting site. (Affidavit attached).
02-20408	John Orrega	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
02-20437	Donald Kent	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
02-20705	Mark Obermaier	2	18 U.S.C.S. 1470	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc. D sent obscene photos to u/c and masturbated on webcam for u/c. D gave u/c his phone #; u/c called

				D and D had sexually explicit conversation with u/c on phone.
02-21012	William Yon	3	3 counts of 2422(b)	D contacted 2 15 y.o. girls/students via the internet and had sexually explicit conversations with them. Girls went to police. D set up meeting with u/c ofc. posing as one of the girls for purpose of having sex. D went to meeting site and then returned home. D arrested at home. (Affidavit attached).
02-80042	Samuel Morton	25	2 counts 2422(b); 18 U.S.C.S. 2252A(a)(2); 18 U.S.C.S. 2252(a)(2); 18 U.S.C.S. 2252(a)(4); 18 U.S.C.S. 2253	D met several u/c officers (posing as minor girls) on internet chat service. D had sexually explicit conversation with ofcs. D sent obscene photos to u/c. D had several phone conversations w/ different u/c officers.
02-80072	Todd Kroeber	6	18 U.S.C.S. 2252(a)(2); 18 U.S.C.S. 2252A(a)(2); 18 U.S.C.S. 2252A(a)(5)(B)	Use of facility of interstate commerce to entice a minor to engage in sex activity (does not specify the facility). Knowingly received child pornography. Knowingly distributed child pornography in interstate commerce by computer.
02-80171	Elias Guimaraes	1	[None]	Use of internet to entice minor to engage in sex activity.
03-14028	Edgar Searcy	1	[None]	D met u/c officer (posing as a dad with a 13 y.o.

				daughter) on internet chat room utilized by people trading their children for sex. D gave his phone # to u/c. U/c called D at set up meeting. D stated that he intended to have sex w/ u/c's daughter. D arrested at meeting site.
03-13068	Joesph Poignant	1	[None]	Use of internet and telephone to entice minor to engage in sex activity.
03-20043	David Brautigam	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D (using 2 usernames) had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
03-20060	Joseph Messier	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
03-20132	Marco Pena	1	[None]	D met u/c officer (posing as 13 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
03-20133	Jaime Montealegre	2	2 counts of 2422(b)	D met u/c officer (posing as 14 y.o. girl) on internet chat service. D had

				sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site. (Affidavit attached).
03-80164	Kenneth Sciacca	1	[None]	Use of internet to entice minor to engage in sex activity.
04-14009	Timothy Darnall	1	[None]	Use of internet to entice minor to engage in sex activity.
04-14032	James Brown	1	[None]	Use of internet to entice minor to engage in sex activity.
04-14063	William Kamal	1	[None]	Use of internet to entice minor to engage in sex activity.
04-20040	Andres Rojas	1	[None]	D met u/c officer (posing as minor girl) on internet chat service. D had sexually explicit conversation with u/c ofc.
04-20055	Carlos Barroso	3	2 counts of 18 U.S.C.S. 1470	Use of internet to entice minor to engage in sex activity. Transfer of obscene material via the internet.
04-20408	Derek [redacted]	2	18 U.S.C.S. 1594(a)	D responded to an advertisement in a newspaper for Costa Rica Taboo Vacations, a fake travel agency run by federal investigators. D negotiated and paid for a trip to Costa Rica in which he planned to have sex with 16-year old minors. He cancelled the

				trip, but arranged for Taboo Vacations to provide him with underage sex with the Costa Rican girls in the U.S. D set up meeting at hotel. D arrested at hotel.
04-20409	James Marquez	3	18 U.S.C.S. 2423(e); 18 U.S.C.S. 1594(a)	Knowingly attempted to induce minor to engage in prostitution. [no other facts]
04-20520	Wallace Strevell	3	18 U.S.C.S. 2423(e); 18 U.S.C.S. 1594(a)	D called "travel agency" to arrange for trip to Costa Rica for sex w/ minors. D had several phone conversations w/ travel agency. D bought tickets and made reservations at hotel. D arrested at airport.
04-20551	Vincent Springer	3	18 U.S.C.S. 2423(e); 18 U.S.C.S. 1594(a)	Knowingly attempted to induce minor to engage in prostitution. [no other facts]
04-20656	[redacted] Clarke		18 U.S.C.S. 2423(e); 18 U.S.C.S. 1594(a)	D attempted to arrange to have sex w/ minor girls in Costa Rica thru fake "travel agency."
04-20837	Ryan Kannett	9	18 U.S.C.S. 2252A(a)(2)(A); 18 U.S.C.S. 2252A(a)(5)(B); 21 U.S.C.S. 841(a)(1); 18 U.S.C.S. 924(c)(1)(A); 18 U.S.C.S. 2253; 21 U.S.C.S. 853 18 U.S.C.S. 924(d)(1)	Use of internet to entice minor under 12 y.o. to engage in sex activity. Possessed and distributed child pornography. Possession with intent to sell drugs. Knowingly carry firearm during drug trafficking crime.
04-60046	Raymond Bohning	13	2 counts 2422(b); 18 U.S.C.S. 2251(c)(1), (c)(2), and (e);	Use of internet to entice minor to engage in sex activity. Traveled to England for

			18 U.S.C.S. 2423(b) and (f); 18 U.S.C.S. 2252A(a)(1); 18 U.S.C.S. 2252A(a)(2)(A); 18 U.S.C.S. 2252A(a)(2)(B); 18 U.S.C.S. 2252A(a)(6)□; 18 U.S.C.S. 2252A(a)(5)(B)	purpose of having sex with minor. Sent, distributed, and received child pornography.
05-14011	Gerald Smith	1	[None]	Use of internet to entice minor to engage in sex activity.
05-14024	Timothy Campbell	4	2 counts of 2422(b) 18 U.S.C.S. 2252(a)(2); 18 U.S.C.S. 2252(A)(4)(B)	Use of internet to entice minor to engage in sex activity. Received and possessed child pornography that had been transported in interstate commerce.
05-14039	Adam Statland	3	18 U.S.C.S. 2423(b)	Use of internet to entice minor to engage in sex activity. Traveled from California to Florida w/ intent to engage in sexual activity with a minor.
05-14046	Robert Carlo	1	[None]	Use of internet to entice minor to engage in sex activity.
05-14047	Mark Rader	2	18 U.S.C.S. 2252(a)(1)	Use of internet to entice minor to engage in sex activity. Knowingly transported child pornography in interstate commerce.
05-14060	Robert Latham	2	18 U.S.C.S. 2252(a)(1)	Use of internet to entice minor to engage in sex activity. Knowingly transported

				child pornography by a computer.
05-14099	Ralph Poole, Jr.	1	[None]	Use of internet to entice minor to engage in sex activity.
05-20444	Mark Madison Justin Evans Chad Yearby	3 3 3	18 U.S.C.S. 1591(a)(1); 18 U.S.C.S. 1591(a)(2); 18 U.S.C.S. 2423(e)	Operation of child prostitution ring in Miami. 14 y.o. girl worked for Evans as prostitute. Evans arranged dates for her at hotels, and she gave money from dates to Evans. Evans called 14 y.o. girl to inform her of dates. Evans also gave girl's phone # to customers. Evans supplied girl with condoms.
05-60049	Edward Byrd	1	[None]	Use of internet to entice minor to engage in sex activity.
05-60073	[redacted] Callahan	2	18 U.S.C.S. 2423(b)	Use of internet to entice minor to engage in sex activity.
05-80023	Thomas Bohannon	1	[None]	D met u/c officer (posing as 15 y.o. girl) on internet chat service. D had sexually explicit conversation with ofc., set up meeting on internet for purpose of having sex; arrested at meeting site.
05-80029	Laronn Houston	1	[None]	D met u/c officer (posing as a mother with a 14 y.o. daughter) on internet chat room. D set up meeting w/ mother &

				minor. D arrested at meeting site.
05-80200	Lucas Phelps	5	18 U.S.C.S. 1470	Use of internet to entice minor to engage in sex activity. Attempt to knowingly transfer child pornography in interstate commerce to a minor.
06-14003	Octavio Villalona	2	18 U.S.C.S. 2252(a)(1)	Use of internet to entice minor to engage in sex activity. Knowingly transported child pornography by a computer.
06-14006	Daniel Williams	1	[None]	Use of internet to entice minor to engage in sex activity.
06-14007	Ricky Barnett	1	[None]	Use of internet to entice minor to engage in sex activity.
06-14011	John Everhart, II	1	[None]	Use of internet to entice minor to engage in sex activity.
06-14016	Eric Rollins	3	2 counts 2422(b) 18 U.S.C.S. 2422(a)	Use of internet to entice minor to engage in sex activity. Knowingly enticed a minor to travel in interstate commerce to engage in sexual activity.
06-14053	Richard Grande, Jr.	1	[None]	Use of internet to entice minor to engage in sex activity.
06-14069	Eric Matthews	4	18 U.S.C.S. 1470; 18 U.S.C.S. 2252(a)(2)	Use of internet to entice minor to engage in sex activity. Knowingly transferred obscene material to a minor in interstate commerce.

				Knowingly distributed child pornography in interstate commerce.
06-14074	Anthony Perez	3	18 U.S.C.S. 1470; 18 U.S.C.S. 2251 (a) and (e)	Use of internet to entice minor to engage in sex activity. Knowingly transferred obscene material to a minor under 16 y.o. in interstate commerce. Enticed minor to engage in sexual conduct for purpose of transporting visual depiction in interstate commerce.
06-20249	Michael [redacted]	1	[None]	Knowingly attempted to induce minor to engage in prostitution. [no other facts]
06-20341	Dino Pancaro	3	18 U.S.C.S. 2423(e); 18 U.S.C.S. 1594(a)	Knowingly attempted to induce minor to engage in prostitution. Attempted to travel to engage in commercial sex act with a minor.
06-20734	Demond Osley Stacey Greer	8	18 U.S.C.S. 1591(a)(1); 18 U.S.C.S. 2421; 18 U.S.C.S. 2422(a); 18 U.S.C.S. 1001(a)(2); 18 U.S.C.S. 1028(a)(4)	Minor arrested for prostitution on Miami Beach. When questioned by officers, minor said Osley brought her from Michigan to Florida for purpose of prostitution; Osley became unhappy with minor b/c she was not meeting daily quota; Osley sold minor to Greer. Greer takes minor to hotel, forces her to have sex, video tapes minor and takes photos of her to distribute on internet. Greer also forces minor into prostitution thru

				threats of violence. Minor identified Osley and Greer. Both arrested.
06-20783	Keith Lanzon	1	[None]	Use of internet to entice minor to engage in sex activity.
06-80031	Lynn Mann	3	18 U.S.C.S. 1470; 18 U.S.C.S. 2252A(a)(5)(B); 18 U.S.C.S. 2252A(b)(2)	Use of internet to entice minor to engage in sex activity. Distribute child pornography to a minor. Possession of child pornography.
06-80034	Rafael Ramirez, Jr.	1	[None]	Use of internet to entice minor to engage in sex activity.
06-80058	Adam McDaniel	2	18 U.S.C.S. 2423(b)	D was 19 in Texas, met 14 y.o. girl on internet who lived in Florida. D & girl communicated by email & phone. D flew to Florida, met w/ girl and had sex w/ her in a hotel.
06-80135	David Girouard	2	18 U.S.C.S. 2423(b)	Use of internet and cellular telephone to entice minor to engage in sex activity.
07-14002	Benjamin [redacted]	4	18 U.S.C.S. 1470; 18 U.S.C.S. 2252A(a)(2)(A); 18 U.S.C.S. 2252(b)(1); 18 U.S.C.S. 2252(a)(4)(B)	Use of internet to entice minor to engage in sex activity. Knowingly transferred obscene material to a minor under 16 y.o. in interstate commerce. Knowingly distributed child pornography in interstate commerce. Possession of child pornography.
07-14004	Ricky [redacted]	2	18 U.S.C.S. 2251 (a) and (e)	Use of internet to entice minor to engage in sex

				activity. Attempted production of child pornography thru interstate commerce.
07-14005	Carl Berrier	2	18 U.S.C.S. 2252A(a)(2)(A); 18 U.S.C.S. 2252A(b)(1)	Use of internet to entice minor to engage in sex activity. Knowingly distributed child pornography in interstate commerce.
07-14015	Francesco Simo	1	[None]	Use of internet to entice minor to engage in sex activity.
07-14016	Joseph Crutchley	1	[None]	Use of internet to entice minor to engage in sex activity.
07-14024	Wesley Evans [redacted] Evans	3 1	18 U.S.C.S. 2423(a); 18 U.S.C.S. 2423(e)	Use of internet to entice minor to engage in sex activity. Conspiracy to transport a minor to engage in sexual activity. Knowingly transport (or attempt) a minor to engage in sexual activity.
07-20214	Sammy Carpenter, Darryl Jennings, Luroy Jennings	4	18 U.S.C.S. 1591(a); 18 U.S.C.S. 2422(a)	Knowingly attempted to induce minor to engage in prostitution.
07-60049	Nelson Cintron	3	18 U.S.C.S. 2252A(a)(2)(A); 18 U.S.C.S. 2252A(a)(5)(B)	Use of internet to entice minor to engage in sex activity. Possessed and distributed child pornography.
07-60084	Oliver Buelow	2	18 U.S.C.S. 2423(b)	[No factual information]
07-80099	Marion Yarbrough	3	18 U.S.C.S. 2423(a); 18 U.S.C.S. 2422(a)	Use of internet and cellular telephone to entice minor to engage in sex

				activity. Transport minor to engage in sex activity. Entice minor to travel in interstate commerce to engage in sex activity.

the City College of New York

INTERNATIONAL STUDIES PROGRAM

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August 21,2006.

Jeffrey Epstein
c/o Darren Indyke Esq.
457 Madison Avenue – 14th Floor
New York,
N.Y. 10022.

Dear Mr. Epstein,

Thank you for your continued and generous support of the undergraduate academic careers of Georges Ndabashimiye and Nicole Mutesi.

Both students have done very well both academically and in co-curricular life and expect to graduate in June, 2008. Georges will return to Rwanda to teach and Nicole plans to join the energy industry which is focused on developing Rwanda's newly found resources in natural gas.

Your support of these two students will thus contribute to the human resource wealth of Rwanda.

Yours sincerely,

Marina W. Fernando Ph.D.
Director, International Studies Program
and Deputy Dean of Social Science.

08/07/06

Dear M. Epstein,

I want to thank you for paying for my tuition and living allowance during these last two years. I greatly appreciate your generosity. I cannot say how much your support has helped me enjoy my life here and realize my academic goals.

Thank you so much.

Sincerely,

NICOLE MUTESI

08/07/2006

Dear Epstein,

I thank you for your generous support you gave to me since I have been in New York.

I wish you succes in your actions. May God bless you.

Best wishes,
Georges Ndabashimiye

Dear Jeffrey Epstein

First and Foremost, I wanted to take this time to tell you that I hope you in the best of health, mentally, phisically, and spiritualy. I want to tell you that I have been working hard, and im starting to really understand Air[redacted]itioning and Refrigeration. Also, I wanted to tell you that im sorry for not being able to change the fan motor on David Lamperts Ac unit. It sucks my boss is saying that its about to be winter time that hes not going to order the fan motor. If it was up to me I would have taken care of it. I dont have the power right now unfortunately, sorry buddy. I have been wanting to tell you about my career plan, because I told you once before that im going to strive to become Just like you. So I have the perfect plan that im sticking too I've went through the Air cond[redacted]ing and Refrigeration 450 hours class I have a certificate, and now Im two weeks into finishing the Engineers license course for Airconditioning and Refrigeration. Then what my plan is I want to take courses the same way I did with Airconditioning and Refrigeration for Electrical, plumbing, and carpentry

I figured my secret, its once I Master those great skills I will move into the RealEstate buisness you know like you. My plan is too buy houses that arent in shape and I would run the [redacted]eating, Airconditioning, Plumbing, Electrical, and Carpentry. I would get a few People to help me but I would Save a whole lot and it would be like my own buisness. I know im putting it in a way where it [redacted] sounds easy, I know theres a whole lot more to it but im not going to stop im going to Keep striving and I would take advice from you Someday when it comes to conducting work into buisness and also would be proud to help out in any little way I could Once im too [redacted]he point where I know my stuff its the least I could do. Yup, Well Mr Jeffrey Epstein I would like to thank you for your [redacted]time to read my thoughts hope you think they were ok. Love, Phillip Diaz

ps: Also wanted to tell you that when I go for the license test with the city instead of the nor[redacted]al Testing procedure which is getting tested from a Proctor I would be in front of a simulator well im ready for the challenge have a good day

ASAP

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HEADLINE: The St. Thomas common sense symposium: designing architectures for human-level intelligence.

BYLINE: Minsky, Marvin; Singh, Push; Sloman, Aaron

BODY:

To build a machine that has "common sense" was once a principal goal in the field of artificial intelligence. But most researchers in recent years have retreated from that ambitious aim. Instead, each developed some special technique that could deal with some class of problem well, but does poorly at almost everything else. We are convinced, however, that no one such method will ever turn out to be "best," and that instead, the powerful AI systems of the future will use a diverse array of resources that, together, will deal with a great range of problems. To build a machine that's resourceful enough to have humanlike common sense, we must develop ways to combine the advantages of multiple methods to represent knowledge, multiple ways to make inferences, and multiple ways to learn. We held a two-day symposium in St. Thomas, U.S. Virgin Islands, to discuss such a project--to develop new architectural schemes that can bridge between different strategies and representations. This article reports on the events and ideas developed at this meeting and subsequent thoughts by the authors on how to make progress.

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The Need for Synthesis in Modern AI

To build a machine that has "common sense was once a principal goal in the field of artificial intelligence. But most researchers in recent years have retreated from that ambitious aim. Instead, each developed some special technique that could deal with some class of problem well, but does poorly at almost everything else. An outsider might regard our field as a chaotic array of attempts to exploit the advantages of (for example) neural networks, formal logic, genetic programming, or statistical inference--with the proponents of each method maintaining that their chosen technique will someday replace most of the other competitors.

We do not mean to dismiss any particular technique. However, we are convinced that no one such method will ever turn out to be "best," and that instead, the powerful AI systems of the future will use a diverse array of resources that, together, will deal with a great range of problems. In other words, we should not seek a single "unified theory!" To build a machine that is resourceful enough to have humanlike common sense, we must develop ways to combine the advantages of multiple methods to represent knowledge, multiple ways to make inferences, and multiple ways to learn.

We held a two-day symposium in St. Thomas, U.S. Virgin Islands, to discuss such a project--to develop new architectural schemes that can bridge between different strategies and representations. This article reports on the events and ideas developed at this meeting and subsequent thoughts by the authors on how to make progress. (1)

Organizing the Diversity of AI Methods

Marvin Minsky kicked off the meeting by discussing how we might begin to organize the many techniques that have been developed in AI so far. While AI researchers have invented many representations, methods, and architectures for solving many types of problems, they still have little understanding of the strengths and weaknesses of each these techniques. We need a theory that helps to map the types of problems we face onto the types of solutions that are available to us. When should one use a neural network? When should one use statistical learning? When should one use logical theorem proving?

To help answer these kinds of questions, Minsky suggested that we could organize different AI methods into a "causal diversity matrix" (figure 1). Here, each problem-solving method, such as analogical reasoning, logical theorem proving, and statistical inference, is assessed in terms of its competence at dealing with problem domains with different causal structures.

[FIGURE 1 OMITTED]

Statistical inference is often useful for situations that are affected by many different matched causal components, but where each contributes only slightly to the final phenomenon. A good example of such a problem-type is visual texture classification, such as determining whether a region in an image is a patch of skin or a fragment of a cloud. This can be done by summing the contributions of many small pieces of evidence such as the individual pixels of the texture. No one pixel is terribly important, but en masse they determine the classification. Formal logic, on the other hand, works well on problems where there are relatively few causal components, but which are arranged in intricate structures sensitive to the slightest disturbance or inconsistency. An example of such a problem-type is verifying the correctness of a computer program, whose behavior can be changed completely by modifying a single bit of its code. Case-based and analogical reasoning lie between these extremes, matched to problems where there are a moderate number of causal components each with a modest amount of influence. Many common sense domains, such as human social reasoning, may fall into this category. Such problems may involve knowledge too difficult to formalize as a small set of logical axioms, or too difficult to acquire enough data about to train an adequate statistical model.

It is true that many of these techniques have worked well outside of the regimes suggested by this causal diversity matrix. For example, statistical methods have found application in realms where previously rule-based methods were the norm, such as in the syntactic parsing of natural language text. However, we need a richer heuristic theory of when to apply different AI techniques, and this causal diversity matrix could be an initial step toward that. We need to further develop and extend such theories to include the entire range of AI methods that have been developed, so that we can more systematically exploit the advantages of particular techniques.

How could such a "meta-theory of AI techniques" be used by an AI architecture? Before we turned to this question, we discussed a concrete problem domain in which we could think more clearly about the goal of building a machine with common sense.

Returning to the Blocks World

Later that first morning, Push Singh presented a possible target domain for a commonsense architecture project. Consider the situation of two children playing together with blocks (figure 2).

[FIGURE 2 OMITTED]

Even in this simple situation, the children may have concerns that span many "mental realms":

Physical: What if I pulled out that bottom block?

Bodily: Can I reach that green block from here?

Social: Should I help him with his tower or knock it down?

Psychological: I forgot where I left the blue block.

Visual: Is the blue block hidden behind that stack?

Spatial: Can I arrange those blocks into the shape of a table?

Tactile: What would it feel like to grab five blocks at once?

Self-Reflective: I'm getting bored with this--at else is there to do?

Singh argued that no present-day AI system demonstrates such a broad range of commonsense skills. Any architecture we design should aim to achieve some competence within each of these and other important mental realms. He proposed that to do this we work within the simplest possible domain requiring reasoning in each of these realms. He suggested that we develop our architectures within a physically realistic model world resembling the classic Blocks World, but where the world was populated by several simulated beings, and thus emphasizing social problems in addition to physical ones. These beings would manipulate simple objects like blocks, balls, and cylinders, and would participate in the kinds of scenarios depicted in figure 3, which include jointly building structures of various kinds, competing to solve puzzles, teaching each other skills through examples and through conversation, and verbally reflecting on their own successes and failures.

[FIGURE 3 OMITTED

The apparent simplicity of this world is deceptive, for many of the kinds of problems that show up in this world have not yet been tackled in AI, for they require combining elements of the following:

Spatial reasoning about the spatial arrangements of objects in one's environment and how the parts of objects are oriented and situated in relation to one another. (Which of those blocks is closest to me?)

Physical reasoning about the dynamic behavior of physical objects with masses and colliding/supporting surfaces. (What would happen if I removed that middle block from the tower?)

Bodily reasoning about the capabilities of one's physical body. (Can I reach that block without having to get up?)

Visual reasoning about the world that underlies what can be seen. (Is that a cylinder-shaped block or part of a person's leg?)

Psychological reasoning about the goals and beliefs oneself and of others. (What is the other person trying to do?)

Social reasoning about the relationships, shared goals and histories that exist between people. (How can I accomplish my goal without the other person interfering?)

Reflective reasoning about one's own recent deliberations. (What was I trying to do a moment ago?)

Conversational reasoning about how to express one's ideas to others. (How can I explain my problem to the other person?)

Educational reasoning about how to best learn about some subject, or to teach it to someone else. (How can I generalize useful rules about the world from experiences?)

Many of the meeting participants were enthusiastic about this proposal and agreed that there would be challenging visual, spatial, and robotics problems within this domain. Ken Forbus pointed out that the video game communities would soon produce programmable virtual worlds that would easily meet our needs. Several participants mentioned the success of the RoboCup competitions (Kitano et al. 1997), but some concluded that the RoboCup domain, while appropriate for those interested in the problem of coordinating multiagent teams in a competitive scenario, was very different in character from the situation of two or three people more slowly working together on a physical task, communicating in natural language, and in general operating on a more thoughtful and reflective level.

Still, the participants had a heated debate about the adequacy of the proposed problem domain. The most common criticism was that this world does not contain enough of a variety of objects or richness of behavior. Doug Lenat suggested a solution to this, which was to embed the people within not a Blocks World, but instead somewhere like a typical house or office, as in the popular computer game The Sims. Doug Riecken argued that we could develop enough of the architecture within the more limited virtual world, and later add extensions to deal with a wider range of objects and phenomena.

A different response to this criticism was that in order to focus on architectural issues, it would help to simplify the problem domain, so that we could focus less on acquiring a large mass of world knowledge, and more on developing better ways for systems to use the knowledge they have. However, other

participants argued that restricting the world would not entirely bypass the need for large databases of commonsense knowledge, for even this simple world would likely require hundreds of thousands or even millions of elementary pieces of commonsense knowledge about space, time, physics, bodies, social interactions, object appearances, and so forth.

Other participants disagreed with the virtual world domain. They felt that we should instead take the more practical approach of developing the architecture by starting with a useful application like a search engine or conversational agent, and extending its common sense abilities over time. But Ben Kuipers worried that choosing too specific an application would lead to what happened to most previous projects--someone discovers some set of ad hoc tricks that leads to adequate performance, without making any more general progress toward more versatile, resourceful, or "more intelligent" systems.

In the end, after long debates we achieved a substantial consensus that to solve harder problems requiring common sense, we first needed to solve the more restricted class of problems that show up in simpler domains like the proposed virtual world. Once we get the core of the architecture functioning in this rich but limited domain, we can attempt to extend it--or it extend itself--to deal with a broader range of problems using a much broader array of commonsense knowledge.

Large-Scale Architectures for Human-level Intelligence

In the afternoon, we discussed large-scale architectures for machines with human-level intelligence and common sense. Marvin Minsky and Aaron Sloman each presented their current architectural proposals as a starting point for the meeting participants to criticize, debug, and elaborate. These two architectures share so many features that we will refer to them together as the Minsky-Sloman model.

These architectures are distinguished by their emphasis on reflective thinking. Most cognitive models have focused only on ways to react or deliberate. However, to make machines more versatile, they will need better ways to recognize and repair the obstacles, bugs and deficiencies that result from their own activities. In particular, whenever one strategy fails, they'll need to have a collection of ways to switch to alternative ways to think. To provide for this, Minsky's architectural design includes several reflective levels beyond the reactive and deliberative levels. Here is one view of his model for the architecture of a person's mind, as described in his book, The Emotion Machine, and shown here in figure 4.

[FIGURE 4 OMITTED]

Some participants questioned the need for so many reflective layers; would not a single one be enough? Minsky responded by arguing that today, when our theories still explain too little, we should elaborate rather than simplify, and we should be building theories with more parts, not fewer. This general philosophy pervades his architectural design, with its many layers, representations, critics, reasoning methods, and other diverse types of components. Only once we have built an architecture rich enough to explain most of what people can do will it make sense to try to simplify things. But today, we are still far from an architectural design that explains even a tiny fraction of human cognition.

Aaron Sloman's Cognition and Affect project has explored a space of architectures proposed as models for human minds; a sketch of Sloman's H-CogAff model is shown in figure 5.

[FIGURE 5 OMITTED]

This architecture appears to provide a framework for defining with greater precision than previously a host of mental concepts, including affective concepts, such as "emotion," "attitude," "mood," "pleasure," and so on. For instance, H-CogAff allows us to define at least three distinct varieties of emotions; primary, secondary and tertiary emotions, involving different layers of the architecture which evolved at different times--and the same architecture can also distinguish different forms of learning, perception, and control of behavior. (A different architecture might be better for exploring analogous states of insects, reptiles, or other mammals.) Human infants probably have a much-reduced version of the architecture that includes self-bootstrapping mechanisms that lead to the adult form.

The central idea behind the Minsky-Sloman architectures is that the source of human resourcefulness and robustness is the diversity of our cognitive processes: we have many ways to solve every kind of problem--both in the world and in the mind--so that when we get stuck using one method of solution, we

can rapidly switch to another. There is no single underlying knowledge representation scheme or inferencing mechanism.

How do such architectures support such diversity? In the case of Minsky's Emotion Machine architecture, the top level is organized as follows. When the system encounters a problem, it first uses some knowledge about "problem-types" to select some "way-to-think" that might work. Minsky describes "ways-to-think" as configurations of agents within the mind that dispose it towards using certain styles of representation, collections of commonsense knowledge, strategies for reasoning, types of goals and preferences, memories of past experiences, manners of reflections, and all the other aspects that go into a particular "cognitive style." One source of knowledge relating problem-types to ways-to-think is the causal diversity matrix discussed at the start of the meeting--for example, if the system were presented with a social problem, it might use the causal diversity matrix to then select a case-based style of reasoning, and a particular database of social reasoning episodes to use with it.

However, any particular such approach is likely to fail in various ways. Then if certain "critic" agents notice specific ways in which that approach has failed, they either suggest strategies to adapt that approach, or suggest alternative ways-to-think, as suggested shown in figure 6. This is not done by employing any simple strategy for reflection and repair, but rather by using large arrays of higher level knowledge about where each way-to-think has advantages and disadvantages, and how to adapt them to new contexts.

[FIGURE 6 OMITTED]

In Minsky's design, several ways-to-think are usually active in parallel. This enables the system to quickly and fluently switch between different ways-to-think because, instead of starting over at each transition, each newly activated way-to-think will find an already-prepared representation. The system will rarely "get stuck" because those alternative ways-to-think will be ready to take over when the present one runs into trouble, as shown in figure 7.

[FIGURE 7 OMITTED]

Here each way-to-think involves reasoning in a particular subset of mental realms. Impasses encountered while reasoning in one set of mental realms can be overcome within others. Further information about these architectures can be found in Singh and Minsky (2003), Sloman (2001), and McCarthy et al. (2002). Minsky's model will be described in detail in his new book The Emotion Machine (Minsky, forthcoming).

Generally, the participants were sympathetic to these proposals, and all agreed with the idea that to achieve human-level intelligence we needed to develop more effective ways to combine multiple AI techniques. Ken Forbus suggested that we needed a kind of "component marketplace," and that we should find ways to instrument these components so that the reflective layers of the architecture had useful information available to them. He contrasted the Soar project (Laird, Newell, and Rosenbloom 1987) as an effort to eliminate and unify components rather than to accumulate and diversify them, as in the Minsky-Sloman proposals. Ashwin Ram and Larry Birnbaum both pointed out that despite the agreement over the architectural proposals it was still not clear what the particular components of the architecture would be. They pointed out that we needed to think more about what the units of reasoning would be. In other words, we needed to come up with a good list of way-to-think. Some examples might include the following:

Solving problems by making analogies to past experiences

Predicting what will happen next by rule-based mental simulations

Constructing new "ways to think" by building new collections of agents

Explaining unexpected events by diagnosing causal graphs

Learning from problem-solving episodes by debugging semantic networks

Inferring the state of other minds by re-using self-models

Classifying types of situations using statistical inference

Getting unstuck by reformulating the problem situation

This list could be extended to include all available AI techniques.

Educating the Architecture

On the morning of the second day of the meeting, we addressed the problem of how to supply the architecture with a broad range of commonsense knowledge, so that it would not have to "start from scratch." We all agreed that learning was of value, but we didn't all agree on where to start. Many researchers would like to start with nothing; however, Aaron Sloman pointed out that an architecture that comes with no knowledge is like a programming language that comes with no programs or libraries.

One view that was expressed was that approaches that start out with too little initial knowledge would likely not achieve enough versatility in any practical length of time. Minsky criticized the increasing popularity of the concept of a "baby machine"--learning systems designed to achieve great competence, given very little initial structure. Some of these ideas include genetic programming, robots that learn by associating sensory-motor patterns, and online chatbots that try to learn language by generalizing from thousands of conversations. Minsky's complaint was that the problem is not that the concept of a baby machine is itself unsound, but rather that we don't know how to do it yet. Such approaches have all failed to make much progress because they started out with inadequate schemes for learning new things. You cannot teach algebra to a cat; among other things, human infants are already equipped with architectural features to equip them to think about the causes of their successes and failures and then to make appropriate changes. Today we do not yet have enough ideas about how to represent, organize, and use much of commonsense knowledge, let alone build a machine that could learn all of that automatically on its own. As John McCarthy noted long ago: "in order for a program to be capable of learning something, it must first be able to represent that knowledge."

There are very few general-purpose commonsense knowledge resources in the AI community. Doug Lenat gave a wonderful presentation of the Cyc system, which is presently the project furthest along at developing a useful and reusable such resource for the AI community, so that new AI programs don't have to start with almost nothing. The Cyc project (Lenat 1995) has developed a great many ways to represent commonsense knowledge, and has built a database of over a million commonsense facts and rules. However, Lenat estimated that an adult-level commonsense system might require 100 million units of commonsense knowledge, and so one of their current directions is to move to a distributed knowledge acquisition approach, where it is hoped that eventually thousands of volunteer teachers around the world will work together teach Cyc new commonsense knowledge. Lenat spent some time describing the development of friendly interfaces to Cyc that allow nonlogicians to participate in the complicated teaching and debugging processes involved in building up the Cyc knowledge base.

Many of the participants agreed that Cyc would be useful, and some suggested we could even base our effort on top of it, but others were sharply critical. Jeffrey Siskind doubted that Cyc contained the spatial and perceptual knowledge needed to do important kinds of visual scene interpretation. Roger Schank argued that Cyc's axiomatic approach was unsuitable for making the kinds of generalizations and analogies that a more case-based and narrative-oriented approach would support. Srini Narayanan worried that the Cyc project was not adequately based on what cognitive scientists have learned about how people make commonsense inferences. Oliver Steele concluded that while we disagreed about whether Cyc was 90% of the solution or only 10%, this was really an empirical question that we would answer during the course of the project. But generally, the architectural proposal was regarded as complementary to parallel efforts to accumulate substantial commonsense knowledge bases.

Minsky predicted that if we used Cyc, we might need to augment each existing item of knowledge with additional kinds of procedural and heuristic knowledge, such as descriptions of (1) problems that this knowledge item could help solve; (2) ways of thinking that it could participate in; (3) known arguments for and against using it; and (4) ways to adapt it to new contexts.

It was stressed that knowledge about the world was not enough by itself--we also need a knowledge base about how to reason, reflect and learn, the knowledge that the reflective layers of the architecture must possess. The problem remains that the programs we have for using knowledge are not flexible enough, and neither Cyc's "adult machine" approach of supplying a great deal of world knowledge, nor the "baby machine" approach of learning common sense from raw sensory-motor experience, will likely succeed without first developing an architecture that supports multiple ways to reason, learn, and reflect upon and improve its activities.

An Important Application

Several of the participants felt that such a project would not receive substantial support unless it proposed an application that clearly would benefit much of the world. Not just an improvement to something existing, it would need to be one that could not be built without being capable of human-level commonsense reasoning.

After a good deal of argument, several participants converged upon a vision from The Diamond Age, a novel by Nell Stephenson. That novel envisioned an "intelligent book"--The Young Ladies Illustrated Primer--that, when given to a young girl, would immediately bond with her and come to understand her so well as to become a powerful personal tutor and mentor.

This suggested that we could try to build a personalized teaching machine that would adapt itself to someone's particular circumstances, difficulties, and needs. The system would carry out a conversation with you, to help you understand a problem or achieve some goal. You could discuss with it such subjects as how to choose a house or car, how to learn to play a game or get better at some subject, how to decide whether to go to the doctor, and so forth. It would help you by telling you what to read, stepping you through solutions, and teaching you about the subject in other ways it found to be effective for you. Textbooks then could be replaced by systems that know how to explain ideas to you in particular, because they would know your background, your skills, and how you best learn.

This kind of application could form the basis for a completely new way to interact with computers, one that bypasses the complexities and limitations of current operating systems. It would use common sense in many different ways: (1) It would understand human goals so that it could avoid the silliest mistakes. (2) It would understand human reasoning so that it could present you with the right level of detail and avoid saying things that you probably inferred. (3) It would converse in natural language so that you could easily talk to it about complex matters without having to learn a special language or complex interface.

To build such a kind of "helping machine," we would first need to give it knowledge about space, time, beliefs, plans, stories, mistakes, successes, relationships, and so forth, as well as good conversational skills. However, little of this could be realized by anything less than a system with common sense. To accomplish this we would need to pursue some sequence of more modest goals that would help one with simpler problem types--until the system achieved the sorts of competence that we expect from a typical human four- or five-year-old.

However, to get such a system to work, we would need to address many presently unsolved commonsense problems that show up in the model-world problem domain.

Final Consensus

The participants agreed that no single technique (such as statistics, logic, or neural networks) could cope with a sufficiently wide range of problem-types. To achieve human-level intelligence we must create an architecture that can support many different ways to represent, acquire, and apply many kinds of commonsense knowledge.

Most participants agreed that we should combine our efforts to develop a model world that supports simplified versions of everyday physical, social, and psychological problems. This simplified world would then be used to develop and debug the core components of the architecture. Later, we can expand it to solve more difficult and more practical problems.

The participants did not all agree on which particular larger-scale application would both attract sufficient support and also produce substantial progress toward making machines that use commonsense knowledge. Still, many agreed with the concept of a personalized teaching machine that would come to understand you so well that it could adapt to your particular circumstances, difficulties, and needs.

Ben Kuipers sketched the diagram shown in figure 8, which captures the general dependencies between the three points of consensus: Practical applications depend on developing an architecture for commonsense thinking flexible enough to integrate a wide array of processes and representations of problems that come up in the model-world problem domain.

[FIGURE 8 OMITTED]

A Collaborative Project?

At the end of the meeting, we brainstormed about how we might organize a distributed, collaborative project to build an architecture based on the ideas discussed at this meeting. It is a difficult challenge, both technically and socially, to get a community of researchers to work on a common project. However, successes in the Open Source community show that such distributed projects are feasible when the components can be reasonably disassociated.

Furthermore, this kind of architecture itself should help to make it easy for members of the project to add new types of representations and processes. However, we first would have to develop a set of protocols to support the interoperation of such a diverse array of methods. Erik Mueller suggested that such an organization could be modeled after the World Wide Web Consortium (W3C), and its job would largely be to assess, standardize and publish the protocols and underlying tools that such a distributed effort would demand.

While we did not sketch a detailed plan for how to proceed, Aaron Sloman, Erik Mueller and Push Singh listed some technical steps that such a project would need:

First, it should not be too hard to develop a suitable virtual model world, because the present-day video game and computer graphics industry has produced most of the required components. These should already include adequate libraries for computer graphics, physics simulation, collision detection, and so forth.

Second, we need to develop and order the set of miniscenarios that we will use to organize and evaluate our progress. This would be a continuous process, as new types of problems will constantly be identified.

Third, what kinds of protocols could the agents of this cognitive system use to coordinate with each other? This would include messages for updating representations, describing goals, identifying impasses, requesting knowledge, and so forth. We would consider the radical proposal to use, for this, an Interlingua based on a simplified form of English, rather than trying to develop some brand new ontology for expressing commonsense ideas. Of course, each individual agent could be free to use internally whatever ontology or representation scheme was most convenient and useful.

Fourth, we would need to create a comprehensive catalog of ways-to-think, to incorporate into the architecture. A commonsense system should be at least capable of reasoning about prediction, explanation, generalization, exemplification, planning, diagnosis, reflection, debugging, learning, and abstracting.

Fifth, what are the kinds of self-reflections that a commonsense system should be able to make of itself, and how should these invoke and modify ways-to-think as problems are encountered?

Sixth, in any case, such a system will need a substantial, general-purpose, and reusable commonsense knowledge base about the spatial, physical, bodily, social, psychological, reflective, and other important realms, enough to deal with a broad range of problems within the model world problem domain.

Finally, we might need to develop a new kind of "intention-based" programming language to support the construction of such an architecture.

Towards the Future

Since our meeting similar sentiments have been expressed at DARPA, most notably in the recent "Cognitive Systems" Information Processing Technology Office (IPTO) Broad Agency Announcement (BAA) (Brachman and Lemnios 2002), which solicits proposals for building AI systems that combine many elements of knowledge, reasoning, and learning. While we are gratified that architectural approaches are becoming more popular, we would like to see more emphasis placed on architectural designs that specifically support more common sense styles of thinking.

There was a genuine sense of excitement at this meeting. The participants felt that it was a rare opportunity to focus once more on the grand goal of building a human-level intelligence. Over the next few years, we plan to develop a concrete implementation of an architecture based on the ideas discussed at this meeting, and we invite the rest of the AI community to join us in such efforts.

Acknowledgements

We would like to thank Cecile Dejongh for taking care of the local arrangements, and extend a very special thanks to Linda Stone for making this meeting happen. This meeting was made possible by the generous support of **Jeffrey Epstein.**

Note

(1.) This meeting was held in St. Thomas, U.S. Virgin Islands, on April 14-16, 2002. The meeting included the following participants: Larry Birnbaum (Northwestern University), Ken Forbus (Northwestern University), Ben Kuipers (University of Texas at Austin), Douglas Lenat (Cycorp), Henry Lieberman (Massachusetts Institute of Technology), Henry Minsky ([redacted] Systems), Marvin Minsky (Massachusetts Institute of Technology), Erik Mueller (IBM T. J. Watson Research Center), Srini Narayanan (University of California, Berkeley), Ashwin Ram (Georgia Institute of Technology), Doug Riecken (IBM T. J. Watson Research Center), Roger Schank (Carnegie Mellon University), Mary Shepard (Cycorp), Push Singh (Massachusetts Institute of Technology), Jeffrey Mark Siskind (Purdue University), Aaron Sloman (University of Birmingham), Oliver Steele ([redacted] Systems), Linda Stone (independent consultant), Vernor Vinge (San Diego State University), and Michael Witbrock (Cycorp).

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Marvin Minsky has made many contributions to AI, cognitive psychology, mathematics, computational linguistics, robotics, and optics. In recent years he has worked chiefly on imparting to machines the human capacity for commonsense reasoning. His conception of human intellectual structure and function is presented in The Society of Mind which is also the title of the course he teaches at MIT. He received his B.A. and Ph.D. in mathematics at Harvard and Princeton. In 1951 he built the SNARC, the first neural network simulator. His other inventions include mechanical hands and other robotic devices, the confocal scanning microscope, the "Muse" synthesizer for musical variations (with E. Fredkin), and the first LOGO "turtle" (with S. Papert). A member of the NAS, NAE and Argentine NAS, he has received the ACM Turing Award, the MIT Killian Award, the Japan Prize, the IJCAI Research Excellence Award, the Rank Prize and the Robert Wood Prize for Optoelectronics, and the Benjamin Franklin Medal.

Push Singh is a doctoral candidate in MIT's Department of Electrical Engineering and Computer Science. His research is focused on finding ways to give computers humanlike common sense, and he is presently collaborating with Marvin Minsky to develop an architecture for commonsense thinking that makes use of many types of mechanisms for reasoning, representation, and reflection. He started the Open Mind Common Sense project at MIT, an effort to build large-scale commonsense knowledge bases by turning to the general public, and has worked on incorporating commonsense reasoning into a variety of

real-world applications. Singh received his B.S. and M.Eng. in electrical engineering and computer science from MIT.

Aaron Sloman is a professor of AI and cognitive science at the University of Birmingham, UK. He received his B.Sc. in mathematics and physics (Cape Town, 1956), and a D.Phil. Philosophy, from Oxford (1962). Sloman is a Rhodes Scholar, a Fellow of AAAI, AISB, and ECCAI. He is also author of The Computer Revolution in Philosophy (1978) and many theoretical papers on vision, diagrammatic reasoning, forms of representation, architectures, emotions, consciousness, philosophy of AI, and tools for exploring architectures. Sloman maintains the FreePoplog open source web site and is about to embark on a large EC-funded robotics project. All papers, presentations, and software are accessible from his home page: www.cs.bham.ac.uk/ axs/

RELATED ARTICLE: Establishing a Collection of Graded Miniscenarios.

How would we guide such a project and measure its progress over time? Some participants suggested trying to emulate the abilities of human children at various ages. However, others argued that while this should inspire us, we should not use it as a plan for the project, because we don't really yet know enough about the details of early human mental development.

Aaron Sloman argued that it might be better to try to model the mind of a four- or five-year-old human child because that might lead more directly toward more substantial adult abilities. After the meeting, Sloman developed the notion of a "commonsense miniscenario," a concrete description in the form of a simple storyboard of a particular skill that a commonsense architecture should be able to demonstrate. Each miniscenario has several features: (1) It describes some forms of competence, which are robust insofar as they can cope with wide ranges of variation in the conditions; and (2) each comes with some meta-competence for thinking and speaking about what was done. For example competence can have a number of different facets, including describing the process; explaining why something was done, or why something else would not have worked; being able to answer hypothetical questions about what would happen otherwise; being able to improve performance in such ways as improving fluency, removing bugs in strategies, and expanding the variety of contexts. The system should also be able to further justify these kinds of remarks.

Sloman proposed this example of a sequence of increasingly sophisticated such miniscenarios in the proposed multi-robot problem domain:

1. Person wants to get box from high shelf. Ladder is in place. Person climbs ladder, picks up box, and climbs down.

2. As for 1, except that the person climbs ladder, finds he can't reach the box because it's too far to one side, so he climbs down, moves the ladder sideways, then as 1.

3. As for 1, except that the ladder is lying on the floor at the far end of the room. He drags it across the room lifts it against the wall, then as 1.

4. As for 1, except that if asked while climbing the ladder why he is climbing it the person answers: something like "To get the box." it should understand why "To get to the top of the ladder" or "To increase my height above the floor" would be inappropriate, albeit correct.

5. As for 2 and 3, except that when asked, "Why are you moving the ladder?" the person gives a sensible reply. This can depend in complex ways on the previous contexts, as when there is already a ladder closer to the box, but which looks unsafe or has just been painted. If asked, "would it be safe to climb if the foot of the ladder is right up against the wall?" the person can reply with an answer that shows an understanding of the physics and geometry of the situation.

6. The ladder is not long enough to reach the shelf if put against the wall at a safe angle for climbing. Another person suggests moving the bottom closer to the wall, and offers to hold the bottom of the ladder to make it safe. If asked why holding it will make it safe, gives a sensible answer about preventing rotation of ladder.

7. There is no ladder, but there are wooden rungs, and rails with holes from which a ladder can be constructed. The person makes a ladder and then acts as in previous scenarios. (This needs further

unpacking, e.g. regarding sensible sequences of actions, things that can go wrong during the construction, and how to recover from them, etc.)

8. As for 7, but the rungs fit only loosely into the holes in the rails. Person assembles the ladder but refuses to climb up it, and if asked why can explain why it is unsafe.

9. Person watching another who is about to climb up the ladder with loose rungs should be able to explain that a calamity could result, that the other might be hurt, and that people don't like being hurt.

Such a system should be made to face a substantial library of such graded sequences of mini-scenarios that require it both to learn new skills, to improve its abilities to reflect on them, and (with practice) to become much more fluent and quick at achieving these tasks. These orderings should be based on such factors as the required complexity of objects, processes, and knowledge involved, the linguistic competence required, and the understanding of how others think and feel. That library could include all sorts of things children learn to do in such various contexts as dressing and undressing dolls, coloring in a picture book, taking a bath (or washing a dog), making toys out of Meccano and other construction kits, eating a meal, feeding a baby, cleaning a mess made by spilling some powder or liquid, reading a story and answering questions about it, making up stories, discussing behavior of a naughty person, and learning to think and talk about the past, the future, and about distant places, etc.

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One would like to find an abundance of good workers across the professions: teachers who have mastered their subject matter, present itwell, and behave in a civil manner toward students and peers; physicians who are knowledgeable about the latest techniques and medications and who cater to the ill no matter where they are encountered and whether they have resources; lawyers who can argue a case persuasivelyand who make their services available to those in need, irrespectiveof their ability to pay. Occasionally the impressive achievements ofsuch individuals are publicly honored; and those concerned about thelong-term welfare of the society hope that aspiring teachers, physicians, and lawyers will have ample exposure to such exemplars of good work.

Not surprisingly, the absence of good work commands the attention of scholars, journalists, dramatists, politicians, and ordinary folk.We are, perhaps naturally, perhaps understandably, fascinated to learn about the teacher who fails an exam or seduces a student; the physician who fakes her credentials or operates on the wrong patient; thelawyer who skirts the law or only defends the wealthy. As a friend quipped, Time Warner might sell more copies if it renamed its venerable business publication Misfortune.

In the GoodWork Project in which my colleagues and I are involved,we are focusing on those individuals and institutions that aspire toward, and in the happiest case, exemplify, good work. There is much to be learned from careful study of a journalist like Edward R. Murrow, a physician like Albert Schweitzer, a publisher like Katharine Graham, a public servant like John Gardner (no relation). Yet it is important to recognize that many individuals fail to achieve good work, that some do not even strive to be good workers, and that in the absence of compelling role models, future workers stand little chance of becoming good workers themselves. Hence, it is justifiable at times to suspend our focus on good work to see what can be learned from frankly deviant cases.

In what follows, I focus on what we have come to speak of as 'compromised work.' (1) We conceptualize this variant as work that is not,strictly speaking, illegal, but whose quality compromises the ethical core of a profession. We do not concern ourselves with individuals who merit the descriptor 'bad workers'--the journalist who steals, the physician who commits assault and battery, the lawyer who murders. Presumably these individuals would engage in such illegal acts irrespective of their professional status, and it is the job of law enforcement officials, and not of professional gate-keepers, to call these miscreants to account. Rather, our concern is with the journalist who makes up stories, the politician whose word has no warrant, the physician who fails to heed the latest medical innovations and thus provides substandard treatment. Each of these individuals may at one time have embraced core values--journalistic integrity, political veracity,medical acumen--but at some point turned his back on the profession.If we can better understand how once good workers begin to compromise their work, we may be able to enhance the ranks of good workers.

It is easiest to spot compromised work in professions that have existed for some time and whose principal values are widely shared. In such domains there should be consensual processes of training, recognized mentors, and established procedures in place for censuring or ostracizing those whose work violates norms of the domain, with disbarment or loss of license as the ultimate sanction. Of the three professions I will treat in this essay, law is closest to the prototype, journalism is furthest (many journalists lack formal training), and accounting is somewhere in between.

Since our project began (and no doubt long before), the pages of the newspapers have been filled with examples of compromised work; indeed, in preparing this essay I have sometimes been tempted to clip half the stories in the daily newspaper. Here I focus on three cases from recent years that caught both my attention and that of the broaderpublic. The first case involves Jayson Blair, an ambitious reporter for The New York Times who was fired after it was discovered he had plagiarized and fabricated stories. The second case centers on Hill and Barlow, a venerable Boston law firm that closed abruptly when its profitable real estate department announced it was leaving the firm. The third case centers on the flagship accounting firm Arthur Andersenthat went bankrupt after the Enron scandal of 2001.

In my initial study of compromised work, (2) I chose these cases because they apparently represented three levels of analysis: Jayson Blair as an instance of compromised work by a single, flawed individual; Hill and Barlow as an instance of compromised work within a singleinstitution; and the Arthur Andersen--Enron debacle as an instance of compromised work throughout a profession. My study revealed, however, surprising continuities across these three apparently distinct levels of analysis. In each case, I found I was studying individuals as well as institutions, and, indeed, an entire industry. Also to my surprise, I discovered that institutions held in high regard might be especially vulnerable to the insidious virus of compromised work; I hadexpected that such institutions harbored righting mechanisms that for some reason had failed to detect the of fending party. Finally, I expected that at least some instances of compromised work would be isolated and of relatively short duration. A far more complex and, to mymind, more troubling picture emerged--a picture that, moreover, reflects ominous trends in American society.

In 1999, Jayson Blair, a young African American with a flair for writing, became a regular reporter for The New York Times. Even beforehis stint at the Times, Blair had been regarded by peers and supervisors with a combination of admiration and suspicion. There was no question that Blair wrote well, had a nose for important stories, was a gifted schmoozer, and had impressed the governing powers at the college and community newspapers where he had worked. At the same time, observers wondered whether he in fact had exercised the due diligence that is expected of a reporter; and indeed, supervisors had detected ahighly unusual number of errors in his stories. While he had occasionally been admonished for carelessness, there had been few consequences. In fact, at the Times, Executive Editor Howell Raines and Managing Editor Gerald Boyd gave increasingly important assignments to Blair.

When Blair was discovered to have plagiarized a story from the SanAntonio Express-News, he was immediately forced to resign. Then on May 11, 2003, in an unprecedented bout of self-examination, The New York Times devoted over four full pages to documentation of numerous cases of invention, plagiarism, and fraudulent expense and travel reports. Nor did the brouhaha over the Blair affair die down. Six weeks later, editors Raines and Boyd were forced to resign their posts, and the new editorial regime at the Times explicitly dissociated itself from the policies and practices of its predecessors.

At first blush, Jayson Blair seemed to be an isolated case--a reporter who refused to play by the rules and who may well have been emotionally disturbed. And in fact, there is ample evidence that Blair was a troubled young man who should have been carefully scrutinized foryears. He was so unpopular at his college newspaper that he was relieved of his editorial position. When he was an intern at The Boston Globe in 1996-1997 and a freelancer there in 1998-1999, the sloppinessof his coverage was discussed. Shortly after he began to work full-time at the Times, Metropolitan Editor Jonathan Landman sent around a note that said, "We have got to stop Jayson from writing for the Times. Right now." Blair soon accumulated a record number of corrections and complaints about his coverage. His behavior aroused dislike and suspicion among many of his contemporaries. But despite ample warning signs, Raines and Boyd took him under their wings; he was praised andoffered ever-more important assignments. And, to the shame of the Times, the decisive discovery of plagiarism was made not by its own staff but by a reporter for a regional paper.

To be sure, Blair had been a bad egg whose misbehaviors were more flagrant than those of his contemporaries. But at least since publisher Arthur Sulzberger had appointed Raines as managing editor in 2001,a strong set of explicit and implicit signals had been sent to the Times staff. Reporters were told they had to increase the "competitivemetabolism" of the news coverage. Those who wrote flashy, trendy stories were rewarded with promotions, special privileges, and ample front-page coverage. In contrast, reporters who took a more thoughtful, less sensational approach, who emphasized the journalistic precept ofcarefulness, found themselves increasingly marginalized. Nor was this new culture a secret: in a much-discussed portrait of Raines that appeared in The New Yorker in June of 2002, the changing milieu at theTimes was detailed and critiqued.

Had Jayson Blair been a truly isolated case, it is highly likely that the Sulzberger-Raines-Boyd managerial team would have survived intact and perhaps continued its questionably hectic pace and excessively dramatic bent. Once the Blair case broke, however, other heroes and casualties soon emerged. The most flagrant consequence was the abrupt resignation of star reporter Rick Bragg, who was accused of using unacknowledged stringers and of embellishing his lengthy and highly evocative stories. While Raines and Boyd fought to keep their positions, it was probably inevitable that sooner or later they would be squeezed out. The replacement appointment of Bill Keller, an individual widely considered a contrast in temperament and journalistic values, served as a sign that the Times was rejecting the go-go atmosphere of the previous few years.

Under Raines and Boyd, the Times had been engaged in an example ofwhat I will call 'superficial alignment.' The editors were looking for young reporters who exemplified the pace and coverage they sought;the fact that Blair was African American was a bonus and, by the editors' own admission, caused them to cut him slack. For his part, Blair was keen at discerning what his editors desired; and, as befits an accomplished con man, he knew how to give the impression of good workand to cover his tracks. What both sides avoided in this pas de deuxwas a genuine alignment that honored the tried-and-true mission of journalism. Had Blair been subjected to a mentoring regime of tough love, he might have turned into a genuinely good reporter. And had he somehow slipped through an otherwise well-regulated training and supervision system, it is unlikely that the discovery of his misdeeds would have caused such turmoil in his company and, indeed, in the wider journalistic profession.

During the second week of December of 2002, residents of Boston were astonished to learn that the prestigious law firm Hill and Barlow had closed down the previous weekend. The firm had been in existence for over a century, was esteemed in the community, and comprised in its legal ranks many prominent citizens, including at various times three governors of the Commonwealth. With their deep involvement in thecommunity--exemplified by their defense in the famous Sacco-Vanzetticase of the 1920s--Hill and Barlow partners epitomized what legal scholar Anthony Kronman has called "lawyer statesmen." For outsiders, there was little reason to suspect any significant problems at Hill and Barlow--and none whatsoever to prepare them for its sudden dissolution.

A word about partnerships is in order here. Examination of about twelve hundred interviews in the eight domains considered in the GoodWork Project reveals that only lawyers speak regularly about partnerships. In part a financial arrangement, in part a social network, the partnership serves as the locus for daily activity, the attraction andsharing of clients, and the mechanism for services and payment. The transition from associate to partner is the legal equivalent of the attainment of tenure in the academy; and in many ways, partners behavelike members of a faculty. Young lawyers serve as associates until, assuming a good record and available slots, they are welcomed into the partnership, which is likely to be their home for the remainder of their professional lives. It goes without saying that the health and stability of the partnership is crucial for its constituent members, staff, and clients.

Each partnership has an institutional culture, passed on both explicitly and implicitly from the older partners to the new members of the association. By all reports, the institutional culture of the Hilland Barlow of old stressed intellectual and legal excellence; community service, including the holding of elected or appointed office; and a willingness to earn somewhat less money than competitors, in return for a lifestyle that was more balanced and that went beyond the sheer number and rate of billable hours. (3)

Outsiders' initial reaction to the sudden closure of Hill and Barlow was shock. After all, this was a partnership that had been highly esteemed for decades. To observers and the media, it appeared that overly avaricious lawyers from the real estate division had issued a fait accompli to their bewildered colleagues,

thereby in one act destroying a distinguished New England law firm. The shock was compounded by the fact that the remaining partners did not even try to reconstitute the firm, but instead interpreted this mass exodus as a sign that the firm could no longer survive.

Closer examination reveals that the problems went back many years,perhaps several decades. Through the middle of the twentieth century, Hill and Barlow did indeed have a deserved reputation as a firm of outstanding lawyer statesmen who not only were leaders in litigation and trusts, but who also stood out for their service to the community. Yet, on my analysis, this sterling reputation turns out to have been a mixed blessing. By the 1970s and 1980s, the situation in law had changed dramatically throughout the land. Whether lamented or not, the era of the lawyer statesman was over. Law firms were becoming much larger and more internationalized; corporate law divisions and the high-metabolism specialty of mergers and acquisitions were growing morerapidly than other spheres; many large corporations built up their own in-house legal teams; and individual lawyers were becoming far more mobile, as opportunities to make very large salaries materialized for those who were willing to jump ship.

None of these trends in itself necessitated a de-professionalization of the law. And indeed, many moderately sized law firms in New England and elsewhere took steps to modulate these trends: they increased in size or developed distinctive niches; they actively sought largecorporate clients; and they reconfigured salary schedules to reward those lawyers who brought in the most business. Perhaps most importantly, the more reflective firms realized that law was becoming more ofa business; they recruited or trained professional managers; they were sensitive to the clout of specific partners and divisions; they paid close attention to changing patterns of income and expenses; they established governance vehicles whereby the most important members consulted regularly about trends and how best to meet them; they favored frequent, open, frank communications about all matters that materially affected the firm; and they were prepared, when necessary and with regret, to retire or marginalize partners who could not in any demonstrable way contribute to the well-being of the firm.

According to our interviews with former members of Hill and Barlow, the firm did not seriously undertake any of these measures. Memberscontinued to take pride in the history of the firm, and many continued to serve the community in various ways. But they did not work any longer as a firm of dedicated partners (epithets such as 'a hotel forlawyers' and 'university-style governance' were used by informants).Costs spiraled, but steps were not taken to increase income commensurately (or to lower costs, for example, by reducing the number of associates or moving to less luxurious quarters). Most damaging, the lawfirm never was able to create a governance structure that was widelyrespected by its members and that could meet these various challenges. On my analysis, it was the combination of the inordinately successful real estate group, on the one hand, and the ensemble of dysfunctional governance structures, on the other, that made the firm's closure inevitable.

I do not conclude that the Hill and Barlow partners necessarily compromised their practice of law per se. I do believe that both the real estate division, and the remaining partners who failed to deal decisively with the shifting terrain, undermined law as a profession. Inacting in their own self-interest, they contributed to the destruction of the accumulated wisdom, public service emphasis, and pluralistic view of legal practice that had once characterized Hill and Barlow.To the extent that law simply becomes a collection of free-agent practitioners, for sale to the highest bidder, or a set of employees of multinational corporations, it will indeed be a diminished profession.

Accounting became a technical rather than back-of-the-envelope practice in the seventeenth and eighteenth centuries with the widespreaduse of double-entry bookkeeping and other financial and business innovations. With the rise of corporations a century ago, and the adventof increasingly complex taxation and investment policies, the role of the independent certified auditor gained steadily in importance. Particularly at times of crisis, such as the stock market collapses during the first two-thirds of the twentieth century, the public was reminded of the importance of the accounting professions. Perhaps to hisadvantage, the auditor was seen as a rather colorless individual whofollowed technical rules in the manner of the archetypical Dickensian clerk or Weberian bureaucrat.

Within the profession and amongst those with close ties to the profession, there was keen awareness of crucial shifts that began in the1970s. The wall that had once separated auditors from the firms theywere monitoring had begun to crumble. Increasingly, personnel circulated between accounting firms and well-heeled client firms. Accounting firms set up consulting branches that worked with client firms; over time

the amount of consulting business often equaled or even surpassed that dedicated to the monitoring of the books. In the go-go financial milieu of the 1980s and 1990s, as documented in our GoodWork Project and many other sources, markets became increasingly dominant in many spheres of life. Indeed, at the end of the 1990s, I made a quip that turned out to be uncannily prophetic: "If markets come to control everything, in the end there will be only one profession--accounting. And that is because only the auditors will be able to tell us whether the books are on the level or have been cooked."

But like most of the public, I was unprepared for the huge accounting scandals that captured the headlines at the start of the twenty-first century. Led by the renowned firm Arthur Andersen, all the majorfirms were shown to have abandoned their professional disinterestedness (or 'independence,' as it is referred to in the profession) in flagrant ways. It was no longer unusual for accountants to hold stock in, work for, or consult for the firms they were allegedly monitoring;and for their part, firms went out of their way to provide lucrativework and extra perks for the supposedly independent auditors.

The smoking gun was the relationship between energy giant Enron and the flagship professional services firm of Arthur Andersen. These firms met powerful sanctions: bankruptcy with possible jail terms for those high-level managers whose involvement crossed the line from compromised to frankly bad work. At the time of this writing, other major accounting firms like Ernst and Young and PricewaterhouseCoopers have also had to pay significant penalties; punitive new regulations and legislation have been put into place; and many other business firms--established ones like General Electric and Xerox, newer ones like Tyco, WorldCom, and Global Crossing--have undergone probes or have even dissolved. Mean-while, the tacit or demonstrable complicity of members of boards of directors has been amply documented, and the domain of accounting as a whole lies very much under suspicion, its standingas a profession open to strong challenge.

The core value of the profession of public accounting is captured in the descriptor 'public.' Accountants receive training, licenses, and status commensurate thereto on the assumption that they will represent the public's interest in their review of the financial practicesof individuals or corporations. Should the books appear questionablein any way, it is the duty of the public accountant to raise questions to the responsible individual or corporation, and, if necessary, to refuse to certify that the accounts conform to generally accepted accounting principles.

Whether one thinks of journalism, law, or accounting, it is tempting to posit a golden age--a time when professionals were professionals, and the vast majority exemplified the highest values of the domain. But the mixed reputation of lawyers and journalists over the decades reveals the superficiality of such an analysis. And when one examines the history of accounting in the United States in the twentieth century, one also discovers an oscillation between periods when auditors were under suspicion for questionable practices, and periods when corrective measures were installed and the prestige of the profession was restored. Indeed, such a swing of the pendulum can be seen in thehistory of Arthur Andersen.

At the start of the twentieth century, like other accounting firms, Andersen carried out non-audit services. By the 1960s, it was possible to become an Andersen consultant without having worked as an auditor for the two prior years; and in 1973, a separate consulting arm of the firm had been set up. In the late 1970s, CEO Harvey Kapnick tried unsuccessfully to split the firm into two separate entities and was pressured to resign thereafter. During the 1980s, the consulting arm of the firm became increasingly powerful, and the lines between consulting and auditing blurred. By the late 1980s, the tension between the accounting and consulting arms was so acute that the two parts ofthe firm were in constant argument and occasionally in court. By 1999, Arthur Andersen had become the slowest growing of the Big Five accounting firms, and in 2000, the consulting arm, Accenture, finally became a wholly independent entity.

As is now well known, Andersen had become the auditor for Enron. Widely touted as a model for a new kind of company for a new millennium, Enron trafficked in the selling of energy (especially gas) and energy futures. In 2000, it was, on paper, the seventh largest firm in the United States, with a book value of 100 billion dollars. In 2001, the Enron bubble burst when it became clear that much of the corporation's alleged size, activity, and profitability was in fact fraudulent, the result of imaginative advertising and improper accounting. Andwhen Arthur Andersen began to shred its Enron documents, the fate ofthe firm was sealed in the eyes of the media, the general public, and, eventually, the legal system.

Studies of the Andersen-Enron connection reveal that it had been deeply compromised for years. Enron was one of Andersen's largest clients; it paid a total of over fifty million dollars a year to Andersen's auditing, consulting, and tax divisions. Employees shuttled back and forth between the two companies with such ease and frequency that it was sometimes difficult to tell for which they were working; at least eighty former Andersen auditors were working for Enron. The supposed line between the company being audited and the auditors evaluating the books of that company had become so blurred that, in effect, itno longer existed. And yet it has proved difficult to demonstrate sheer illegality. This is both because the nature of Enron's business was so new and so convoluted, and because so much of the role of the auditor/accountant remains an issue of professional judgment rather than of sheer legality or illegality.

In my view, the chief embodiment of compromised work in the accounting profession is the condition of wearing two hats--hats that inevitably pit key interests against one another. On the one hand, as representatives of the public, auditors and their umbrella organizations are supposed to remain at arm's length from the companies they monitor. On the other hand, the excitement and the monetary gains availablefor consulting prove irresistibly seductive for many auditors and their umbrella organizations. One cannot at the same time offer advice and feedback to companies while standing disinterestedly apart from their practices; in effect, one has become judge and litigant at the same time.

In each of the cases discussed, the background history covered a much longer period than I had anticipated. Jayson Blair's case reflected larger-scale trends at the Times, dating back to the 1980s and exacerbated by the appointment of a new managerial regime in 2001; Hill and Barlow failed to recognize, let alone adapt to, forces that middle-sized law firms had been confronting for decades; and Arthur Andersen encountered longstanding tensions in the accounting profession regarding appropriate relations with clients. Nor are the cases restricted to the particular examples on which I happened to focus: Within journalism, similar scandals had occurred in recent years at The BostonGlobe, The Washington Post, USA Today, and The New Republic. Severaldozen major law firms in Boston and elsewhere had either closed downor were absorbed into larger and more profitable firms. In recent years, each of the Big Five accounting firms saw significant scandals; comparable 'multiple hats' problems arose in Europe and Asia; and compensatory legislation like the Sarbanes-Oxley Act caused turbulence in a great many American corporations. Whatever their usefulness for conceptualization and exposition, the three levels of analysis that I had selected turned out to be more closely related than I had expected.

If the study of good work is in its early adolescence, then the examination of compromised work is in its infancy. Firm conclusions would be decidedly premature. And yet, given the importance of the problem, and its indissoluble links to issues of good work, a few summary comments are in order.

Because persons and institutions can go bad for any number of reasons, isolated cases of compromised work cannot be prevented. What is susceptible to treatment is the soil in which compromised work is likely to arise and thrive. Our three cases and others that could have been treated suggest that superficial signs of alignment can in fact be the enemies of good work. Respected institutions like The New York Times, Hill and Barlow, and Arthur Andersen create in their members--and in the general public--the belief that these institutions are inherently good and above suspicion. Those assigned the job of surveillance internally or externally may become lax, and, accordingly, those who are tempted to practice compromised work may find an unexpectedlypromising breeding ground. (In writing about the Jayson Blair case in The New Yorker of June 30, 2003, Elizabeth Kolbert said that this "paper of record" cannot afford to "check up" on its employees; it hasto assume they are trustworthy.)

Indeed, these circumstances obtained in each of our three examples: Jayson Blair was on the make; Raines and Boyd wanted to remake the culture of the Times even at the cost of violating its most importantvalues. And while various alarm bells tolled, none sounded loudly enough or insistently enough to be heard. Despite the enviable reputation of Hill and Barlow, many lawyers left the partnership starting in the 1980s; the particular requests of the real estate group were not taken seriously enough; and attempts to address the issue of financial survival and partnership communication were undertaken too late andwith too little sense of urgency. Arthur Andersen had actually resisted temptations to enter the consulting world. But when it finally succumbed, it entered with a vengeance--and despite warnings about conflicts of interest. Spokespersons for the firm continued to enunciate the fundamentals of accounting, but too many partners and workers were trying to wear two incompatible hats. When the ambivalent Andersen encountered the swashbuckling Enron, a disaster was in the making.

In each case, superficial features and blandishments obscured the central values of the domain. During the Blair-Raines period at the Times, scrupulous and fair reporting was sacrificed to the immediatelyaccessible and sexy. At Hill and Barlow, the norms of an effective partnership were undermined, as lawyers and entire departments went their own selfish way. And sometime in the last few decades, those responsible for the atmosphere of an accounting company forgot that it was supposed to be a public trust. Those on the inside should have seenthese problems and made loud noises, but efforts to right the culture were too weak and ineffective. And so in each case it took a dramatic event--Blair's plagiarism, the real estate department's exodus, the Enron meltdown--to reveal what should have been clearer to those onthe outside and clearest to those entrusted with preserving and embodying the values of the domain.

What happens when such a critical point is reached? It is possible, of course, that the domain will continue to deteriorate, and may come to be replaced altogether. Newspaper editor Harold Evans has quipped, "The problem many organizations face is not to stay in business but to stay in journalism." The lawyer statesman no longer exists; it remains unclear whether he is being replaced by a viable option, or whether lawyers have just become high-priced free agents or cogs in a corporate legal machine. And if there are too many Enrons and Global Crossings, the Big Five will dwindle to Little Zero--and it is not clear whether the books will be monitored in the future by independent accountants, government officials, or private investigators.

It is also possible that these professions will continue to survive but attract a different type of person with different kinds of values. With few exceptions, for example, broadcast television journalismexists as entertainment rather than as news. Totalitarian countries have bookkeepers, but, as the old joke goes, they produce "whatever numbers you would like us to produce." And it is certainly possible tohave lawyer whores who sell their services to the highest bidder. Insuch cases, those who want to know what is really happening in the world, whether the books are really accurate, or whether they can get a fair trial, will no longer look to the members of the ascribed profession.

One goal of the GoodWork Project is to help bring about a happier scenario. Professions will always feel pressures of one type or another, and, at the time of powerful market forces, these pressures can be decisive. The forces cannot be ignored; they must be dealt with--but they must not be succumbed to. Those individuals, institutions, andprofessions that actively cope with these forces while adhering to the central and irreplaceable values of the domain are most likely to survive and to thrive.

How to do this? In our project, we speak of the four Ms that help to propagate good work (these were initially designed to address individuals, but they can be applied as well to institutions and even whole professions). The Ms seek answers to the following questions: Whatis the mission of our domain? What are the positive and negative models that we must keep in mind? When we look into the mirror as individual professionals, are we proud or embarrassed by what we see? And: When we hold up the mirror to our profession--or, indeed, our society--as a whole, are we proud or embarrassed by what we see? And, if thelatter, what are we prepared to do about it?

I suggest that if the individuals and institutions described here had perennially posed these questions and tried to answer them in a serious, transparent way, they would not have become targets for our study.

Howard Gardner is John H. and Elisabeth A. Hobbs Professor of Cognition and Education at the Harvard Graduate School of Education. For the last decade, he has codirected the GoodWork Project with Mihaly Csikszentmihalyi and William Damon. Gardner has been a Fellow of the American Academy since 1995.

1 I thank **Jeffrey Epstein** for his support of these investigations.

2 I thank Ryan Modri, Paula Marshall, and Deborah Freier for theirinvaluable research efforts.

3 Technically, Hill and Barlow became a corporation in 1992.

LOAD-DATE: December 28, 2005

The Daily Telegraph (LONDON)

November 29, 2005 Tuesday

SECTION: FEATURES; Science; Pg. 26

LENGTH: 1091 words

HEADLINE: A DIY guide to saving Planet Earth Human survival depends on problem fixing not avoidance - in particular learning how to cool down our planet, says David Deutsch

BYLINE: David Deutsch

BODY:

Let's start with a couple of ideas that everyone knows. The first - dramatically named Spaceship Earth - is that our planet is uniquely suited to us and our survival. The universe outside is implacably hostile; if we mess up our spaceship, we have nowhere else to go. The second is that, despite our traditional self-image, human beings are not the hub of existence: as Stephen Hawking famously put it, we're just a chemical scum on the surface of a typical planet in orbit around a typical star on the outskirts of a typical galaxy

Everyone knows these things, yet they are both false. In fact, if you were looking for a pair of truths so important that it's worth carving them on blocks of stone and reciting them every morning before breakfast, you could do a lot worse than to carve denials of those two ideas

Are we at a typical place? Most places in the universe are not on a planet, or even in a galaxy. Travel right outside the galaxy - say, 100,000 light years - and you still haven't reached a typical place. You will have to go about 1,000 times as far, into deep, intergalactic space, so remote that if the nearest star were to explode as a supernova, it would be too faint to see. It's also very cold, less than three degrees above absolute zero. And it's empty: less than one millionth the density of the highest vacuum that scientists can currently attain.

That is how unlike Earth a typical location is. Yet the two are similar in one remarkable way.

Take a telescope and gaze even further out than where we've just been, at a "quasar". That was originally short for "quasi-stellar object", meaning "it looks like a star". But we now know what it really is. Billions of years ago, and billions of light years away, the centre of some galaxy collapsed towards a super-massive black hole. Intense magnetic fields directed some of the matter and gravitational energy of that collapse back out into intense jets, illuminating the surrounding gas with the brightness of a trillion suns.

Billions of years later on the other side of the universe, a certain kind of chemical scum can accurately describe, model, predict and explain what those jets really are. One physical system, the human brain, contains an accurate working model of an utterly dissimilar one, a quasar. Not just a superficial image but an explanatory model embodying the same mathematical relationships and causal structure. That's knowledge.

And if that weren't amazing enough, the faithfulness of this model is continually increasing. That's the growth of knowledge. So this chemical scum is different. It models, with ever-increasing precision, the structure of everything. Our planet, thanks to us, is a hub that contains within itself the structural and causal essence of the rest of physical reality.

This doesn't require any special physics or miracle. Just matter and energy - and evidence, with which we chose between rival explanations of what is really out there. In intergalactic space, these three prerequisites are at their lowest ebb: it's empty, cold and dark.

But imagine a solar-system-sized cube of intergalactic space. That cube still contains a million tons of matter. Which is more than enough, say, to build a fusion-powered space station complete with scientists who might be collecting evidence to create an open-ended stream of knowledge, just like us - if the right knowledge were there to start it off.

Therefore we are not in a uniquely hospitable place either. If intergalactic space is capable of creating an open-ended stream of explanations, then so is almost anywhere. And the limiting factor, both there and here, is not physical resources but knowledge.

The Astronomer Royal, Sir Martin Rees, has written a book about our vulnerability to scientific accidents, terrorism using weapons of mass destruction and other dangers: he thinks civilisation has only a 50 per cent chance of surviving this century. But I believe our survival depends not on chance but on whether we can create the relevant knowledge in time. It always has depended on that, and always will. The vast majority of all species and all civilisations that have ever existed are now extinct. If we want to be the exception, our only hope is to harness the one feature that distinguishes our species and our civilisation from all others, namely our special relationship with the laws of physics: our ability to create new knowledge.

Take global warming. According to the best available scientific theories, it is too late to avoid a global-warming disaster. For if it's true that our best option is to suppress carbon-dioxide emissions with the Kyoto protocol at a cost of hundreds of billions of pounds, then that's already a disaster by any reasonable measure.

And those measures aren't even purported to solve the problem, merely to postpone it a little. Most likely it was already too late before anyone even knew about it: in the 1970s, the best available science was telling us that industrial emissions were about to precipitate a new Ice Age that would kill billions. The lesson seems so clear that I am baffled that it does not inform public debate: it is that we cannot always know.

No precautions, and no precautionary principle, can avoid problems that we do not yet foresee. Therefore, society needs to shift its stance from problem avoidance to problem fixing. The world is abuzz with plans to cut emissions at all costs. It ought to be buzzing with plans to cool the planet. Or to thrive on a warmer one. And not at all costs, but efficiently. Some such plans exist: swarms of mirrors in space that would deflect sunlight away from the Earth; encouraging aquatic organisms to eat more carbon dioxide, and so on. Such problem-fixing ideas, currently mere fringe research, ought to be at the heart of humankind's approach to an unknowable and dangerous future. The ability to put things right, not the impossible prescience needed to stave off all harm in advance, is our only hope of survival.

So take those two stone tablets and carve the two denials I spoke of. On the first, carve: problems are inevitable. And on the second: problems are soluble.

David Deutsch is a professor of physics at Oxford University. This month he won the $100,000 "Edge of Computation" prize, funded by the philanthropist **Jeffrey Epstein,** for his work on quantum computers. When he first proposed quantum computation in 1985, it seemed only a theoretical possibility. But the past decade has seen simple quantum computers that many believe will pave the way to a scientific revolution.

LOAD-DATE: November 29, 2005

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HEADLINE: A package of news briefs from the Caribbean

BYLINE: By The Associated Press

BODY:

CARIBBEAN: Sugar producers in final push to get more EU aid

GEORGETOWN, Guyana (AP) The Caribbean will send another team to several European capitals in a final push to get more aid for the region's sugar industry after large subsidy cuts were imposed in January, an official said Friday.

Representatives from the African, Caribbean and Pacific trade group head to Europe in April, following a first group that went in early March seeking extra funds to deal with the EU's 36-percent cut in sugar subsidies.

The EU for years gave its former colonies in the Caribbean, Africa and the Pacific preferential access to its markets and paid high prices to encourage development. The World Trade Organization said the regime was unfair and ordered the bloc to reduce quotas and prices for sugar, as well as for bananas and cotton.

The EU has earmarked US$47 million ([#x20ac]40 million) in aid for the 18 sugar producing ACP countries in 2006. Caribbean sugar producers argue the reduced compensation is unfair because EU farmers who face the same subsidy cuts were to be compensated US$7.9 billion ([#x20ac]6.5 billion).

Caribbean sugar producers include Guyana, Jamaica, Belize, Trinidad and Barbados. St. Kitts closed its industry after the cuts were first announced and because of rising production costs.

ST. VINCENT: St. Vincent police find bullet that killed PM's press secretary

KINGSTOWN, St. Vincent (AP) St. Vincent police have recovered the single bullet that killed the prime minister's press secretary and have sent it to another Caribbean island for analysis, an official said Friday.

The bullet was found imbedded in a seat in Glen Jackson's sport utility vehicle, said Bertram Pompey, acting police commissioner, who declined to specify where the bullet was sent for testing.

Jackson, whose nude body was discovered Feb. 6 in the SUV near his home in the Cane Garden area outside the capital, was Prime Minister Ralph Gonsalves' press secretary. He played major roles in the governing Unity Labor Party's successful 2001 and 2005 elections campaigns and hosted a radio talk show program.

Gonsalves has said two Scotland Yard specialists were expected to join three British investigators working with local authorities to investigate Jackson's death. Thousands of people turned out Wednesday for his funeral.

About 118,000 people live in St. Vincent and the Grenadines, an island chain in the southeast Caribbean Sea.

JAMAICA: Jamaican man charged with killing six family members

KINGSTON, Jamaica (AP) A man has been charged with killing six family members, including four children, whose bodies were found along a beach in western Jamaica last month, police said Friday.

Michael McLean, 38, was charged Thursday with six counts of murder, police said.

McLean, the common-law husband of one of the victims, Terry-Anne Mohammed, 42, has been in custody since Feb. 28. He turned himself into police because he said he feared for his life after neighbors accused him of the murders.

Mohammed's burnt corpse was found by police about a half-mile away from the mutilated body of her 8-year-old son, Jessie Ogilvie. The bodies of Mohammed's niece, Farika [redacted]-McCool, 27, and two of her children were also found on the beach with their throats slashed.

One week later, police say McLean led them to a nearby parish where [redacted]-McCool's 6-year-old daughter, Jhaid, was buried in a shallow grave.

The slayings may be drug-related, said Arthur Martin, assistant commissioner of police.

There were a record 1,669 homicides last year in Jamaica, which has recently received the help of Scotland Yard and London's Metropolitan Police to fight the crime wave.

HAITI: New U.S. ambassador arrives, takes up post

PORT-AU-PRINCE, Haiti (AP) The United States will provide support to Haiti and work with the country's recently elected government, the new U.S. ambassador said Friday.

Janet A. Sanderson, former ambassador to Algeria, also has served at diplomatic missions in Egypt, Jordan, Israel, Kuwait and Bangladesh.

"With the election of a new president, new perspectives now present themselves to Haiti," she said while presenting her credentials to the Haitian government. "Haitians are looking for a better life. And they are ready though impatient to work ardently to succeed."

President [redacted] W. Bush nominated the career diplomat to replace James Foley, who left Haiti late last year.

The United States is one of the main donors to Haiti, the poorest country in the Western Hemisphere.

GUYANA: U.S. diplomat lambasts drug trade, tells police to stop fraternizing with criminals

GEORGETOWN, Guyana (AP) The drug trade is fueling a surge in violent crime and corruption in Guyana, and police must stop fraternizing with known drug traffickers, a U.S. official said Friday.

The drug trade has grown from a trickle to a multimillion dollar business in the South American country, and communities are small enough for everyone to know who is involved in it, said Michael Thomas, the U.S. embassy's deputy chief of mission.

"The public will not trust a police officer they see having lunch with a drug trafficker," said Thomas, who spoke at the end of an FBI-sponsored community policing training course.

Drug trafficking accounts for an estimated 20 percent of the country's gross domestic product, the U.S. State Department said in its annual narcotics report released last week. Local media regularly report crimes that are believed to be related to drugs, the report said.

Weak law enforcement has contributed to the problem, and U.S. federal agents believe anti-drugs agencies intercept a small amount of the cocaine that transits Guyana, the report said.

PUERTO RICO: U.S. contractor gets 10-year sentence in education fraud case

SAN JUAN, Puerto Rico (AP) A U.S. contractor was sentenced Friday to 10 years in prison for his role in a US$4.3 million ([#x20ac]3.6 million) fraud scandal involving Puerto Rico's education department and its former chief.

Norman Olson was convicted of four counts of bribery for paying more than US$73,000 ([#x20ac]60,400) in political favors as part of a scheme uncovered four years ago.

Olson, president and owner of National School Services, a Chicago-based business that provides teacher training and education consultants, said he plans to appeal.

"I respect the decision of this court even though I feel that I am innocent of these charges," Olson said following his sentencing.

Olson was found guilty of paying bribes to Victor Fajardo, former education secretary from 1994 to 2000, in exchange for contracts with the department between 1999 and 2000.

Fajardo pleaded guilty in 2002 to extorting some US$4.3 million from contractors doing business with his agency.

U.S. VIRGIN ISLANDS: Nobel Prize winning physicists debate universe structure in U.S. Virgin Islands

CHARLOTTE AMALIE, U.S. Virgin Islands (AP) Twenty of the world's top physicists, including three Nobel Prize winners, are meeting in the U.S. Virgin Islands to debate the structure of the universe.

Nobel prize winners Gerardus 't Hooft, David Gross and Frank Wilczek, and experimental and theoretical physics pioneer Stephen Hawking are among the minds that have converged in the island of St. Thomas to discuss some of physics most puzzling questions, such as the existence of black holes and alternate dimensions.

"This is a remarkable group, as far as the level of people who are here," said Wilczek, who won the 2004 Nobel Prize in physics with Gross and H. David Politzer for their explanation of the force that binds particles inside the atomic nucleus.

Jeffrey Epstein, a New York money manager whose J. Epstein Virgin Islands Foundation helped finance the six-day conference that began Thursday night, said the U.S. Caribbean territory's natural beauty will help the scientists relax and concentrate.

"You work best with friends. The idea is to take them for a walk on the beach. Take them on a submarine ride," he said. "I think some really great ideas will come out of this."

CRICKET: Solanki spurs England A to series-leveling win

BRIDGETOWN, Barbados (AP) Captain Vikram Solanki spanked 92 as England A cruised to a series-leveling 90-run triumph over West Indies A in their fourth one-day cricket international at Windward Cricket Club on Friday.

The five-match rubber stood at 2-2 with the decider on Sunday at the same venue.

Solanki, the Worcestershire right-hander, cracked nine fours off 121 balls to lead the visitors to a formidable 269 for nine off 50 overs.

The home team limped to 179-9 off 50 overs in its pursuit. England fast bowler Sajid Mahmood engineered a top-order slide, claiming three for 33 while offspinner Gareth Batty took 3-26.

Left-hander Ryan Hinds topscored for West Indies with a labored 32 off 70 balls.

England A, batting first after winning the toss, stumbled early on as West Indies' new ball pair of Andrew Richardson and Tino Best reduced it to 15-2 in the fifth over.

But Solanki and Jamie Dalrymple added 132 for the third wicket to tilt the balance back to their side.

Dalrymple cracked four fours and three sixes in 62 off 75 balls before he was stumped trying to hit out at offspinner Omari Banks.

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Ethnic NewsWatch
Forward

April 23, 2004

SECTION: Vol. CVII; No. 31; Pg. 6

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HEADLINE: Fund Helps Persecuted Scholars Reach Safe Havens

BYLINE: Popper, Nathaniel

BODY:

In a seemingly different life, Ahmed Subhy Mansour was a scholar at Cairo's venerated Al-Azhar University. He studied the history of dictatorship in Islam and the place of death and paradise in the Koran. But some aspect of his research did not go over well with the authorities, and in 1987 he was fired from his position and jailed for two months.

Since then he has searched for a place to continue his work and his life, particularly after a number of newspapers accused him of upholding Zionism, a crime punishable by death in Egypt. After 15 years of wandering, last year he finally found a new home -- as a research fellow at Harvard University.

The match was made through the Scholar Rescue Fund, started two years ago by the Institute of International Education. Since it was created, the rescue fund has enabled Mansour and 44 other scholars to escape persecution in their home countries, and -- just as importantly for many of them -- to continue their scholarly work with a position at an American university. At Harvard, for example, Mansour has pushed ahead with the creation of a center for studying and reforming the Wahabi influence on Islamic institutions in America.

The rescue fund is not the first such project run by the International Institute of Education, which also sponsors the Fulbright scholarship program. During the 1930s and 1940s, the institute's Emergency Committee in Aid of Displaced Foreign Scholars helped bring more than 330 scholars, most of them Jewish, from Nazi Germany to the United States, including such luminaries as philosopher Martin Buber, physicist Enrico Fermi and novelist Thomas Mann.

Descendents of several of those earlier scholars, along with families of other Jewish refugees, gathered recently at the Park Avenue apartment of Jewish philanthropist Patti Kenner to raise money to help revive the rescue program. After cocktails, the crowd of about 100 guests retired to Kenner's warm living room to sit on plush couches among pastoral landscape paintings. Four recently rescued scholars had been brought in for the evening, and two of them told their respective tales of persecution in Iran and Pakistan, which seemed much more than a world away from the safety of the Upper East Side.

"I've had such an easy life," Kenner said after hearing the scholars speak, with a tone of gratitude that was representative of her guests. "I've never experienced anything difficult. We're all so lucky."

The fund is being revived at a time when many observers are talking about global antisemitism reaching its highest levels since the 1930s, when the last rescue program was in operation. In the program's current incarnation, though, none of the 45 scholars who have been rescued are Jewish.

The one scholar so far whose work was connected to the Jewish community was a Palestinian scholar, who felt threatened by both Israeli and Palestinian officials for his work analyzing the policy of political assassinations.

"He was advocating less violence on both sides, and it made him unpopular with a lot of people," according to Robert Quinn, director of the Scholar Rescue Fund.

The rescue fund has little in the way of guaranteed funds to ensure its survival. The goal of the night was to raise 1 million for an endowed chair in the name of Ruth Gruber, a 93-year old photojournalist who was on hand to tell of her trip to Europe in 1944, when she helped rescue 1,000 Jewish refugees.

The Gruber chair is part of a larger effort to create a 10 million endowment that is being led by refugee-turned-millionaire Henry Jarecki, along with fellow businessmen [redacted] Soros, Thomas Russo and **Jeffrey Epstein.**

While the roster of scholars who have been helped suggests that the Jewish funding for the program does not come out of a narrow ethnic self-interest, the scars of Jewish history were evident beneath the surface of the appeals for donations at Kenner's apartment.

The guest speaker for the night was Hanna Holborn Gray, who came over with her parents through the 1930s rescue program and went on to become the first female president of the University of Chicago.

"In the 1930s, the German academic world was seen as a model, and one saw how quickly that could vanish," Gray recalled.

Almost all of the 45 scholars funded in the last two years have hailed from either African or Muslim-majority countries. Many of them -- including Mansour and an Iranian scientist who spoke at Kenner's home -- have been punished for the pro-Western and pro-Israel slant in their work.

The fund's directors, however, have been astonished at the diversity of the 450 scholars from 84 countries who have applied so far. Many of the applicants come from far beyond the traditional disciplines of the humanities in which dissidents might be expected to work.

The threat of bodily harm was a constant for most of the applicants, and Jarecki ominously remembered that many of the more than 5000 applicants who were turned down by the institute during the 1930s perished a few years later.

A scholar from the Ivory Coast at Kenner's gathering described his own situation -- being forced to hide in the countryside after teaching political science courses that were critical of the government -- as a re-emergence of darker periods from the past.

"This is the same old story," the African scholar said. "It is the history of the universe. The history of power corrupting people."

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JOURNAL-CODE: FW

LOAD-DATE: September 30, 2004

math--counting	10	66.6
attitude--positive	9	60.0
speech act	9	60.0
space--size	8	53.3
space--grasping	7	46.6
sound--speech	7	46.6
logic--universal quantification	7	46.6
space--housing	6	40.0

Table 2 Diverse schemes for story understanding domains

Domain	Representation/Reasoning Schemes
space	frame, generalized cylinder model, interval logic, occupancy grid
time, action effects	causal model, event calculus, situation calculus, transframe
reactivity	neural net, production system, subsumption architecture
schemas, scripts	finite automaton, frame, frame-Array, generalized Petri net
subgoaling	first-order logic, K-line, marker passing, semantic net
emotions, attitudes	microneme, neural net, temporal modal logic

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The reactive and deliberative layers differ in that the deliberative layer evolved much later and requires a far more sophisticated long-term memory, as well as symbolic reasoning capabilities using a short-term reusable memory. The meta-management layer may have evolved at a still later time and requires explicit use of concepts referring to states of an information processing architecture. The earliest organisms, such as most existing organisms, were totally reactive. Deliberative and meta-management layers evolved later. Adult humans appear to have all three types of processing, which is probably rare among other animals.

One of the key features that gives H-Cogaff its generality is the fact that different components, instead of forming parts of simple pipelines, can concurrently send information of various kinds to arbitrarily many other components, allowing a wide variety of feedback mechanisms and triggering mechanisms.

In story understanding, the meta-management level may control the deliberative level in a number of ways.

* If the deliberative level is spending too much time considering certain details and those details are not crucial to the story, the meta-management level will make the deliberative level stop.

* If the deliberative level is spending too much time on a task that does not relate to the goal of reading the story, the meta-management level will make the deliberative level stop.

* If the deliberative level becomes confused, the meta-management level will tell it to go back and reread. The deliberative level may have ruled out a possibility earlier that needs to be reconsidered in light of new information.

Minsky further elaborates the H-Cogaff architecture into the six-level architecture called "Model Six" shown in Figure 2. (1) At its bottom lies a "zoo of instinctive subanimals" built upon ancient, ancestral systems that still maintain our bodies and brains. These include systems for feeding, breathing, heating, sleeping, and other systems that keep us alive. The deliberative and reflective levels are engaged to solve more difficult kinds of problems. The self-reflective level is engaged when the problems involve our relationships with our past and future selves. At the top lies machinery that we acquire from our societies, such as suppressors and censors, imprimers and values, and our various kinds of self-ideals.

[FIGURE 2 OMITTED]

Multiple reasoning and representation schemes and levels. An architecture of diversity would embed representations from natural language to micronemes (27,1) as depicted in Figure 3. The representations depicted include frames, transframes, frame-arrays, K-lines, and micronemes. A frame is a representation based on a set of slots to which other structures can be attached. (28) Each slot is connected to a default assumption that is easily displaced by more specific information. A transframe is a particular type of frame representing the causal trajectory between the initial and resulting states representing a situation that a legal action was performed on. A frame-array is a collection of frames that share the same slots, making it easy to change perspective with respect to physical viewpoint or other mental realms. A knowledge-line or K-line is a wirelike structure that attaches itself to whichever resources are active in solving a problem. The K-line simplifies activation of those same resources when solving a similar problem in the future. Micronemes are low-level features for representing the many cognitive shades and hues of a context. In Figure 3, new evolved structures are made from older lower-level ones, and the tower shown might be a plausible Darwinian brain-development scheme.

[FIGURE 3 OMITTED]

Table 2 shows just a few of the diverse representation and reasoning schemes useful for domains of story understanding.

We propose to address the commonsense reasoning problem starting with stories for very young readers. However, to demonstrate all of the different ways we think when understanding a story, and what we would eventually expect a commonsense story understanding system to be able to handle, consider the following adult story (the discussion here is condensed from Reference 1).

Joan heard a ring and picked up the phone. Charles was answering her

question about how to use a certain technique. He suggested she read a

certain book, which he would soon bring to her since he had planned to be in her neighborhood. Joan thanked him and ended the call. Soon Charles arrived and gave her the book.

Following are a few of the understandings an adult reader would have after hearing the story.

* Joan heard a ring. She recognizes it as a telephone bell and feels the need to respond quickly. She knows how to use the telephone.

* She picked up the phone. She is subsequently holding the phone to her ear.

* Charles was answering her question. Charles and Joan are not in the same room. Charles also knows how to use the telephone.

* He suggested she read a certain book. Joan probably now feels some relief, since she knows where to find the knowledge she needs.

* He had planned to be in her neighborhood. Joan will not be surprised when he arrives, because she will remember that he said he would come.

* He gave her the book. Will she have to give it back? The story does not tell us that.

These conclusions are based on reasoning and representations in many realms, as follow.

The physical realm. In this realm, give might mean the motion of the book through space. This could be represented as a transframe that starts with Charles's hand holding the book and ends with Joan's hand carrying it. One must know a lot about physical things and how they behave in space and time.

The social realm. In this realm, give may signify social acts that can alter the relationships of the actors. What were Charles's motives or his attitudes? Clearly, he was not returning a loan. Was he hoping to ingratiate himself? Or was he just being generous? How will Joan feel about Charles after he gives her the book? One must know a lot about what people are, and a certain amount about how people work.

The dominion realm. Given Charles gave Joan the book, one infers not only that Joan is holding the book, but also that, at least for a time, she possesses the right to use it.

The conversational realm. How do conversations work? Consider how many elaborate skills are involved in a typical verbal exchange. One has to keep track of what is being discussed, what one has previously told the listener, and what the listener knows. Thus conversations are partly based on knowledge of how human memories work and what is commonly known in one's culture. One has to make sure the listener has understood what was said and why it was said. One certainly needs to know how to speak and to understand some of what one may hear.

The procedural realm. How does one make a telephone call? One must first find a phone and dial a number. Then once the connection has been established, one says hello, talks a bit, and eventually leads into why one called. At the end, one says goodbye and hangs up the phone. Generally, such scripts have certain steps that are specified, while other steps provide for more room to improvise.

The sensory and motor realms. Each of the above steps raises questions. For example, it takes only one second or so for one's arm to reach out in order to pick up the phone. How can one do that so quickly?

The kinesthetic, tactile, and haptic realms. Using a telephone or any other physical object engages a great base of body-related knowledge and skills. One anticipates how the phone will feel against one's ear or sandwiched between shoulder and cheek. One expects certain haptic sensations such as the feel of the phone's weight. One strengthens one's grip when the phone starts to slip.

The temporal realms. People have elaborate models of time where events are located in futures and pasts that are represented in relation to other times and events or in anecdotal stories.

The economic realm. People know and reason about the costs incurred by each action or transaction in terms of money, energy, space, or time.

The reflective realm. People know about themselves. One knows to some degree what one can or cannot do, what kinds of problems one can solve, how one's thinking and memory works, and what sorts of things one is able to learn.

Along with these positive kinds of knowledge, one also has negative knowledge about what might go wrong when using a phone. One must know what to do if one gets a wrong number, if there is no answer, or if a modem or intercept recording is reached.

Example system with architecture of diversity. Thus far, the Sloman and Minsky architectures are theoretical constructs and have not yet been implemented. However, there are examples of working systems that capture the spirit of such architectures. One such example is the M system depicted in Figure 4. (29) M integrates multiple reasoning processes and representations to serve as an assistant to a user collaborating with other workers within a virtual meeting room that hosts multimedia desktop conferencing. M serves to recognize and classify the actions performed by the participants as well as the objects upon which the actions are applied; example actions and objects are brainstorming on a whiteboard, coauthoring a document, and creating and working with other artifacts.

[FIGURE 4 OMITTED]

Next steps

The two recent meetings held in March 2002 at the IBM Thomas J. Watson Research Center and in April 2002 on St. Thomas indicate that there is a dedicated group of recognized researchers interested in working together on a project to develop a solution to commonsense reasoning. We are now planning to undertake some of the next steps in a plan for such a project. The inspiration for this work comes from Minsky's past and forthcoming work. We close with his thoughts on how such a project might be realized, as follows.

Our goal is to aim toward a critical "change of phase" that will come when we cross a threshold at which our systems know how to improve themselves. This is something that all young children can do, but we do not know enough about how they do it; so one goal of the project must be to develop better models of how normal people think.

We will start by trying to implement some of the architectures proposed over the past decade. There already exist many useful schemes for representing and using knowledge mostly of a factual nature for use on what we call the deliberative level. However, there has not been enough work on the higher reflective and self-reflective levels that humans use, as they learn to improve their thinking itself. Any such system, we claim, will need additional kinds of meta-resources, which will include systems that manage, criticize, and modify the already operating parts of the structure.

In the field of AI we already have many resources related to this, for example, neural networks, formal logic, relational databases, genetic programs, statistical methods, and of course the heuristic search, planning, and case-based reasoning schemes of earlier years. However, our goal is not to discuss which method is best. Instead we will try to develop a plan of how to incorporate into one system the virtues of many different approaches. Of course, each such scheme has deficiencies and our hope is that our system can escape from these by using higher-level, more reflective schemes that understand what each of those other schemes can do and in what context they are most effective.

Table 1 Early reader corpus: top 10 domains of common

sense

Domain	Number of Stories	Percentage of Stories
space--location	14	93.3
space--motion	11	73.3

606 of 1456 DOCUMENTS

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SECTION: No. 3, Vol. 41; Pg. 530; ISSN: 0018-8670

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LENGTH: 6160 words

HEADLINE: An architecture of diversity for commonsense reasoning; Technical forum.

BYLINE: McCarthy, J.; Minsky, M.; Sloman, A.; Gong, L.; Lau, T.; Morgenstern, L.; Mueller, E.T.; Riecken, D.; Singh, M.; Singh, P.

BODY:

Although computers excel at certain bounded tasks that are difficult for humans, such as solving integrals, they have difficulty performing commonsense tasks that are easy for humans, such as understanding stories. In this Technical Forum contribution, we discuss commonsense reasoning and what makes it difficult for computers. We contend that commonsense reasoning is too hard a problem to solve using any single artificial intelligence technique. We propose a multilevel architecture consisting of diverse reasoning and representation techniques that collaborate and reflect in order to allow the best techniques to be used for the many situations that arise in commonsense reasoning. We present story understanding--specifically, understanding and answering questions about progressively harder children's texts--as a task for evaluating and scaling up a commonsense reasoning system.

In the fall of 2001, a proposal was developed by Marvin Minsky, Erik Mueller, Doug Riecken, Push Singh, Aaron Sloman, and Oliver Steele for a project to develop a human-level commonsense reasoning system. The basic proposal was (1) to develop certain ideas of Minsky and Sloman about a multilevel cognitive architecture, and (2) to develop the system in a way that would exploit many existing artificial intelligence techniques for commonsense reasoning and knowledge representation, such as case-based reasoning, logic, neural nets, genetic algorithms, and heuristic search.

We proposed to organize a meeting at which we would bring together many of the major established researchers in the area of commonsense knowledge and reasoning. Riecken organized a preliminary meeting at the IBM Thomas J. Watson Research Center in March 2002, at which many IBM researchers were invited to discuss and react to this general subject as well as to present their own ideas. Afterwards, the specific proposal was discussed in more detail by specialists in commonsense knowledge and reasoning at a meeting held on St. Thomas, Virgin Islands, in April 2002, and hosted by **Jeffrey Epstein.** This Technical Forum contribution focuses on the preliminary meeting, but also contains some material presented at the April meeting, including some material from Minsky's forthcoming book The Emotion Machine. (1)

At the IBM meeting, a broad consensus was reached on three main points. First, there was agreement that the community should strive toward solving a nontrivial problem that would require a level of knowledge, and a capability of reasoning with that knowledge, beyond what is demonstrated by current systems. The problem put forward was that of story understanding. An important advantage of the story understanding task is that standardized tests are available to evaluate students on their reading comprehension skills. Moreover, these tests require the use of commonsense reasoning skills. It is thus possible to evaluate the performance of any story understanding system against that of students at different reading levels. (2)

Second, there was consensus that the story understanding task provides a strong testbed for evaluating a commonsense reasoning system. Not only does such a system need several different forms of reasoning, representation, and learning, but it also needs them to work in conjunction with each other. In addition, the task highlights the importance of using and reasoning with common sense. This is illustrated by a sentence from a story about a child and her grandfather: "He gently takes my elbow as we walk so that I can help show him the path." Knowledge of the fact that the grandfather is blind, and the commonsense facts that people ordinarily use their sight to find paths and that blind people are unable to see, enable the inference that the child is guiding the grandfather and not merely pointing out the path, another frequent sense of the word "show." Absence of this commonsense knowledge could lead to the incorrect interpretation of the word "show."

Third, there was agreement on the need to develop a testbed architecture for representation and reasoning that allows different systems and representations to work with each other. Researchers often try to solve a problem using just one form of representation and reasoning. But such an approach does not work well for sufficiently complex problems such as story understanding. In contrast, enabling various techniques to collaborate will allow the best techniques to be used for a given situation. Any such architecture must provide metalevel control and knowledge that will enable different techniques to determine whether or not they are suited for a given task, to decide what other techniques may be better for the task, and to communicate information and share partial results with each other.

What makes commonsense reasoning difficult

Commonsense reasoning--the sort of reasoning we would expect a child to do easily--is difficult for computers to do. Certainly, the relative paucity of results in this field does not reflect the considerable effort that has been expended, starting with McCarthy's paper "Programs with Common Sense." (3) Nevertheless, the problem remains unsolved. What is it about commonsense reasoning that makes it difficult to automate? Various explanations have been suggested, some of which we discuss in this section.

McCarthy's commonsense informatic situation. The knowledge needed to solve a commonsense reasoning problem is typically much more extensive and general than the knowledge needed to solve difficult problems. McCarthy points out that the knowledge needed to solve well-formulated problems in fields such as physics or mathematics is bounded. (4) In contrast, there are no a priori limitations to the facts that are needed to solve commonsense problems: the given knowledge may be incomplete; one may have to use approximate concepts and approximate theories; one will generally have to use non-monotonic reasoning to reach conclusions; and one will need some ability to reflect upon one's own reasoning processes. Morgenstern provides an example of the commonsense informatic situation in the problem of two friends arranging to meet for dinner at a restaurant. (5)

Explicit vs implicit knowledge. Commonsense knowledge is often implicit, whereas the knowledge needed to solve well-formulated difficult problems is often explicit. For example, the knowledge needed to solve integrals can be found in explicit form in a standard calculus textbook. However, the knowledge needed to arrange a dinner meeting exists in vague, implicit form. Implicit knowledge must first be made explicit, which is a time-consuming task requiring a serious knowledge engineering effort.

Domain knowledge. A huge amount of knowledge is needed to do even simple forms of commonsense reasoning. For example, to figure out what sorts of objects will work as stakes in a garden--a reasoning task that seemingly demands no effort--requires knowledge of plant materials, how plants grow, flexibility and hardness, shapes of plants, soil texture, properties of wind, spatial reasoning, and temporal reasoning. (6) Although there have been a number of efforts to capture large amounts of world knowledge, most notably the Cyc ** project, (7) we are not at this point aware of any knowledge base that contains the information necessary to reason about stakes in a garden or about fumbling for an object in one's pocket.

This Technical Forum piece does not present a solution to these difficulties. Rather, we are attempting to see how far we can progress on an important commonsense reasoning problem even in the presence of such difficulties.

Story understanding as a vehicle for studying commonsense reasoning

Story understanding requires addressing the commonsense informatic situation. A story understanding system should be able to read and understand a story, and demonstrate its understanding by (1) answering

questions about the story, (2) producing paraphrases and summaries of the story, and (3) integrating the information the story contains into a database. Further, useful results from this work will have a direct impact on many business products and services.

A brief history of story understanding systems. Starting in the 1960s, (8) researchers have studied story understanding and have built systems that can read and answer questions about simple stories. An early system built by Charniak (9) used a single mechanism, test-action demons, for making inferences in understanding. In the 1970s, Schank and Abelson (10) proposed scripts, plans, and goals as knowledge structures for understanding. These knowledge structures were incorporated into the SAM (11) and PAM (12) story understanding systems.

In the 1980s, knowledge structures for emotions, story themes, and spatial/temporal maps were incorporated into BORIS. (13) AQUA (14) used case-based reasoning to retrieve and apply explanation patterns in order to answer questions raised by anomalies encountered while reading a story. CRAM (15) used a connectionist approach to story understanding.

Recent story understanding systems have adopted the approach of understanding a story by building and maintaining a simulation that models the mental and physical states and events described in the story, as demonstrated in ThoughtTreasure. (16) The advantage of this approach is that it is easy to answer questions about the story simply by examining the contents of the simulation.

Critical problems for story understanding systems. The story understanding systems built so far work only on the particular stories they are designed to handle. For example, SAM (11) handles five stories, BORIS (13) three, AQUA (14) five, and ThoughtTreasure (16) three. What prevents story understanding systems from scaling up to hundreds of previously unseen stories?

We contend that story understanding research is blocked on three critical problems: (1) complexity of the structure of natural language, (2) necessity for large commonsense knowledge bases, and (3) combinatorial explosion in the understanding process.

Complexity of the structure of natural language. Rare is the simple subject-verb-object sentence that maps into a simple proposition. More typically, text contains numerous language phenomena such as adverbials, compound nouns, direct and indirect speech, ellipsis, genitive constructions, and relative clauses. (17) Present-day syntactic and semantic parsers have trouble producing accurate parses of typical story sentences.

Necessity for large commonsense knowledge bases. Understanding even simple stories requires knowing a huge number of facts. For example, understanding the first paragraph of The Cat in the Hat requires knowing about children's play, how children can be affected by winter weather, their relationship to their parents, and notions of discipline, boredom, surprise, and risk. Similarly, as [redacted] (18) points out, the first paragraph of The Tale of Benjamin Bunny assumes familiarity with concepts of quantity, space, time, physics, goals, plans, needs, and communication.

Combinatorial explosion in the understanding process. Multiple possible interpretations arise at all levels of language. Words are ambiguous as to part of speech and word sense. Sentences are syntactically ambiguous. There are several possible explanations for any action of a story character, several possible explanations for those explanations, and so on. We get a combinatorial explosion: the understanding process must search an extremely large space of possibilities.

Approaches to critical problems in story understanding. What can be done? We propose a three-pronged approach. First, to deal with the complexity of the structure of natural language, we make a major cut in complexity by going back to books for early readers. Second, to deal with the necessity for large commonsense knowledge bases, we propose to identify the domains most frequently used in a restricted set of stories and to address these first. Last, to deal with the combinatorial explosion in the understanding process, we propose a new paradigm for commonsense reasoning: an architecture of diversity.

Early readers. Early reader texts are designed for preschool and kindergarten students. These texts employ a small or controlled vocabulary, short sentences, and limited language constructions. Working with early reader texts will enable us to effectively solve the language front-end problem using existing research techniques.

Text annotation for domain identification. We cannot hope to deal with the commonsense informatic situation head-on. The point of McCarthy's 1996 paper (4) is that any domain can be relevant to a particular problem: when reading a story, any area of knowledge may be necessary for comprehension. This is less true for stories designed for very young readers; although, as our examples above show, a great many concepts and domains are still needed for full comprehension even of early reader texts. Nevertheless, we believe we can make progress by choosing to address those domains that most frequently turn up in children's stories. Such an approach would, we hope, make the problem tractable.

We thus propose the following corpus-based approach. We start with a corpus of stories at the preschool and kindergarten levels and divide the corpus into a development set and a test set. We manually annotate each story in the development set with an informal inventory of what domains of commonsense knowledge and reasoning must be addressed in order to understand the story. We sort the domains by their frequency and attempt to develop methods to understand the domains that occur most frequently. We start with the most frequent domain, proceeding to the next most frequent domain, and so forth. Development proceeds on the development set, and a final evaluation of the generality of the system is conducted on the previously unseen test set. We iterate this process on successively higher reading levels, progressing to stories designed for Grades 1, 2, and 3. This approach, based on an incremental series of experiments, will enable a significant research focus at each step on an architecture of diversity.

To demonstrate how this approach would work, we formed a corpus of 15 early reader stories and annotated them as to the domains of common sense necessary for understanding them. The vocabulary size was 561 words. The top 10 domains of common sense are shown in Table 1. This provides us with a path for research in understanding the story corpus: focus on handling the most frequently appearing domains of common sense.

Dealing with these concepts is by no means trivial. We plan to leverage the extensive work that has been done in these areas. Such work includes: ThoughtTreasure, (16) NETL2, (19) Cyc, (7) Shanahan's formalization of time, (20) the RCC formalization of space, (21) and Kuipers's Spatial Semantic Hierarchy. (22) We will also employ rapid knowledge formation techniques such as Open Mind. (23)

An architecture of diversity

Many attempts to build intelligent computers have hunted for a single mechanism (such as universal sub-goaling, propagation rules, logical inference, probabilistic reasoning) or representation (such as production rules, connectionist networks, logical formulas, causal networks) that would serve as a basis for general intelligence. Why have these approaches so far failed to achieve human-level common sense?

We believe that the problem is too large to solve using any single approach. Human versatility must emerge from a large-scale architecture of diversity in which each of several different reasoning mechanisms and representations can help overcome the deficiencies of the other ones. (24,1) Our hypothesis is that such an architecture can overcome the combinatorial explosion problem in story understanding.

Multilevel cognitive architecture. We conjecture that the information processing architecture of a human is something like the three-level architecture developed by Sloman in the Cognition and Affect project (25) (H-Cogaff), shown in Figure 1. This conjecture is based on evidence of many kinds from several disciplines, and constraints on evolvability, implementability in neural mechanisms, and functionality. (26)

[FIGURE 1 OMITTED]

Reactive processes are those in which internal or external states detected by sensors immediately trigger internal or external responses. Deliberative processes are those in which alternative possibilities for action can be considered, categorized, evaluated, and selected or rejected. More generally a deliberative mechanism may be capable of counterfactual reasoning about the past and present and hypothetical reasoning about the future. The depth, precision, and validity of such reasoning can vary. Meta-management processes add the ability to monitor, evaluate, and to some extent control processes occurring within the system in much the same way as the whole system observes and acts on the environment. The three layers operate concurrently and do not form a simple dominance hierarchy. Arrows represent flow of information and control, and boundaries need not be sharp in all implementations.

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Financial Times (London,England)

August 20, 2003 Wednesday
London Edition 1

SECTION: BACK PAGE - FIRST SECTION; Pg. 18

LENGTH: 748 words

HEADLINE: Wall Street spearheads push to secure academic freedom: A scheme that began in the 1930s, and helped physicist Felix Bloch and writer Thomas Mann, seeks a Dollars 10m revival. Gary Silverman reports

BYLINE: By GARY SILVERMAN

BODY:

About a year and a half ago, a small circle of wealthy investors collected Dollars 2m (Pounds 1.2m) to conduct a novel experiment on the extent of global academic freedom.

The group, which included [redacted] Soros, Henry Jarecki and **Jeffrey Epstein,** established a fund to help scholars escape threats in their home countries and find teaching work elsewhere. The donors made their offer in the spirit of the movie, Field of Dreams, which held that "if you build it, they will come". Still, they were stunned by the response.

About 300 academics from 65 countries sought help from the Scholar Rescue Fund, which is being administered by the non-profit Institute of International Education.

Many of the threats to scholars came from likely suspects - African warlords, Colombian drug traffickers, terrorists and religious fundamentalists. But the organisers were also struck by the heartbreaking singularity of so many of the cases.

A marine biologist in a former republic of the Soviet Union angered government officials by studying local shellfish populations. An African academic was threatened after discovering that funds had been stolen from a university library. One western European government even sought help for a local scholar who was threatened by a separatist movement.

"The overwhelming majority of cases involve people who haven't taken sides," said Allan Goodman, IIE president and chief executive.

"They just happened to be scholars who are teaching in the wrong field, or they happened to be from the wrong ethnic group or, in one case, they have the same surname as the leader of a faction and they have been targeted."

The extent of the problem led the organisers to a sad conclusion - their work needed to take a more permanent form.

They are now trying to raise a Dollars 10m endowment for the Scholar Rescue Fund. They may also start an index of academic freedom that would spotlight abuses in particular countries.

"The impact and need has been greater than we expected," says Mr Soros, comparing the effort to his work on behalf of central and eastern European dissidents in the 1980s.

So far, the fund has helped 30 scholars from 19 countries escape persecution and find work at institutions ranging from Princeton University to the Geological Survey of Norway. The rescues themselves can be dangerous and the IIE often turns to human rights groups for logistical help.

The fund arranges for the scholars to get teaching positions, providing annual stipends of up to Dollars 20,000 to smooth the transition.

The IIE's role in helping intellectuals is not a new role as it started in the 1930s and was led by Edward R. Murrow, an IIE assistant director and later a legendary CBS reporter. Among those it helped were Felix Bloch, the physicist, theologians Martin Buber and Paul

Tillich, Thomas Mann, the novelist, and philosopher Herbert Marcuse.

The latest effort to rescue scholars bears the imprint of Wall Street. Tom Russo, a Lehman Brothers ,vice-chairman and an IIE trustee, has been a prime mover in the project. He helped recruit the donors and define the rationale for the rescue work. For Mr Russo, academic freedom is like market transparency - a "source of light" that keeps society functioning smoothly.

Deciding on which requests should receive help has been a job worthy of Solomon. The fund has heard from scholars who live in dangerous places but face no particular threat as individuals - a requirement for receiving help. Mr Goodman says this is often the case in places such as Israel's occupied territories, although the IIE has made one rescue there.

Dr Jarecki, a psychiatrist who made a fortune in bullion dealing and other ventures, said the fund is also trying hard to avoid contributing to a "brain drain" of academic talent in developing countries. Many of the applicants face threats to their security, but others simply want to move for economic reasons.

However, the organisers say they are trying to resist the temptation of being too cautious in their work.

He says he frequently brings up the example of a 1938 conference in Evian, France, that was held to discuss the resettlement of German and Austrian Jews. The Dominican Republic agreed to accept between 50,000 and 100,000 Jews. But by the time the "proper" arrangements were made, a world war was raging and it was too late to do much good.

In this case, Dr Jarecki says, the fund will work out how best to achieve its aims as it goes along. But, he adds: "I thought we should start by doing it."

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The Associated Press State & Local Wire

February 7, 2003, Friday, BC cycle

SECTION: State and Regional

LENGTH: 200 words

HEADLINE: Financier pledges $30 million to support Harvard researcher

DATELINE: CAMBRIDGE, Mass.

BODY:

Reclusive financier **Jeffrey Epstein** has pledged up to $30 million to Harvard University to support a newly recruited professor's research in the field of mathematical biology.

A spokeswoman for Harvard president [redacted] H. Summers confirmed Friday that Epstein's contribution will support the research of Martin A. Nowak, who is scheduled to join the Harvard faculty on July 1.

Epstein, who reportedly manages billions of dollars from his private island in the Caribbean, already made a donation and plans to eventually establish a $30 million endowment to support Nowak's research, spokeswoman Lucie McNeil said. She did not specify how much he has already given.

Nowak, 36, currently a professor at Princeton's Institute of Advanced Study, uses advanced mathematics to model human behavior and to study evolutionary theory, viruses and cancers. He was recruited to Harvard as part of Summers' commitment to grant tenure to young professors and those who do interdisciplinary research.

The self-educated Epstein is both a longtime Harvard contributor and a benefactor of Nowak, to whom he previously donated $500,000, the Harvard Crimson student newspaper reported.

LOAD-DATE: February 8, 2003

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