A surfeit of science: The “CSI effect” and the media appropriation of the public understanding of science

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Abstract
Over the past decade, popular media has promulgated claims that the television program CSI and its spinoffs and imitators have had a pernicious effect on the public understanding of forensic science, the so-called “CSI effect.” This paper analyzes those media claims by documenting the ways in which the media claims that CSI “distorts” an imagined “reality.” It shows that the media appropriated the analytic stance usually adopted by science advocates, portraying the CSI effect as a social problem in science communication. This appropriation was idiosyncratic in that it posited, as a social problem, a “surfeit” of knowledge and positive imagery about science, rather than the more familiar “deficits.” In addition, the media simultaneously appropriated both “traditional” and “critical” PUS discourses. Despite this apparent contradiction, the paper concludes that, in both discourses, the media and its expert informants insist upon their hegemony over “the public” to articulate the “reality” of forensic science.

Keywords
CSI effect, fiction, forensic, media, news, science communication, television

1. Introduction
Beginning in 2000, a new spate of forensic science themed police dramas began appearing on American and British television. The archetypical program was, of course, the now famous CSI (Crime Scene Investigation). Its British counterpart, Waking the Dead, debuted the same year. These programs may be understood as a distinct genre of police drama in their privileging of forensic science as the mechanism for investigating and solving fictitious crimes at the expense of the kind of detective work centered around interviewing people and working the streets that had hitherto been the staple of police dramas (Cavender and Deutsch, 2007; Gever, 2005; Nolan, 2007: 588–589).

CSI exploded in popularity, becoming, for a time, the most popular television show in the world (Allen, 2007a: 5) and spawning two spinoffs, CSI: Miami and CSI: New York, and numerous...
knockoffs. From 2004 through 2007, the original franchise and *Miami* were ranked among the top ten U.S. television programs, and *New York* was ranked in the top thirty (Cole and Dioso-Villa, 2009: 1338). The *CSI* franchise has also enjoyed successful careers in the global market and in reruns (Horan, 2007; Knox, 2007).

While *CSI* purported to reflect the increasing use and capabilities of forensic science in actual criminal investigations, it did so in an exaggerated and highly stylized manner consistent with its aim of being a successful entertainment. Like any other fictional television program, *CSI* took dramatic license, emphasized storytelling, developed characters, encapsulated plotlines in weekly segments, manipulated time, and so on. Indeed, the program has attracted as much attention for its visual style, including its use of computer-generated images to depict bio-physical events like bullets coursing through tissue, as for its emphasis on forensic science (Allen, 2007a: 6). In short, *CSI* was fictional television, not a documentary, and so was not “realistic” in a literal sense. Indeed, it has been called “anti-realist” (Jermyn, 2007: 81).

Depictions of science and scientists solving problems, finding truth, and benefiting society are generally sought after by science advocates (for discussion, see Dudo et al., 2011: 771; Kirby, 2003: 262; Nisbet et al., 2002: 585). Positive depictions of occupations on fictional television have generally been viewed as creating positive public perceptions of those professions (Hoffner and Buchanan, 2005). The extremely positive portrayal of forensic science and scientists on *CSI* would have seemed to be a boon to forensic scientists and to prosecutors, who tend to be the heaviest users of forensic evidence in legal proceedings. Indeed, American prosecutors initially were excited by *CSI*’s heroic portrayal of forensic science and scientists. However, they soon pivoted and posited a counterintuitive effect of the program: rather than advantaging prosecutors by portraying their expert witnesses as heroic and virtuous, *CSI* advantaged defendants by raising jurors’ expectations for forensic science and causing them to acquit if forensic science was absent (Franzen, 2002; Mopas, 2007; National District Attorneys Association, 2002).

The news media proved a willing outlet for this narrative of “jury incompetence” (Edmond and Mercer, 1997) and coined a new term, “the CSI effect.” The earliest known use of the term dates from an article in *Time* in 2002 which referred to “a growing public expectation that police labs can do everything TV labs can” (Kluger, 2002). The next article using the term, in the newspaper *The Oregonian*, elaborated that prosecutors “worry that the shows taint the jury pool with impossibly high expectations” (Franzen, 2002). The claim, then, was that the public suffered from “fiction-to-news source confusion” (Mares, 1996: 281–282) when watching *CSI* and its spinoffs and imitators—they thought the program was news, rather than fiction. Thus, in a sort of a “media looping” (Manning, 2003), what I will call “CSI effect stories” were media stories about the pernicious effects of media. Like *CSI* itself, the earliest CSI effect stories spawned imitators. CSI effect stories became nearly a genre unto themselves, and these stories followed remarkably similar scripts. In a process of “localization” (Clausen, 2004), essentially the same script could be transformed into a seemingly original local story by interviewing a local “cast of characters.”¹ By 2005, CSI effect stories had spread rapidly through the American news media (newspapers, magazines, television, and new media) and abroad as well (see Figure 1). A CSI effect story was a cover story in *U.S. News & World Report*, one of the three major American weekly news magazines (Roane and Morrison, 2005), and CSI effect stories appeared in “serious” popular science publications like *Scientific American* (Houck, 2006) and *National Geographic* (Lovgren, 2005).²

While there is some evidence that both *CSI* and actual developments in forensic science may influence public attitudes, there is little empirical evidence of a discernible effect on American jury verdicts (Cole and Dioso, 2011; Shelton et al., 2011; Smith et al., 2011). The lack of
evidence notwithstanding, the media has cast the CSI effect in the language of social problems. Media reports declared that “there is no debating” (P62) the reality of the “CSI effect,” that “the story lines are fiction. Their effect is real” (P289), that “TV is driving jury verdicts all across America” (P26), that “TV’s False Reality Fools Jurors” (P235), and that “CSI Has ‘Major Effect’ on Real Life Juries” (P274). An online journal claimed “In many cases across the nation real-life jurors who are fans of CSI has [sic] either caused hung juries or acquitted obviously guilty criminals, claiming the investigators failed to test evidence the way CSI does on television” (P270). A jury consultant says “The CSI effect is real, and it’s profound” (P413). One forensic scientist says that CSI is “polluting jury pools,” and a prosecutor adds “Jurors are so influenced by television … that it makes it nearly impossible for us” (P410). The Economist (“The ‘CSI effect,’” 2010) declares that “Television dramas that rely on forensic science are affecting the administration of justice” (emphasis added).

Outside the news media, other social actors have portrayed the CSI effect as a serious social problem. The County Attorney of Maricopa County, Arizona (which contains the city of Phoenix) called on CBS, the network that broadcasts CSI, to put a disclaimer on the program stating that it is fiction (Thomas, 2005, 2006). The FBI produced a video to educate criminal justice system actors about the pernicious “CSI effect” (Christianberry, n.d.), and the U.S. National Institute of Justice (2011) sponsored a website devoted to “CSI Effect Theory” with a tagline, “That’s television. This is a courtroom,” that suggests that members of the public are unable to distinguish the two. Academics have responded with symposia and special journal issues (“The CSI effect: The true effect of crime scene television on the justice system,” 2007), edited volumes (Byers and Johnson, 2009), and theses (e.g., Hayes-Smith, 2009; Okita, 2007).

2. Approach

Science advocates and some strains of science communications scholarship—such as those within the so-called “traditional” approaches to the public understanding of science (PUS), whose “underlying trope is of a public deficient in the right sort of knowledge, and thus in need of improvement” (Michael, 2009: 618–619)—have long treated the effects of the media on the public understanding of science as a potential social problem. Fictional television is often seen as particularly problematic (for discussion, see, e.g., Dudo et al., 2011: 771; Kirby, 2003: 262; Nisbet et al., 2002: 604). The media is seen as contaminating the public with “distorted” scientific knowledge and information. In social problems terminology, the media is the “folk devil,” science advocates and some science communication scholars the “moral entrepreneurs.” With CSI effect stories, however, media itself appropriated the role usually played by science advocates and some science communication scholars, casting other media as the cause of a social problem in the public understanding of science. Media—largely, but not exclusively, print media—turned CSI (other media) into the folk devil, and media became the moral entrepreneur.
This appropriation left social scientists in a curious position. Insightful scholarly analyses of *CSI* began appearing some years after the advent of the program (e.g., Allen, 2007b; Bonycastle, 2009; Cavender and Deutsch, 2007; Dobson, 2009; Gever, 2005; Glynn and Kim, 2009; Hohenstein, 2009; Kruse, 2010; Ley et al., 2012; Nolan, 2007; Turkel, 2009; Valverde, 2006: 107–110), but by that time the media had already seized the social problems discourse. We can discern at least three broad scholarly responses to this media appropriation of “traditional PUS” discourse. A first approach essentially echoed the media’s moral entrepreneurship, making strong social problems claims, like “The CSI effect is very real,” based largely on anecdotes and surveys of legal actors (e.g., Durnal, 2010). Some scholars have advanced social problems claims in terms even more hyperbolic than the media’s—as, for example, in Lawson’s (2009) coining of the term “CSI infection,” apparently finding the term “effect” too tame.

A second scholarly approach opted to treat the media’s claims as an empirical hypothesis to be tested through various social scientific methods, such as surveys of judges and/or attorneys (e.g., Hughes and Magers, 2007; Robbers, 2008; Smith et al., 2008; Stevens, 2008; Thomas, 2006; Watkins, 2004), police officers (Huey, 2010), convicts (Prainsack and Kitzberger, 2009), or potential jurors (e.g., Brewer and Ley, 2010; Holmgren and Fordham, 2011; Okita, 2007; Podlas, 2006, 2006–2007; Shelton et al., 2006, 2009; Smith et al., 2008); jury simulations (e.g., Jenkins et al., 2010; Reardon and O’Neil, 2008; Schweitzer and Saks, 2007; Smith et al., 2008); or longitudinal measurements of changes in acquittal rates in American trials (e.g., Cole and Dioso-Villa, 2007, 2009; Dupont, 2007; Loeffer, 2006; Owens, 2010).

A third scholarly approach—one that fits comfortably with so-called “critical” (Michael, 2009: 618) approaches to PUS, which view science advocates’ assumption that scientific knowledge is straightforward and unproblematic until subject to “distortion” by translators like the media as a more interesting topic of analysis than the supposed distortion itself (e.g., Irwin and Wynne, 2004: 7)—turned the analytic lens upon CSI stories themselves. For such studies, the topic of interest is neither the program *CSI* itself nor criminal justice system actor behavior, but the media’s insistent claims that the program constitutes a social problem. A number of studies have attempted to systematically analyze news media claims about the CSI effect (e.g., Cole and Dioso-Villa, 2007, 2009; Harvey and Derksen, 2009; Littlefield, 2011; Smith et al., 2008). Scholars taking this approach have analyzed CSI effect claims-making through a variety of “lenses,” such as actor-network theory (Mopas, 2007) and dramaturgy and risk (Landry, 2009). Only one of the studies of this type (Machado and Santos, 2011) is framed within the context of the PUS literature. This excellent paper, however, in a further media loop, focuses on the effect of CSI stories on another sector of media, press coverage of crime.

The present study situates itself within this third approach in that it analyzes media claims about the CSI effect by documenting the ways in which the media claims that *CSI* “distorts” an imagined “reality.” It shows that the media appropriated the analytic stance usually adopted by science advocates and some social scientists, portraying the CSI effect as a social problem in science communication. This appropriation was idiosyncratic in that it posited, as a social problem, a “surfeit” of knowledge and positive imagery about science, rather than the more familiar “deficits” associated with the familiar “deficit model” of PUS. In contrast to the “deficit model” which posits that the public “do not hear enough from scientists” (Wynne, 1995: 385), CSI effect stories posited that the public heard too much about forensic science. In addition, the media simultaneously appropriated both “traditional” and “critical” PUS discourses. Despite this apparent contradiction, the paper concludes that, in both discourses, the media and its expert informants insist upon their hegemony over “the public” to articulate the “reality” of forensic science.
3. Methods

The data set upon which this study is based is composed of 397 media reports concerning the “CSI effect.” Nexis searches were conducted for the terms “CSI effect” and “C.S.I. effect” from the beginning of 2002 through the end of 2011. Irrelevant and duplicated news items were eliminated. Two hundred sixty-two items were primarily about the CSI effect; the remaining 135 mentioned the CSI effect in the course of a discussion of some broader topic such as media and law generally. Articles from scholarly journals, a handful of which appeared in Nexis, were eliminated so as to not further confuse the distinction between “media” and “scholarship.” Legal newspapers, like, for example, the American Bar Association Journal and the New York Law Journal, seemed more like “media” than “social science” on this dimension and were, therefore, included. This left 339 unique news items. These were supplemented with an opportunistic sample of 58 news items on the topic that had been “hand collected” by the author.

Although Nexis searches are a useful way of quickly gathering data on the reporting of social problems in the news media, they have well known biases: toward the U.S. at the expense of the rest of the world; toward print, traditional, and mainstream media at the expense of broadcast, “new,” and alternative media; and so on. In addition, Nexis’s coverage expands over time, making longitudinal comparisons problematic (Best, 1999: 192). This sample, therefore, is not intended to be representative, but, rather is intended to be informative of the themes common to CSI effect stories.

Two researchers coded the news items. The author coded the first 324 items, and a research assistant coded the last 73 items. Two coding schemes are relevant for this paper. First, the CSI news items were coded for their “cast of characters.” The goal was to assess to what extent different groups of social actors (e.g., prosecutors, defense attorneys, forensic scientists, academics) contributed to CSI news items as interview subjects. Through a repetitive, inductive coding process, a taxonomy of categories of social actors was constructed, and the data were coded according to this scheme. News items were coded positively for a particular occupational group if one member of that group was named and quoted for attribution directly or indirectly. Each occupational group was coded dichotomously; the maximum “score” for each occupational group for each news item was 1, and multiple quotations of multiple members of the same occupational group were not counted.

Second, the news items were coded for “distortion” themes supposedly promulgated by CSI and its spinoffs and imitators. Again, a repetitive, inductive coding process was used to improve the taxonomy of distortion themes. Through this process, themes that were proving indistinguishable were consolidated. For example, “sufficiency of evidence” and “power of evidence” were consolidated. The data were then coded according to this final taxonomy. As above, coding was dichotomous; the maximum “score” for each theme for each news item was 1, and multiple mentions of a theme were not counted.

Intercoder reliability was assessed using a random sample of 50 news items from the master data set. The two coders re-coded items originally coded by the other coder. The intercoder agreement for each code in the two coding schemes of interest was calculated and is reported in Table 1 (Freelon, 2010). Intercoder disagreements were resolved in favor of the original coder.

4. Results

Sample characteristics

Consistent with Nexis’s bias toward mainstream print media, the data consisted mainly of newspaper articles (321/397 = 81%). Sixty items were from “magazines,” a category which also included daily legal newspapers like the New York Law Journal, 8 were web-only news items, and 8 were
television or radio news transcripts. Consistent with Nexis’s bias toward U.S. sources, three quarters of the items (296) derived from the U.S. and one quarter (101) from other countries.

**Cast of characters**

Since these stories are presumably largely driven by what the reporters’ informants tell them, it is informative to know the relative role that different groups of social actors played in influencing reporters. The news items were coded for their “cast of characters” to gauge which occupational groups were most successful in getting their voices heard. As shown in Table 2, the “CSI effect” is primarily a discourse promoted by prosecutors and forensic scientists, though scholars of various sorts have participated heavily in the discourse as well.

**Distortions**

The central theme of CSI effect stories is that there is a definable “reality” of forensic science which is supposedly “distorted” by CSI. This general notion of “distortion” may be broken down into a number of specific complaints about CSI and its spinoffs and imitators. The distortion themes supposedly promulgated by CSI and its spinoffs and imitators are summarized in Table 3. The frequencies in Table 3 are not statistically meaningful but are merely indicative of the relative frequency of these themes in media discourse. The eleven most common distortions were grouped into three broader categories which will be discussed in turn.

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**Table 1. Report of intercoder agreement.**

<table>
<thead>
<tr>
<th>“Cast of characters” dimension</th>
<th>Percent agreement</th>
<th>Cohen’s kappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defense lawyer</td>
<td>86</td>
<td>0.50</td>
</tr>
<tr>
<td>Forensic scientist</td>
<td>64</td>
<td>0.17</td>
</tr>
<tr>
<td>Judge</td>
<td>96</td>
<td>0.48</td>
</tr>
<tr>
<td>Juror</td>
<td>96</td>
<td>0.65</td>
</tr>
<tr>
<td>Jury consultant</td>
<td>100</td>
<td>1.00</td>
</tr>
<tr>
<td>Police officer</td>
<td>92</td>
<td>0.73</td>
</tr>
<tr>
<td>Prosecutor</td>
<td>90</td>
<td>0.77</td>
</tr>
<tr>
<td>Scholar</td>
<td>78</td>
<td>0.44</td>
</tr>
<tr>
<td>TV producer</td>
<td>90</td>
<td>-0.03</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>“Distortions” dimension</th>
<th>Percent agreement</th>
<th>Cohen’s kappa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boredom</td>
<td>92</td>
<td>-0.03</td>
</tr>
<tr>
<td>Capacity</td>
<td>86</td>
<td>0.30</td>
</tr>
<tr>
<td>Fictional technologies</td>
<td>82</td>
<td>0.37</td>
</tr>
<tr>
<td>Generalist</td>
<td>92</td>
<td>-0.03</td>
</tr>
<tr>
<td>Glamour</td>
<td>82</td>
<td>0.46</td>
</tr>
<tr>
<td>Power of evidence</td>
<td>80</td>
<td>0.07</td>
</tr>
<tr>
<td>Presence of evidence</td>
<td>78</td>
<td>0.50</td>
</tr>
<tr>
<td>Role</td>
<td>96</td>
<td>0.73</td>
</tr>
<tr>
<td>Technology</td>
<td>80</td>
<td>0.19</td>
</tr>
<tr>
<td>Time</td>
<td>86</td>
<td>0.68</td>
</tr>
<tr>
<td>Unambiguity</td>
<td>78</td>
<td>0.23</td>
</tr>
</tbody>
</table>
Table 2. Occupational identities quoted in CSI effect news items (n = 397).

<table>
<thead>
<tr>
<th>Character</th>
<th>Prosecutor</th>
<th>Forensic scientist</th>
<th>Scholar</th>
<th>Police officer</th>
<th>Defense lawyer</th>
<th>Judge</th>
<th>Juror</th>
<th>TV producer</th>
<th>Jury consultant</th>
</tr>
</thead>
<tbody>
<tr>
<td>News items</td>
<td>127</td>
<td>127</td>
<td>108</td>
<td>79</td>
<td>75</td>
<td>26</td>
<td>21</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3. The distortions of CSI (n = 397).

<table>
<thead>
<tr>
<th>Distortion</th>
<th>Category</th>
<th>Capacity</th>
<th>Evidence</th>
<th>The forensic scientist</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time</td>
<td>Time</td>
<td>151</td>
<td>134</td>
<td>101</td>
</tr>
<tr>
<td>Capacity</td>
<td>Capacity</td>
<td>94</td>
<td>74</td>
<td>42</td>
</tr>
<tr>
<td>Technology</td>
<td>Fictional technologies</td>
<td>76</td>
<td>39</td>
<td>32</td>
</tr>
<tr>
<td>Evidence</td>
<td>Presence of evidence</td>
<td>65</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Non-ambiguity</td>
<td>Power of evidence</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>Glamour</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence</td>
<td>Role</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Generalist</td>
<td>Boredom</td>
<td></td>
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</tbody>
</table>

5. The distortions of CSI

Capacity

Perhaps the most commonly discussed “distortions” concerned the various aspects surrounding what we might call the “capacity” of crime laboratories—the amount and sophistication of the technology at their disposal, the amount of evidence they were able to process and the speed at which they could process it.

Time. The most frequently mentioned “distortion,” appearing in 151 news items, concerned time. CSI and its spinoffs and imitators are frequently criticized for perpetuating excessively optimistic notions of the amount of time required to perform forensic analyses. A forensic anthropologist claims “People truly expect investigations to be done in a flash,” but, she says, “in real life, it would take six people six months to do what one person does in 45 minutes on TV.” She says, “Most people expect real life to be like TV, where they get the test results back after the next commercial break. That’s not how it works at all” (P279). The Times of London reports that jurors “believe that forensic evidence can be collected, analysed and processed in the time it takes to play the intro to The Who’s Won’t Get Fooled Again” (P242).8

Capacity. Ninety-four items argued that the techniques depicted on CSI, though “real,” are not as routinely available to actual crime laboratories as depicted on the program. Houck (P313) notes, “laboratories frequently do not perform all types of analyses, whether because of cost, insufficient resources or rare demand.” This theme refers to the capacity of personnel as well as laboratories. CSI and similar shows are criticized for portraying entire teams of forensic scientists working full time on a single case. CSI effect stories argue that, in reality, individual analysts alone are working on large numbers of cases simultaneously. One television program noted that “While television scientists are working away, it often appears detectives are solely devoted to that case, a luxury detectives here don’t have.” Instead, a police captain insists, “These detectives carry 20 to 30 cases—some of them—and they can’t just drop everything” (P293).
Technology. Seventy-six news items were concerned that CSI depicts “high-tech razzle-dazzle” (P52), “fancy gadgets” (P91), “ultra-clean and ultra-high-tech labs” (P94), “glitzy computers” (P135), and “space-age equipment” (P62). They express concern that audiences are too impressed by the “gee-whizzery associated with Grissom [the lead character in CSI] and his partners in criminology” [sic, criminology, the study of criminal behavior, is often confused with criminalistics, the use of physical evidence to investigate crimes] (P239) and “dazzled by the millions of pounds’ [a reference to money, not weight] worth of equipment” (P144). In reality, it is said, “The existing forensic technology, while impressive, falls well short of the way it’s portrayed on television” (P221). Or, as one detective laments, “But we don’t have any of those gigantic computers” (P219).

Fictional technologies. Another criticism, appearing in 65 items, is the charge that CSI takes dramatic license with forensic techniques. In some cases, it stands accused with fabricating forensic technologies wholesale. Examples include analyzing the air at a crime scene in order to determine the brand of cologne worn by the perpetrator and pouring caulk into a soft tissue wound in order to create a mold that revealed minute imperfections (“tool marks”) on the weapon (P55), fingerprinting a lawn (P16), and testing a cervix for soil (P245). This criticism can be remarkably precise. At least two authorities have put figures on the “amount” of science depicted on CSI that is “real”: they have said 40% of the science depicted on the show does not exist (P410, P412).

Evidence

A second broad set of concerns centered around the notion of forensic traces as evidence in criminal cases—their presence or absence, their interpretability, and their “probative value” (their tendency to prove a legal proposition).

Presence of evidence. One hundred thirty-four items faulted CSI for supposedly overstating the frequency with which forensic evidence is present at crime scenes. Whereas on CSI recoverable evidence is almost always present, it is argued that in “real life” forensic evidence is absent more often than not. As one story notes, “a toenail, a hair caught in a soap bar or some obtuse [sic] trace connection doesn’t show up at every crime scene. Not every case has the ‘aha’ or ‘gotcha’ forensic trip-up on the criminal’s part” (P50).

Non-ambiguity. Another common (74 items) criticism is that the forensic assays performed on CSI invariably yield clear, unambiguous, easily interpretable results. CSI is accused of washing out “the shades of gray that color real criminal cases” (P324). Critics argue that “shows like ‘CSI’ … may misrepresent the capabilities of current technology and make it seem like results are always conclusive, which isn’t realistic” (P322) and that CSI “incorrectly depicts forensic science as this juggernaut of infallibility” (P416). A law student notes that “in reality, forensic science is neither fast nor infallible” (P319). One forensic scientist argues that the fact that “Jurors who watch CSI believe that those scenarios, where forensic scientists are always right, are what really happens,” means that “juries are not impressed with evidence presented in cautious scientific terms” (P17). As one reporter notes, “the much glamorized Hollywood version of criminalists [sic] seldom hints at the limitations of science itself” (P290). An NBC affiliate reports that “these shows often present forensic evidence as 100% accurate—but in reality, test results can be inconclusive or skewed” (P411). One commentator complains, on CSI “hair, fingerprint and DNA evidence are not only always attainable, but also always definitive” (P235). As one newspaper notes, “Every episode meanders eventually to the same conclusion: a suspect is scientifically matched to the culprit” (P258).
**Power of evidence.** Thirty-nine items criticized CSI for eliding cases in which physical evidence does not resolve the relevant legal issue. Many cases yield physical evidence that does not resolve whether the perpetrator was present but did not commit the crime, whether sexual contact was consensual, or whether a perpetrator formulated the required intent. For example, DNA profiling is notoriously unhelpful in sexual assault cases if the issue is consent, rather than identity. Houck points to an anecdote in which a Los Angeles jury wanted blood from a coat tested for DNA, when the wearer of the coat admitted being at the homicide scene and trying to help the victim (P313).

**The forensic scientist**

A third set of concerns centered around the depiction of forensic scientists—their occupational identities and the nature of their work.

**Glamour.** In one quarter of the news items, CSI and similar shows are criticized for portraying forensic science as a glamorous occupation, “romanticiz[ing] forensic science” (P324). The protagonists include “quirky lab technicians and a saucy former stripper” (P165). “The forensic scientists, detectives and prosecutors are often good-looking and invariably heroic. Rarely do they convict the wrong person” (P276). The sets are criticized as unrealistically lavish. Coming in for particular criticism in this regard is the notorious “blue light” that often bathes the crime laboratory. CSI’s producers have apparently taken dramatic license with forensic analysts’ use of alternative light sources to visualize impressions and stains; most forensic analysts work under standard fluorescent light most of the time. Real life, according to CSI stories, is different. “We don’t solve crimes in 46 minutes, we don’t all drive Hummers, and we’re not all models” (P275). “No one wears ‘leather hot pants,’” and a supervisor “doesn’t even own a pair of sunglasses” (P414). “It’s less about wearing leather pants and driving Hummers than it is about wearing Tyvek jumpsuits and crawling under people’s porches looking for body parts. Honest. I’ve never worn leather pants in my life” (P313). Another report notes the local laboratory is “not the trendy glass-walled version on TV.” Instead, it features “a converted meat locker for turning super glue into gas to pull fingerprints off porous material” (P307). As another item says, “Contrary to what the public sees on shows like CBS’s hit drama ‘CSI,’ the unit’s cases aren’t solved by an attractive detective using some high-tech machine to discover a piece of hair a serial killer left in the sink” (P200).

**Role.** Forty-two items criticized CSI and its spinoffs and imitators for what Huey (2010) has called “role confusion,” conflating the occupational roles of detective and forensic analyst. In addition to conducting laboratory analyses, the protagonists of CSI and its spinoffs and imitators carry weapons, make arrests, pursue suspects, conduct interviews and interrogations, and interact with witnesses, suspects, and victims. This creates an image of forensic science as a sort of dream occupation combining challenging intellectual work with the physical excitement of the occasional chase or shootout. In fact, arrest and interrogation are functions delegated to sworn law enforcement officers. Most forensic analysts are civilian employees of law enforcement agencies. To the extent that sworn officers do participate in forensic analysis, it is through the collection of evidence, not its analysis. Thus, some CSI effect stories debunk the notion that forensic analysts perform law enforcement tasks. One article interviews a forensic scientist and notes that “she is not a police officer or a detective, like her television counterparts. She doesn’t carry a gun, and she doesn’t wrangle confessions out of suspects” (P305).
**Generalist.** Thirty-two items criticized *CSI* for creating generalist characters who maneuver easily between disciplines and instruments, maintaining a coherent narrative of the case assembled from disparate sources of evidence. This suggests that forensic scientists spend their workdays solving crimes, whereas their actual duties may be much more routine and repetitive. “In reality,” it is argued, most forensic analysts are specialists, and in a single case “there can be dozens of scientists analyzing different elements” (P235), though specialization is, in fact, an issue of great debate among forensic scientists (Rudin and Inman, 2002).

**Boredom.** *CSI* is said to make forensic evidence fun and entertaining, for both analyst and audience alike, in stark contrast to “reality.” Twenty-four items noted that forensic analysis is actually “tedious” (P279). One undergraduate notes that forensic biology “is very repetitive” and that academic research “is a lot more exciting” (P322). This argument is particularly interesting given the recent trend among science educators to use forensics as a “hook” to interest young people in science (Angier, 2009; Carton, 2002; Kelleher, 2007; Richardson, 2005).

### 6. Discussion and conclusion

Scholars who have not accepted CSI effect claims at face value have sought non-naturalistic explanations for the confidence with which those claims have been advanced. Such explanations have focused primarily on “lawyers and journalists” (Littlefield, 2011: 146). For lawyers, they include “sour grapes” by prosecutors who have lost cases (Cole and Dioso-Villa, 2007: 463; Tyler, 2006a: 73), legal gamesmanship (Cole and Dioso-Villa, 2007: 464; Mopas, 2007), and law’s anxiety about the strength of scientific knowledge (Cole and Dioso-Villa, 2007: 469; Machado and Santos, 2011: 315). For both lawyers and journalists, they include politically motivated distrust of juries (Cole and Dioso-Villa, 2009: 1372; Landry, 2009: 153). And, for journalists, they include “media panic” (Cole and Dioso-Villa, 2007: 463; Harvey and Derksen, 2009: 21; Okita, 2007: 106; Tyler, 2006b: 1083). The present study supports the argument, made perhaps most starkly by Landry (2009: 153), that CSI effect stories are driven by an assertion of hegemony over the public by the media and its expert informants in the supposedly “proper” understanding of forensic science.

The “cast of characters” analysis revealed that the media relies most heavily on prosecutors and forensic scientists in generating CSI effect stories. This is consistent with earlier findings that, of the many possible “CSI effects,” the one most strongly promoted by prosecutors is the one that has received the greatest share of media attention (Cole and Dioso-Villa, 2009: 1368; Harvey and Derksen, 2009). In CSI effect stories, prosecutors and forensic scientists are advancing a notion of forensic evidence as weak and ambiguous, a position they do not take when the forensic evidence supports their case. These actors’ narratives seek to downplay the capability of forensic science without impugning its perceived reliability. Prosecutors and forensic scientists, then, appear to be aiming at achieving the sort of “flexibility” Hilgartner (1990: 520) attributed to “scientific experts … in public discourse. When it suits their purposes, they can issue simplified representations for broader audiences”—the jury is told that forensic science is *science*, and, therefore should be treated as a privileged form of knowledge with all the connotations of objectivity, certainty, and value-neutrality that *CSI* and its spinoffs and imitators perpetuate. “On the other hand,” they “at all times can draw on the notion of “distortion”—to warn jurors that they are being “unrealistic” if they expect too much from forensic science. Whichever register these expert informants choose, they insist upon hegemony over “the public” to “know” the true capabilities of forensic science.
The “distortions” analysis revealed that the media appropriated a social problems discourse about CSI, though it did so in sometimes idiosyncratic ways. The “deficit model,” positing insufficient information about science among the public and insufficiently positive portrayal of science and scientists in the media, is among the best known concepts in the PUS literature (Dudo et al., 2011: 771; Kirby, 2003: 262; Nisbet et al., 2002: 585). But CSI effect stories seem to turn the deficit model on its head. The social problems purportedly caused by CSI are presented in terms of surfeits, rather than deficits: CSI is too popular, saturating the public with too much information about forensic science, people have too much exposure to forensic science, and the portrayals of forensic science and scientists are too positive. Claims in which surfeits of science communication, rather than “deficits,” are construed as social problems have thus far received little attention in the science communication literature.

The “distortions” analysis also showed that the media has appropriated both of the seemingly contradictory tropes from the literature on the public understanding of science, the so-called “traditional” and “critical” approaches (Michael, 2009: 618). CSI effect stories draw on both repertoires, often simultaneously. Consistent with the traditional approach, for example, CSI effect stories fault the public for believing things that are demonstrably false. The claim that CSI has convinced the public that fictional technologies exist, that forensic science has faster processing and greater capacity than it “really” does, and so on seems not unlike complaints that the public excessively believes “pseudo-scientific” claims like those posited on behalf of astrology, parapsychology, herbal remedies, intelligent design, and so on or claims that scripted television and film contains scientific “bloopers” (Kirby, 2003).

At the same time, media critiques charging that CSI portrays scientific evidence as yielding certain, unambiguous conclusions that are independent of context seem drawn straight from the critical literature that is centered around debunking precisely this “algorithmic” view of scientific knowledge. CSI effect stories echo critical scholars who have long complained that “nearly all televised science is certain science” (Collins, 1987: 701, emphasis added). Indeed, the term “CSI-science” is now used as a shorthand in critical PUS literature for an “asocial representation of science” (Collins and Evans, 2011: 906). As in critical analyses, the media sets up as a foil the supposedly “naïve” notion that “science” consists of rendering unambiguous conclusions directly from nature, “the data,” or “the evidence.” In contrast to this, the media posits that the “correct” understanding of scientific knowledge is to understand it as non-definitive, ambiguous, subject to multiple interpretations, and interpretable only in the context of theory and other evidence (i.e., subject to “interpretive flexibility”) (Bijker et al., 1987).

Locke (1999), however, has argued that the traditional and critical PUS discourses are not as different as they seem in that both rest upon a claim that the social scientist has privileged access to “the truth” or “reality.” Since the media has appropriated the role of the social scientist in CSI effect stories, we might extend Locke’s point to the media and their informants. CSI effect stories, like the “dominant” view of popularization of science (Hilgartner, 1990), posit that the public’s notion of science is false—“faux science” (Landry, 2009)—and that experts have the correct view—even if the experts’ view is that “real” forensic science is slower, less capable, less certain, less glamorous, less probative, less useful, and more generally dismal than the public believes it is. Thus, in CSI effect stories “the public” is faulted for having an erroneous, “folk,” or fantastical view of science. This fantasy is then contrasted with “reality,” which is known to the reporter and is then revealed to the reader/viewer either through a site visit to a “real” laboratory or through the utterances of expert talking heads who inform the audiences what the scientific investigation and prosecution of crimes is “really” like. Whether CSI effect stories are drawing on traditional or critical repertoires, they are consistent in their hegemonic insistence that the public’s understanding of
forensic science is distorted and false and that they, or their expert talking heads, have access to the true view.

This study, therefore, suggests that this “hegemonic” discourse about public misunderstanding of science is remarkably resilient. It is, moreover, not necessarily dependent on the “deficit model,” as is commonly assumed. The case of the “CSI effect” shows that the same discourse can also be deployed in cases of alleged “surfeits” of information about science. This finding is relevant not only to the science communication literature, but also to the literature on the “CSI effect.” In yet another twist of the media loop, the media, its expert talking heads, and some social scientists have asserted their hegemony not only over the “reality” of forensic science, but also, recursively, over the “reality” of the “CSI effect” itself. The insistent claims that the “CSI effect” is “real” are ultimately grounded on the same assertions of privileged access to truth that ground the equally insistent claims that CSI is “unreal.”

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Notes

1. Localization is, of course, part of a broader trend in the contemporary American newspaper industry in response to the wrenching economic pressures that have beset that industry.
2. The term “CSI effect” is ill-defined and often used inconsistently. My co-author and I identified 8 distinct uses of the term “CSI effect.” These included:
   - “the strong prosecutor’s effect,” in which CSI and its spinoffs and imitators were causing jurors to acquit defendants whom they would have convicted had CSI never been created;
   - the opposite “defendant’s effect,” sometimes called the “reverse CSI-effect” (Godsey and Alou, 2011), in which CSI, through its heroic and positive portrayal of forensic scientists, increased jurors’ trust in forensic scientists and thus their likelihood to convict;
   - “the weak prosecutor’s effect,” in which prosecutors were taking countermeasures, like explaining the absence of forensic evidence or removing heavy CSI viewers from juries; and
   - the “producer’s effect,” in which CSI was seen as educating the public about science (Cole and Dioso-Villa, 2007: 447).

Both our study and another found that the “strong prosecutor’s effect” was by far the most common one reported in news media (Cole and Dioso-Villa, 2009: 1368; Harvey and Derksen, 2009: 15). This is important because, unlike the “weak prosecutor’s effect,” for which the social harm is not obvious, the “strong prosecutor’s effect” lays the starkest claim to being a genuine media-generated social problem: juries acquitting defendants whom they would have convicted without the effects of prime time television programming.
3. Because newspaper and magazine articles are being treated as data and in order to avoid bloating the reference list, full references are not given for primary source documents. Instead, these documents are referred to by numbers preceded by “P” (the Atlas.ti software’s convention for “Primary Document”). Because the primary documents were uploaded into Atlas before eliminating duplicated and irrelevant documents, some documents’ “P” numbers are higher than the total number of news items in the analyzed data set (397). The full references of all the primary source documents are available from the author.

4. Thomas, whose research reports on the CSI effect I criticized on methodological grounds (Cole and Dioso-Villa, 2007: 457), was later disbarred for having “outrageously exploited power, flagrantly fostered fear, and disgracefully misused the law” by misusing the power of his office to file spurious legal charges against political opponents of himself and Maricopa County Sherriff Joe Arpaio, who is notorious for his harsh punishment and anti-immigration policies (In the Matter of Members of the State Bar of Arizona, Andrew P. Thomas, Lisa M. Aubuchon, and Rachel R. Alexander, 2012: 245).

5. To draw on a different literature, media might also be seen as appropriating the “sociology of expectations” (Brown, 2003; Brown and Michael, 2003).

6. Some wire service articles appeared multiple times in the Nexis database.

7. Many of these were circulated by way of a listserv entitled “CLPMorgue” (Crime Lab Project Morgue).

8. These claims about time are curious and are dependent on the assumption that CSI viewers are unaware of the convention of filmic time. For further discussion, see Cole and Dioso-Villa (2007, 2009).

9. Of course, this means more precisely is not necessarily that the evidence isn’t present, but that the police are not able to recover forensic traces for any of a variety of reasons which could include the sensitivity of their instruments, their capacity to recover traces of various kinds, the training and expertise of their personnel, decisions about resource deployment, the contamination of the crime scene by non-suspects, and so on.

10. See Nolan’s (2007: 581–586) delightful analysis showing how the CSI characters embody the kind of self-effacing and self-sacrificing virtues associated with certain idealizations of “the scientist” (e.g., Herzig, 2005).

11. Even Lynch’s (2009) playful notion of the “surfeit model,” as a mirror image of the “deficit model,” applies to the public understanding of social science, not science in general.

12. The “critical” or “constructivist” approach has always been vulnerable to appropriation (Edmond and Mercer, 2002, 2004; Gilbert and Mulkay, 1984), and CSI effect stories offer yet another example of this phenomenon.

13. Paradoxically, critical scholars have made precisely this point about forensic evidence, arguing that media portrayals of “science” were supposedly insufficiently nuanced in terms of depicting scientific findings as ambiguous and failed to pay sufficient attention to the interpretive acts inherent in drawing scientific conclusions (e.g., Kruse, 2010; Lynch and McNally, 2003). This same media now appears to have appropriated this discourse, chiding “the public” for its naïve belief that forensic science yields clear, unambiguous conclusions, rather than messy, ambiguous conclusions.

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