

Popular Cultural Portrayals of Those who Do Mathematics

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Brief Summary of Content:

This article examines the popular cultural portrayals of mathematicians, but also anyone who does mathematics. Themes occurring in comic strips, television programs, literature, and, especially, in the movies are examined. Implications discussed include that secondary students are not going to be willing to do mathematics, if doing mathematics is not presented as a cultural activity.

Popular Cultural Portrayals of Those who Do Mathematics

Can you name a movie in which a mathematician was a main character? You might be answering "no," or perhaps you are thinking of *A Beautiful Mind*, *Good Will Hunting*, *Sneakers*, *The Mirror has 2 Faces*, *Pi*, *A Hill on the Dark Side of the Moon*, *Antonia's Line*, *IQ*, *It's My Turn*, or one not listed here. If you were able to name a movie with a mathematician in it, then answer this question: How was the mathematician portrayed in the movie? Our prediction is that your answer may have some or all of these words in it: socially inept, nerd, genius, insane.

A few years ago, we put forward the claim that mathematicians are portrayed in popular culture (including the movies, literature, comics, and music) as insane and/or socially inept (Wilson and Latterell, 2001). We gave many examples of mathematicians as main characters in popular culture, and each of our examples supported our claim.

Since that article was published, many people have talked with us about portrayals of mathematicians, and we have continued to expand our interest by updating our examples, thinking deeper about areas already mentioned, and including new dimensions.

Two Themes in Comics

For example, we mentioned comic strips. Do you remember reading a comic with a mathematician as a featured character? We know of no comics with mathematicians as characters, but we do know of many comics that include characters *doing* mathematics. This is one of our main areas of expansion — from cultural portrayals of mathematicians

to cultural portrayals of anyone doing mathematics. Given this broader consideration, we have settled on two themes.

It is common to have characters in comics be "undone" by mathematics. We have a large collection of comics that roughly follow this theme: Some person is trying to answer an outrageous, unimportant mathematics question, and not succeeding.

Apparently, this is funny because we all identify. We feel sorry for this normal, everyday person, and we laugh in recognition and sympathy. After all, it is abnormal to be successful in mathematics, and mathematical questions are ridiculous!

The second theme is less common than the first, but we do have a second collection of comics in which the person succeeds at the mathematics problem. We then became interested in this question: Is there a difference in the portrayal of the mathematically unsuccessful comic character and the mathematically successful comic character (other than the success versus failure)? We think there is. We think the successful comic character is portrayed as odd in some manner (for example, appearance or social ability). In short, these mathematically successful comic characters are nerds, while the unsuccessful mathematical comic characters are portrayed as normal human beings.

Television

We have also become interested in television portrayals. Can you think of a television character who is a mathematician? We are hard pressed to find these characters, and would welcome an email letting us know of any mathematician TV characters of which you are aware. We offer up two that are not quite mathematicians, but as close as we can get: Alex P. Keaton in *Family Ties* and Steve Urkel in *Family*

Matters. Alex was more interested in economics than mathematics. Urkel was more interested in science than mathematics. Urkel was definitely portrayed as a nerd, and in comparison to Eddie (the good looking athlete who always got the girls), he is a particularly pathetic character. Was Urkel portrayed in such a manner that children would want to be like him? Or would children rather be Eddie? What makes this particularly interesting is that Eddie was portrayed as dumb. Does the fact that he is dumb make him less attractive? We believe the answer is no, and that most people want to be Eddie, and not Urkel.

Although it is less extreme, the same occurs with a situation comedy from the 1980s, *Family Ties*. Alex is not as nerdy as Urkel (Alex dresses well, for example). Yet, compare Alex to his sister Mallory. Mallory is beautiful, but she is also dumb. Who is portrayed as more desirable as a role model? This time it is close (much better than in *Family Matters*). We still feel, though, that Alex is not a character that young viewers would strive to emulate. In fact, Alex is a successful television character because he is so different from other characters. He is portrayed as unique, and not particularly easy to like. In education there is the dumbing down phenomenon in which students (especially female students) pretend to be dumb in order to be popular (to have friends, hang with the in-crowd, and date). We feel that television contributes to this desire to be dumb in mathematics.

Even though mathematicians are not common television characters, there are allusions in television programs to people doing mathematics. Consider this one. We remember watching a situation comedy about a family (a mom, a dad, and three kids). One of the kids was pretty bright, but the parents were portrayed as not very bright. In

one episode, the father became very excited to learn that his bright son wanted to try out for football, but then very disappointed to realize that the son wanted to try out for football *cheerleading*. The episode was about the father coming to terms with his son's desire. The final scene is the father in a bar talking to a buddy and remarking, "Oh well. It could have been worse. He could have wanted to try out for math team."

Movies

Let us go back to the movies. We want to talk about *A Beautiful Mind*. This movie has become the most recognizable film with characters who are mathematicians. Perhaps *Good Will Hunting* was the most common example before *A Beautiful Mind* was released. The mathematician in *A Beautiful Mind* is portrayed as insane. Of course, the character in the movie is based on a real-life person, John Nash, Jr., who does suffer from a mental illness (he is a paranoid schizophrenic). Certainly, the movie had a right to portray this part of his life. However, we believe it was this particular aspect of his identity that made it an attractive movie to the producers. Had Nash not been mentally ill, there would have been no story, no movie, about his life. Is this appropriate? Nash won a Noble Prize. Is that enough to make him attractive and produce a good story? A prevailing myth in American society is that all successful mathematicians suffer from mental illness. This is a myth that may have serious consequences. We agree with Alex Kasman (2002, p. 646) who wrote this about *A Beautiful Mind*: "... there is a danger that many audience members who have little experience with real mathematicians will confuse the attempt to present schizophrenia with an attempt to present 'the mind of a mathematician'."

Besides the mental illness, a degree of social ineptness was portrayed in this movie. We do not know Nash in real life. But, we do know people who know him. We are told that he is a gentle, unassuming man, and that toward the end of the movie, he was portrayed quite accurately. Is he socially inept? We are not sure. Consider the scene in the movie in which Nash's future wife comes to his office. This scene is ripe with social ineptness. Yet, we mentioned this scene to our colleagues and one of them asked us to consider another scene in the movie. The scene that intrigued him was the scene where Nash and his future wife were on a date, and Nash points out patterns in the stars. Although this may be nerdy as well, it was also very romantic, and in fact, Nash gets the girl. He marries a most beautiful woman. (By the way, the reader is encouraged to find a copy of April 2002 *Math Horizons* for an in-depth article about *A Beautiful Mind* written by Stephen Abbott.)

Is there a positive side?

This led us to begin wondering about an idea we hadn't yet considered. Is there also a positive side to how mathematicians are portrayed in the movies? Is there something attractive about the intensity of the mental illness portrayed, or the nerdiness? Or is there a completely separate element from the social ineptness and mental illness themes that is nice? We have always realized that even with the mental illness and the social ineptness, there was a level of respect for the mathematician's ability. Genius, in fact, is a strand right along with the mental illness strand. But, we have not promoted the genius strand as positive, because it is always done with a tight connection to the mental illness strand. The idea is that to be a genius mathematician one has to be insane. People have debated with us which comes first: Is one first a genius in mathematics and then

goes insane? Or does one have to be insane to become a genius in mathematics? Of course, insanity and ability in mathematics are not *if and only if* propositions.

Is there, though, another quality (besides the nuts/genius or nerd) that is attractive in these portrayals, and we are just missing it? A colleague found a sweet, romantic moment in *A Beautiful Mind*, which was part of Nash being a mathematician, too. Are there those moments in other films? If so, we need them pointed out to us, because we are not seeing them.

Another colleague mentioned the "plus" side of *It's My Turn* to us. He mentioned that in the movie, the female mathematician ends up marrying a handsome baseball player. However, we believe this occurs despite her being a mathematician, and not from some good quality of being a mathematician. So, we are unconvinced that there is a positive nature to the mathematician role in this movie, except that it is probably true that at least some viewers of *It's My Turn* will think to themselves, *I'd like to be her*. This thought is rare about movies that contain mathematicians as main characters.

Proof is set to be a movie soon. A beautiful movie star (Gwyneth Paltrow) will portray the main character. But, this movie is full of mentally ill (and quite depressing) mathematicians. When we see the finished product, will there be moments that make the characters people we would actually want to be?

Is it just mathematicians, or all scientists?

In the last few years, we have been asked why we did not list movies such as *Straw Dogs* (starring Dustin Hoffman, 1971). We watched this movie, but we did not include it because it was about an astrophysicist. We want to make claims about mathematicians in particular. Yet, equations figure prominently in the movie, so perhaps

it should have been included. But, does this mean our claim is not so much about mathematicians as about all scientists? We feel that popular culture is kinder to scientists (they may be nerdy but they are less insane than they are cool, their work often has applications that are wonderful not just for science but for life), so we want to stick with mathematicians. It's not an easy distinction, and we do agree with A. G. Reinhold who stated about *Straw Dogs*, "The moral of this film is 'don't mess with a mathematician,' so, as you might expect, a great deal of violence occurs." (By the way, check out A. G. Reinhold's web site at <http://world.std.com/~reinhold/mathmovies.html>, which is where we found the quote.) We are left with the question whether our claim should be adjusted to all scientists, or if it is fair to keep our claim about mathematicians with the implied assumption that scientists who are not strictly mathematicians get a break in their portrayals.

Does anyone do mathematics in movies?

Let's shift the question a little. Have you ever seen a movie in which a mathematician was the main character but the fact that he or she was a mathematician did not figure prominently in the movie? For example, have you ever seen a romantic comedy in which the main character *happened* to be a mathematician? We haven't. The only times we have seen mathematicians as main characters are times when it was *important* that the character was a mathematician. The closest to an exception that we can think of is *It's My Turn*. But, even here, it was important that the main character be portrayed as very bright, but with a flustered (and socially inept) personality. The fact that she is a mathematician helps to establish this portrayal, and thus her being a mathematician is important. And if she wasn't a mathematician, those qualities (very

bright but socially inept) would have to be accomplished through some other means.

Another romantic comedy with mathematician characters is *I.Q.*, but again it is relevant that the characters are mathematicians. Characters do not seem to be mathematicians as a happenstance.

Why aren't mathematicians reasonable movie characters? Is this true of other professions? Think of as many movies you have seen that you can. What did the people do for a living? Is it true that people in comedies either have fluffy jobs, or are independently wealthy (so as to have the job not interfere with the story line)? If the movie is a drama, the people tend to be business people. Is anyone ever a mathematician without being either nuts or nerdy? It doesn't seem so, but then maybe movie characters don't occupy other serious occupations either. Are people ever medical doctors? That seems to be used to either show attractiveness (what a good catch someone is) or standoffishness (the good doctor is too busy saving lives to be a good mate or parent). Maybe this isn't an issue solely for mathematicians.

If mathematicians cannot be main characters, are they ever minor characters? Maybe the characters aren't mathematicians, but do they do a little mathematics as part of their daily life? Is mathematics a part of what they do? This should not be an unreasonable expectation. Characters do all sorts of things in movies, plays, and literature. They have sex (this is a common theme, and sex is certainly portrayed as something that normal people do, and do often). They go to jobs. They buy groceries. They have conversations with people. They cook. They sometimes clean (although this doesn't seem to be a big theme). They have fights with their mothers. They move. They buy homes. They go out to eat. These are all activities that popular culture portrays

people as doing. Do people also do mathematics? The answer is not often. And when they do, they are usually not successful.

Little Jabs in Literature

Once we started looking for people doing mathematics (not just mathematicians), we also started looking for negative or positive comments about doing mathematics in books. We have not found any positive comments, yet. We have found many negative ones. When mathematicians are major characters in books (for example, *Uncle Petros & Goldbach's Conjecture: Mathematical Obsession*), they are definitely portrayed as nuts or nerds. But, do ordinary people do mathematics in novels?

Recently (now that we are not graduate students) we have had more time to read for fun. The past three novels that we have read each contained negative references to mathematics. We picked these novels to read because they were on the best seller's list, we liked the author, or the story line was appealing (as we stood in a bookstore looking for books). These were not books we read because we hoped (or someone suggested) that there were references to people doing mathematics in them. Yet, surprisingly, all three contained negative comments about people doing mathematics.

In the most recent novel we finished, a mother tells her son that she hates math. The novel was about a woman whose husband suddenly leaves her (they end up divorced) and how the woman puts her life back together. There is no pressing need (for the integrity of the story) to have the woman express that she hates math. The purpose seems to be that the son needs help with homework, and the father is absent. It is interesting that the female (the mom) hates math (isn't any good at math) and they again grieve the abandonment by the father (because he could have helped with math).

In another recent novel we have read, we find a character (for no apparently good reason) describing students in her high school who are good at math as being standouts for two reasons: their brilliance and their social ineptness. This time, there was no need to mention those who are good at mathematics at all. At least in the previous novel, mentioning people good at mathematics served a little bit of a purpose (one more reason why it was bad that the husband left the family). In the case of this novel, the character has absolutely no motivation to rag on those who are good in mathematics. But, she does do that.

We are noticing, then, that even in little manners, popular culture is not kind with its assessment of mathematicians, or those who do mathematics in a small way. In the third novel, there is a passing comment that the main character makes about hating mathematics when she was in high school, but loving English. Again, this comment serves no important purpose for the integrity of the story. It is as if the author uses the opportunity of writing a book to take a swipe at a hated subject. Why is this acceptable? Do we accept authors taking jabs at other topics?

Implications

In our previous article, we expressed our concern that young people will not be drawn to a field in which those in it are consistently portrayed as either nuts or nerds. We have upped our concern. It is bad enough to portray mathematicians as nuts or nerds. But, at least that is an extreme portrayal, and perhaps people can take it all with an understanding of stereotypes. But, we have discovered that popular culture portrays the doing and/or liking of mathematics as itself abnormal. Doing (and/or liking to do) mathematics is not a human thing, says popular culture. Having sex is a human thing.

Making dinner is a human thing. Being interested in art is a human thing. But, doing mathematics is abnormal. And if there is some positive aspect to being a mathematician or doing mathematics (beyond the really smart portrayal, which we think gets minimized by the nerd or nuts portrayal), we are not consistently seeing it. However, we make a call to our readers to see if you can put that theme into words. But, we challenge you. The theme needs to be present in most movies with mathematicians (otherwise, it is not a theme) and must be connected to being a mathematician (as the nuts and nerds is). Finally, we see this as a problem for mathematicians, more so than a problem for all scientists. Other scientists have positive aspects to their portrayals (such as inventing something really cool).

Our concern about popular culture portrayals of mathematicians and those who do mathematics is not trivial. If in fact it is true (and we think it is) that students shut mathematical doors early in life and it is difficult to open a mathematical door later in life, then it is very important to interest students in mathematics early. We think one of the largest reasons more people are not "good" in mathematics is that they are uninterested in mathematics. One of the main reasons people are not interested in mathematics is the popular culture portrayal of both mathematicians and anyone who has an interest in mathematics. Not just are mathematicians nuts and/or nerds, but those that are interested in mathematics are abnormal. Portrayals suggest that mathematics is not something that normal human beings do. Until popular culture changes this view, we doubt that mathematics will become a popular subject.

Since we first became interested in the question of popular culture's portrayal of mathematicians, we have expanded our questions. We end this article with an area for

future expansion. We have focused exclusively on American culture. We are told that other cultures have very different portrayals of mathematicians, especially in the movies. Mathematician portrayals in other cultures are of very respected and important people, and not at all nerds and/or nuts. We have not investigated this area. If the nuts and/or nerds turn out to be a purely American portrayal, we think the implications are profound. The reader may or may not know that American students are last in mathematics international testing results. It would be especially interesting to compare international culture portrayals with international mathematics test scores. Do more positive portrayals correlate strongly with more positive test results? Although the topic of cultural portrayals appears to be amusing, the results of it are not very funny at all! International comparisons might be the next best step.

References:

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