

The Mathematics of film

THOMAS BUNNELL SPEAKS
TO EPAGOGIX, A COMPANY FILM
STUDIO'S ARE TURNING TO FOR THE
MATHEMATICS OF HOLLYWOOD

by Thomas Bunnell

What if you could predict the total box office gross of a film, solely by analysing the screenplay? Following the initial prediction, what if you could use the same process to make that sum greater? Epagogix is a company that is causing a great stir for claiming exactly that, so when I was given the opportunity to meet managing director Nick

Meaney and his colleague Sean Verity, I was slightly sceptical but naturally intrigued.

"The biggest risk in films is that so many of them cost so much to make, and so few of them recoup their money," asserts Meaney, and Verity adds, "A normal studio film costs about \$100 million dollars to make, and two or three out of four don't recoup their costs. With



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Nick Meaney – Managing Director

independent films the cost are smaller, but nearly all of them don't recoup.”

Meaney and Verity are far from the reticent and mysterious figures I had imagined. The pair, who began their careers working in risk assessment, are genial and speak with the astute forthrightness of most businessmen. It is the startling failure rate of big budget films that led the team, along with noted lawyer Dick Copaken, and experts in film and artificial intelligence, to establish Epagogix. Meaney recognised what he saw as a fundamental flaw in film financing allocation strategy. “It is often true that the investors in films or studios have no real interest in the financial success of a particular film, because they are usually investing in a portfolio, and when one out of four films are covering their costs and making a return, the actual performance of a given film is not as much of a concern as one might imagine. Equally, other investment strategies have often

been based on tax mitigation, where the investor earns his rewards regardless of the Box Office performance of a film.”

Prior to this discovery, Meaney reveals how he had been interested in neural networks - artificial intelligence which is built from historical data and is used in various industries, including rail, construction, finance and investment areas, in order to help pre-empt structural failure. He also explains how he knew of a group of individuals that applied rigorous algorithms to TV programmes, in order to predict how well a programme would work in the market. His imagination was sparked, “I wondered if they could do the same for a film.”

The group developed a system that breaks down a screenplay's narrative into hundreds of components, such as the setting of the story, the conflict faced by the principal characters, possibly even the colour of the protagonists' hair, and many

more. These components are then scored in terms of a commercial value and entered into a neural network along with the known total box office takings.

Having done this with countless box office films, Epagogix claims that the programme understands the patterns and interplay between the various components, so that when the results of any given new screenplay are entered into the neural network, it is able to forecast the likely sum that film will make at the box office. Verity compares it to the way in which a weather forecast is calculated, “If you know the temperature, wind speed, cloud movement - all the integral facets that contribute to the weather - you can gauge the forecast.”

Meaney adds, “The system is great because it doesn't care about the script's provenance or budget, or how many Oscars its actors have won - biases that may mislead producers. The more information we have →

THE WORLDWIDE HIGHEST GROSSING FILMS OF ALL TIME INCLUDE TITANIC, LORD OF THE RINGS:RETURN OF THE KING, PIRATES OF THE CARIBBEAN: DEAD MAN'S CHEST AND HARRY POTTER AND THE SORCERER'S STONE.



SOME OF THE BIGGEST HOLLYWOOD FAILURES INCLUDE: 'THE POSTMAN', 'THE ADVENTURES OF PLUTO NASH', AND 'HUDSON HAWK'.

the number of external variables such as the marketing and the budget of a film, the director and the stars attached?

These are some of the first questions studio executives asked Meaney, Copaken and Verity when they went to Hollywood to offer their services. Some answers were revealed, whilst others remained secret in order to protect their intellectual property.

The notion of 'star power' stands out as a major query one would raise in assessing what contributes to a film's success at the box office. The natural assumption would be that the bigger the star, the bigger the gross, but Meaney describes this as one of the many misguided principles Hollywood works on: "If you look at the two hundred most popular films of all time at the box office, you'll find that at the time of release, the principal players were, for the most part,

not yet stars." Furthermore, Epagogix concentrates their analysis on studio films or large independent films, in which distribution patterns are less volatile.

This enquiry is just scratching the surface, but Epagogix prefers to settle doubts with the results. Meaney states, "We did a test for a major film studio, with whom we are now under contract, in which we looked at nine of their screenplays that were given the green light. For six of those films we accurately predicted whether or not they would recoup their costs at the box office. The studio only got three out of the nine correct." When one considers the average budget being spent on a Hollywood film, the studio could have saved millions had they followed Epagogix's predictions.

Meaney also tells me how the system was tested by a major New York hedge fund, who wished to gauge Epagogix's accuracy prior to establishing a film

fund based on Epagogix's insights. The fund is keen to invest in 'non market-correlated asset classes' - such as film projects pinpointed by Epagogix as good investments. One of the test films, 'Lucky You', starring Drew Barrymore had a budget of \$50 million. Epagogix assessed the screenplay prior to filming taking place "and we said Lucky You would be lucky to make 12.5 million dollars in the USA and Canada." He continues, "If the studio was our client, we would have told them not to make it. It ended up making only 6 million dollars. You can say we were out by 6 million, but the studio was out by 44 million."

Unfortunately, Meaney and Verity are unable to divulge the name of the Hollywood Studio that has employed them, stating "we believe that he (the studio chief) does not want the wider world, and, in particular his creative colleagues to become anxious that their output will be subject to the level of objective analysis that Epagogix provides". However, they do announce they are working with Britain's Potboiler productions/Thin Man films, who declined from speaking to me about Epagogix. The confidentiality of the company fuels questions and naturally instils scepticism. Many people who I have spoken to about the company are divided in their view - some of whom were unsurprised about the idea of such a formula, explaining in greater depth the powers of AI software, whilst others remained unconvinced, believing the group to be purely just good analysts. Irrespective, I remain grateful for any company that can reduce the chances of another Battlefield Earth, The Good German, Gigli or Cutthroat Island making it to the big screen. ★

helps, but the truth is we can predict accurately just by analysing a script alone, and we'll be pretty damn accurate".

Such a substantial claim naturally raises many questions and one cannot help but be suspicious. When one considers the countless variables contributing to a film's box office success, not to mention the thousands of possible ways variables interrelate, can such a formula really exist? What about