

Sound of success: Top movies manipulate primal response

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To stoke fear and excitement or make it subside, movie sound engineers manipulate an audio pattern called "non-linear vocalisation," they said in a paper published in the journal *Biology Letters*.

Among land vertebrates, "non-linear vocalisation" applies to screeches, screams and calls, such as a baby's cry or a threat warning, that are louder, usually higher pitched and often sudden.

Designed to stand out against lower-frequency [background noise](#), they have been used by humans and animals for millions of years to capture the attention of others in their community.

A team led by Daniel Blumstein at the University of California, Los Angeles, compiled a list of the 102 most popular films in Western cinema, as determined by public polls posted on Internet sites.

Twenty-four of the movies were adventure, 35 were dramatic (or "sad," as described in some sites), 24 were horror and 19 were war films.

The researchers then extracted an iconic scene from the movie, documented whether it had sound effects or accompanying music and crunched it through a computer programme that pinpointed changes in frequency and volume.

Adventure movies were big on male screams while horror [movies](#) had many noisy screams but little accompanying music, the investigators found.

War films had sharp fluctuations (up and down) in volume, while dramatic films used lower frequencies of noise, fewer abrupt changes in volume and more musical accompaniment than the other genres.

"Together, our results suggest that film-makers manipulate sounds to create non-linear analogues in order to manipulate our emotional responses," says the paper.

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