

## Brief biography

Bill Thompson is currently on faculty in the Department of Psychology, York University, Canada, where he is also cross-appointed to the Department of Music. As of July 1, 2002, his new position will be Director: Communication, Culture & Information Technology, University of Toronto, Canada. He is on the editorial board for the journals *Psychomusicology* and *Music Perception*. He publishes on the topic of music and psychology, including links between music and emotion, and between music and speech prosody. He is currently writing a book entitled *Music, Thought & Feeling* for Oxford University Press. He regularly composes and performs music for film, stage, and radio.

Evoking terror in film scores.

## Bill Thompson

It is peculiar that we so urgently seek out the emotion of fear in film. We have a thirst for fear, and we go to elaborate means to experience it. It would be convenient if we could invoke the experience of fear without the apparatus of a cinema, but such intermediaries are necessary. We cannot will ourselves to be afraid. To evoke an emotion, we must organize our environment -- or invoke mental images of such an environment -- which then triggers the emotion.

One of the great discoveries of the 20th century was the powerful effect of combining film with musical representations of emotion. It is possible to combine these two media in a way that reflects no naturally occurring visual-auditory correlation, such as the correlation between the sight and sound of a person running.

That two such distinct media should combine so readily may seem puzzling. Background music is not part of the diegesis of the film and has the potential to create confusion (Cohen, 2). This potential was illustrated in Mel Brooks' comedy *Blazing Saddles* (1974). A sheriff rides in the desert set to suitable background music, but then meets the Count Basie Band performing the now foreground music. The music, initially interpreted on a subconscious or emotional level, is unexpectedly thrust into the fictional component of the film and processed on a conscious level.

Such exceptions aside, there is usually no such confusion because film and music are integrated on an emotional rather than an analytic level. Fear responses do not require brain structures needed for consciousness and analytic thought but can be processed without conscious awareness by subcortical structures (i.e., the amygdala). A frightening score that is not part of the diegesis of the film combines with visual information at subcortical levels to create a unified experience of fear, with no sense that there are two sources of emotional meaning -- fictional and musical. The lack of literal connection between visual and auditory sources is not confusing. We do not question the logic of musicians playing triumphant music at every battle in *Star Wars*, or sentimental music inside the police station on *Hill Street Blues*.

The combination of film and music is exceptionally potent because both are highly influential media. Economic activity reflects their influence (Huron, 3). In the United States, the largest export sector is entertainment, led by music and film. Film makers are so confident that they invest billions of dollars in them. In 1999 the average budget for a single Hollywood film was 76 million. The prevalence of music in industrialized society is also massive: the music industry is larger than the pharmaceutical industry.

As a film composer, I've learned that I can induce fear most readily by turning my attention away from conventional music structures. In an important sense, writing fearful music should not involve composition in the usual sense of the term. Rather, one may rely on the fact that sound is inherently frightening when stripped of the comforting structuring properties of language and music.

It is difficult to express fear using conventional forms. Fear is sometimes expressed in Opera but using unconventional forms. Fear is also associated with the bhayanaka rasa in Classical Indian music, but evidence suggests that sensitivity to rasas is related to basic acoustic properties such as pace, loudness, and complexity (Balkwill & Thompson, 1). The major and minor modes in Western music are associated with happiness and sadness, but the evocation of fear seems antithetical to such conventions. When music is recognizable, as in a melody with a traditional harmonic accompaniment, we experience reassurance. Conventional music evokes a comforting feeling that we are "among our own" and there is safety in numbers. The possibility of fear arises when familiar music structures are removed.

It is certainly possible to create a creepy atmosphere using traditional forms by repeatedly pairing a musical segment with a frightening image or event. Such learned associations are used in the practice of leitmotiv, in which a musical theme is paired repeatedly with a character until it comes to represent that character. Consider Mike Oldfield's circular melody in *The Exorcist* or Beethoven's ninth symphony in *A Clockwork Orange*. Through learned association, both scores created extremely disturbing atmospheres.

The most effective way to induce terror, however, is to manipulate basic acoustic properties, also called secondary musical parameters. Primary parameters include melody and harmony: aspects of music that are culturally shaped and recognizable as traditional forms. Secondary parameters include pace, loudness, timbre, and pitch height: elements of sound that are perceived similarly across cultures. The use of musical convention is deeply connected with one's emotional intention. We create fear most powerfully by stripping music of conventional forms.

Composers aiming to design a fearful score often import and embed frightening sounds into traditional compositional structures, such as a melody with harmonic accompaniment. They do this as a musical challenge or out of concern that their score might otherwise be perceived as unsophisticated. What evokes fear, however, are not those recognizable conventions of composition but rather, elements of the score that are unrelated to conventional structures. We fear surprising or unfamiliar sounds: sudden

changes in loudness, jittery sounds, deep hollow textures, and unpredictable pitch combinations or movement.

Sounds are more frightening than visual images, and hence soundtracks are essential to thriller flicks. Visual images are experienced as "out there" and emotionally distant. We've learned to detach ourselves emotionally from visual images by habituating to the continuous stream of horrifying TV and film images. When we actually witness a terrifying event, it seems "like a movie."

Sounds are experienced as both outside and inside our heads. We feel sound in our bones, making it difficult to distance ourselves from them. They are less easily localized than visual images, creating nervousness about possible escape routes. Their sources are not always identifiable, creating uncertainty. Prey rely heavily on sounds to alert them of predators, linking sound to fear. The fear centre of the brain -- the amygdala -- lies deep inside the temporal lobe, which processes sound (LeDoux, 4).

From an evolutionary standpoint, we can assume that humans, like all animals, evolved a sensitivity to the potential dangers associated with sounds. Brain systems that generate fear are highly conserved throughout evolutionary history, suggesting that fear responses in modern brains are similar to fear responses in early hominids. Large, aggressive, or unfamiliar animals are potentially life-threatening and it is adaptive for us to fear them. Low pitches are associated with large sound-producing cavities and hence, animals with big mouths. Loud low-pitched sounds signal aggression. High-pitched screeches are perceived as alarm calls. During the stabbing scene in the film *Psycho*, repeated screeching sounds or "alarm-calls" combine with the visual scene to induce excruciating fear.

In industrialized society, fear of predation is largely non-existent, replaced with a fear of our own technology: car and airplane accidents, nuclear disasters, weapons. But fear responses today are the result of adaptive pressures that took place thousands of years ago when predation was a constant threat. We are acutely sensitive to alarm calls and predatory sounds. When predators of humans are portrayed in film, as in *Jaws* or *Jurassic Park*, the experience of fear is unbearable.

Why do we so urgently seek out this unpleasant emotion? One possibility relates to social cohesion. Group solidarity is enhanced when there is a common enemy. The object of fear in film distinguishes "us against them" and secures a bond between those experiencing the terror. The representation of fear identifies an enemy (the object of fear) to enhance solidarity. Teenagers -- who have the greatest need for social bonding and self definition -- are voracious consumers of terror films.

Shared experiences of film-induced fear are extremely widespread. In the week ending May 28th, 2000, there were over 3,100 screenings of *Gladiator* in the United States. America dominates the world market in film and music (only India has resisted this domination). For better or worse, Hollywood emotions are globally shared. People from

Japan, China, Italy, Spain, and Brazil have a common bond on the basis of having seen *The Matrix* or *The Exorcist*.

Fear in film also performs another function. Films are externalized representations of cultural memory, and of culturally significant or meaningful experiences. They are a mechanism for accumulating and transmitting knowledge of the environment, preparing ourselves for circumstances in which we might find ourselves. Terror films stimulate the development of cognitive strategies for coping with challenging circumstances.

All of us -- teenagers especially -- feel a need to prepare ourselves for hostile environments. Terror films not only nurture social bonding, they motivate the refinement of an essential human trait: courage. By situating ourselves within an environment that presents various hypothetical sources of terror, we test our courage, and we activate the development of important strategies for coping with the very real fears with which we will inevitably be confronted.

#### References

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