

MODELS OF TIME TRAVEL

A COMPARATIVE STUDY USING FILMS

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DECLARATION

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma at any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except when due reference is made in the text. The empirical work described within was not carried out with any other person.

Guy Micklethwait

In the year of '39 came a ship in from the blue
The volunteers came home that day
And they bring good news of a world so newly born
Though their hearts so heavily weigh
For the earth is old and grey
To a new home we'll away
But my love this cannot be
For so many years have gone
Though I'm older but a year
Your mother's eyes in your eyes cry to me.
Don't you hear my call, though you're many years away
Don't you hear me calling you
All the letters in the sand cannot heal me like your hand
For my life, still ahead, pity me.

Extract from the lyrics of '39 by Brian May (1975)

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ABSTRACT

This research identifies the way the science of time travel is presented to the public through the medium of feature films, and discovers if this can be used to construct a comprehensive set of models about time travel and its consequences.

There is no universally accepted understanding of what constitutes the nature of time. Even though the fundamental laws of physics do not prohibit time travel, scientists and philosophers do not agree about what would happen if backwards time travel ever became a reality.

I identified models that scientists and philosophers have produced about the nature of time, time travel and other temporal phenomena. I then determined the model of time used in each of the 100 time travel films that I reviewed. I also used a verbal survey to elicit the personal models of time travel for each participant of three focus groups I conducted with members of the movie-going public. I compared these models of time with the personal models used by members of the movie-going public and synthesised them to develop a comprehensive set of 21 models of time. The ‘guyline’ diagrams that I devised proved to be a very useful tool for analysing how the timelines of the time travellers behaved in each film.

My research has shown that an investigation of time travel in films can indeed be used to construct useful models of time based on the evidence of the 21 models that I developed. Furthermore, I showed that both my models of time travel and my guyline diagrams helped to structure conversations about time with members of the movie-going public. The findings of this thesis can be used by scientists, philosophers, filmmakers and the public to help them clarify our thinking about time travel, the nature of time, how it is communicated, and also in future research.

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PROLOGUE

I know well enough what [time] is, provided that nobody asks me, but if I am asked what it is and try to explain, I am baffled.

– Augustine of Hippo (354 – 430), philosopher and theologian¹

Time has fascinated me since my childhood. In my twenties I pondered the nature of time, particularly how space and time could not exist without each other. In my thirties I wondered why the separation that space and time describe collapse into a oneness when the mind shuts down during deep sleep. I had also temporarily experienced this oneness made up of everything and nothing while practising deep meditation.

When I sustained a head injury in a motorbike accident my brain suffered a lot of bruising, and it was difficult for my mind to work properly. I remember lying in a hospital bed fully awake, but not able to use my mind to process any thoughts. I was not able to differentiate any one object from another, there was no separation between anything and time did not exist for me. Objects were moving, people were coming and going from my room, but from my perspective it was all happening at once because space and time were not present; this lasted for more than a day. When my bruised brain began to heal, I slowly started to experience the world in the way that most others do, and I returned to live a normal life – except that the memories of this experience remain with me today as if they only happened yesterday. As a result, I became interested in the philosophy and science of time, and how they compare to the public perception of time. These experiences inspired me to undertake my research in this area and have led to this thesis.

¹ Cullhed (2001).

