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Immersion in the World of Film

The Cognitive System behind it and the Film as a supernormal Stimulus

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Abstract

What is it that makes watching a movie such a compelling experience? This article discusses the crucial elements that must be present for a viewer to become immersed in a movie. First, an impression of continuity must be held. Second, the spectator has to be engaged emotionally. Finally, the film must be aesthetic. Each of these elements is essential but not sufficient by itself. Only by integrating continuity, emotions, and aesthetics in a film can the immersive film experience be evoked.

Films can also function as supernormal stimuli. Movies can elicit abnormally strong responses in the spectator. This may explain why we find films so appealing, and why they have such a strong effect on us. This experience of immersion is achieved whenever films are matched with the human perceptual and cognitive system. Manipulating these three conditions to "over fit" our cognitive system causes the film to act as a supernormal stimulus.

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Introduction

Not long ago the film WALL-E was screened at the Habima square in Tel Aviv. Passersby suddenly slowed their pace; an arguing couple went silent, bikers slowed their ride to a complete halt and a woman holding a packed shopping bag stopped from walking. All were staring at the big flickering projection. Nothing else mattered, they had forgotten their prior purposes, surely none of which were to watch WALL-E.

Films have a very powerful grip on us, and some even describe the film experience as a state of quasi-hypnosis (Voss et al., 2011). While watching a movie, we lose track of time (of the outer world) and enter a whole new world which the film creates in our minds. This experience is widely known to any moviegoer.

This experience is also formed by reading books or watching theatre shows. However, film is the narrative form that has reached a wider audience than any other narrative system that has been invented by human beings before it (Thorburn, 2007). The enormous influence that films have on their audience is astonishing. Cinema takes viewers through an experience that involves grabbing their attention and triggering a sequence of perceptual, cognitive, and emotional processes (Hasson et al., 2008).

There are several possible conditions that enable this immersion. At the first part of this paper I will survey and demonstrate three necessary ones: continuity, emotion and aesthetics. At the second part of this paper, I will show that not only do these three attributes of the film enable it to match the cognitive system, but they can also be used in order to enhance the effect on the audience.

My main claim is that movies better arouse human reactions than natural stimulus. In order to fully understand this claim it is important to better comprehend the impression of continuity, emotional engagement and aesthetic experience in a film (see part I). Each one of them is separately necessary and essential in order to be drawn by a film but is not sufficient. Only by integrating them all, a film could have this powerful hold on us.

Matching between a film and the cognitive system is prerequisite to the audience's immersion. I will demonstrate how by manipulating each of the three essential elements

(continuity, emotion and aesthetic) the filmmaker can intensify the experience, the effect and the control on the spectator. I will suggest that these actions enable a film to function as a supernormal stimulus and this is why we are so drawn by it.

The animation film Spirited Away directed by Hayao Miyazaki (2001) will be used to demonstrate the usage of the three film attributes mentioned above. The story involves a ten year old girl named Chihiro. While moving to a new neighborhood with her parents they enter the spirit world called Yuya which is owned and managed by the witch, Yubaba. After her parents are transformed into pigs by Yubaba, she takes a job working in the bathhouse in order to find a way to free herself and her parents and escape to the human world.

Since a film is being referred to as a supernormal stimulus in this paper, choosing animation film was not incidental. Supernormal stimulus is artificial and only resembles a natural stimulus. An animation film is entirely based on drawing; therefore it does not contain any natural stimulus but does resemble them artificially. Moreover, this medium is not compiled by the same technical limitations to which "real" movies are. And yet, they are based on the same rules (e.g. editing rules).

Part I: The Essential Conditions to Draw Spectators

Continuity

Continuity plays a crucial role in filmmaking. Continuity is "The state or quality of being uninterrupted in sequence or succession, or in essence or idea; connectedness, coherence, unbrokenness" (Oxford English dictionary, 2014). Therefore, in films, continuity is the consistency of characteristics, narrative, objects, and places seen by the viewer over a period of time.

However, creating the impression of continuity by editing together discontinuous viewpoints seems paradoxical. Films contain numerous shots combined together by several types of transitions; the most commonly used is the cut (Cutting, et al., 2011). Every cut is, by definition, a discontinuity of the whole image (Smith, 2012). In addition, days or even weeks can distinguish between one shot to another.

If editing is done wrong, it can be a very disturbing experience and the impression of continuity will be undermined. As a result the spectator would not be fully devoted to the screen, and will be pulled out of the picture (Boorstin, 1990). In order to deal with the difficulties of maintaining the basic laws of time and space in films, editing rules were established and defined over the years. They are also used in television and in dynamic visual media. These rules are known as the 'Continuity Editing Rules' or as 'Hollywood style' (Bordwell et al., 1985; Smith, 2012).

The Continuity Editing Rules

Continuity editing relies upon matching screen direction, position, and temporal relations from shot to shot. The continuity can be achieved by maintaining the rules of editing which include match-action, matched-exit/entrances, shot/reverse-shot, the 180° rule, the 30° rule and point-of-view (POV) editing (smith 2012; DeLong et al., 2014).

First and foremost, the viewer can not feel disoriented. Thus, to maintain the integrity of space, matching angles must be chosen (Boorstin, 1990). The two rules that mainly rely on angles limitations are the 180° rule and the 30° rule.

The *180° rule* dictates that the camera should stay in one of the areas on either side of the line of action. The line of action is an imaginary line drawn between the main characters in the scene (Prunes, Raine & Litch, 2002). By following this rule the filmmaker ensures that the spatial relation between the characters remains intact, whereas if the camera crosses this line it will disorient and confuse the audience. This sense of a consistent space is reinforced by the use of techniques such as the eye-line match or match-action which will be explained later (Prunes, Raine & Litch, 2002).

Understanding the Continuity Editing Rules is essential for the following discussion. Therefore, they would be demonstrated in a scene taken from the animation film Spirited Away. In the scene Chihiro meets Yubaba, the witch who runs the bathhouse in the spirit world, for the first time. In order to find a way to free herself and her parents and escape to the human world Chihiro is obliged to persuade Yubaba to hire her (Time 00:35:31).

Throughout the dialog between Chihiro and Yubaba the 180° rule is mostly conserved. The camera does not cross the line of action, except of one shot which is slightly shifted to Yubaba's left (see Figure 1.B). The 180° line is not usually crossed unless the transition is smoothed by a reestablishing shot[1] or a point-of-view shot which will be explained later (Prunes, Raine, & Litch, 2002). Indeed, this shot is a reestablishing shot.

Match-action is a cut which splices two different views of the same action together at the same moment in the movement, making it seem to continue uninterrupted. For example, while Yubaba puts a bag of money in a chest a cut is made (see Figure 1). These characteristics make it one of the most common transitions in the continuity editing rules (Prunes, Raine & Litch, 2002). Masking the violation of the 180° rule in Figure 1.B has been done also by including the Match-action cut.

Figure 1. Two frames in which Yubaba puts a bag of money in a chest. The first frame (A; Time 00:36:29) is being cut immediately to Yubaba's front in the following frame (B; about a second later).

Shot/reverse-shots are one of the most firmly established conventions in cinema, and they are usually linked through the equally persuasive eye-line matches. This shot is demonstrated in Figure 2, when Yubaba is shown looking at Chihiro, and then Chihiro is shown looking back at Yubaba. Since the characters are shown facing in opposite directions, the viewer assumes that they are looking at each other (Prunes, Raine & Litch, 2002).

[1] A shot, usually involving a distant framing, that shows the spatial relations among the important figures, objects, and setting in a scene.

Figure 2. Three frames in which Yubaba and Chihiro are dialoging. The two characters are facing opposite directions. The first frame displays Yubaba's face (Time 00:37:29), following by Chihiro's response which is cut by the third frame, depicting Yubaba's reaction (Time 00:37:35).

Matched-exit/entrances is a variant of Match-action cut in which the subject exits the frame in the first shot and then enters the frame in the subsequent shot. The entrance in the second shot must match the screen direction and motive rhythm of the exit in the first shot (Smith, 2012; Prunes, Raine & Litch, 2002). The cut is seen in Figure 3. After Yubaba gets mad by Chihiro's recurrently requests to give her a job, she flies towards her. First, Yubaba is leaving the screen, then she reappears in the following shot, and the camera follows her flying. The cut is made to the continuation of the motion of Yubaba.

Figure 3. Three frames in which Yubaba is flying towards Chihiro (Time 00:37:43).

Point-Of-View (POV) is a shot in which the camera is placed approximately where the character's eyes would be, and shows what the character would see; usually cut in before or after a shot of the character's gaze (Smith, 2012; Prunes, Raine & Litch, 2002). In Figure 4, examples for POV shots are shown. The camera is followed by the target of the gazes of Chihiro and Yubaba in order to show what they are looking at: the door of the baby's room. The following

shot focuses on Chihiro's gaze towards the baby's huge foot smashing the door. This shot is also a reaction shot[2] (Bordwell & Thompson, 2006).

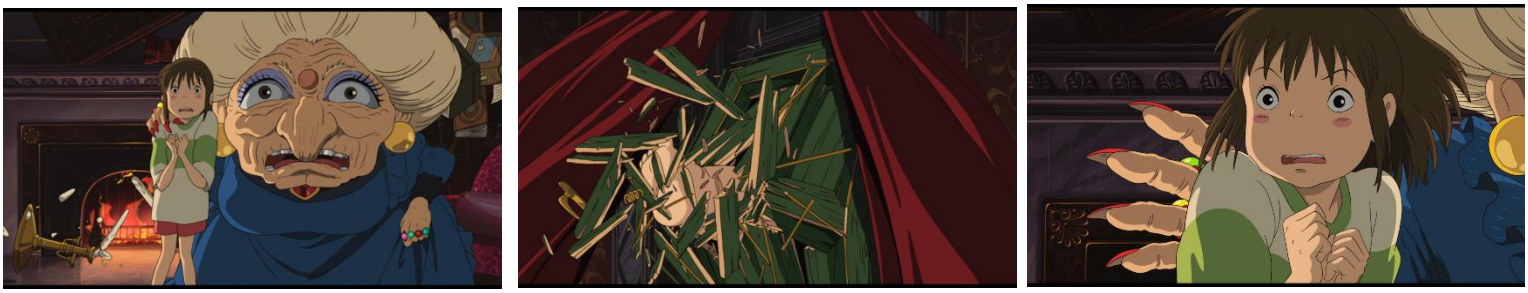

Figure 4. Three frames in which Yubaba and Chihiro are looking at the giant baby going wild: he breaks the door. The first frame (Time 00:38:26) is cut immediately to the baby's foot smashing the door, followed by another cut to Chihiro's reaction (about a second later).

If two shots of the same character or object are cut together, the viewpoints must be at least 30° away from each other or entail significantly different shot sizes. This is known as the *30° rule*. Violation of the 30° rule creates a jump cut which may shear the film experience of the audience by making them focus on the filming technique instead of the narrative (Prunes, Raine & Litch, 2002).

Although those rules are well established there exists an incomplete understanding of their cognitive foundation (Smith, 2012).

Edit Blindness

Although it is intuitive to assume that total changes from one image to another would be easily detected, some cuts are invisible to the viewers. This phenomenon is known as edit blindness (Smith, 2013; Smith & Henderson, 2008).

In order to understand why certain types of cuts are more "invisible" to viewers than others, Smith & Henderson performed an experiment that tested the relationship between continuity editing rules and edit blindness. The participants were asked to detect transitions while watching excerpts from feature films. Eye movements were recorded during the task and reaction times measured and compared across different types of cuts (e.g. Smith & Henderson, 2008).

[2] A shot which cuts away from the main scene in order to show the reaction of a character to it.

The results indicate that edits constructed according to the continuity editing rules result in greater edit blindness than edits not adhering to these rules. A quarter of edits joining two viewpoints of the same scene were undetected and this increased to a third when the edit coincided with a sudden onset of motion. Some cuts may be missed due to suppression of the cut transients by coinciding with eye-blinks or saccadic eye movements but the majority seems to be due to inattentional blindness as viewers attend to the depicted narrative (Smith & Henderson, 2008).

Given that a film viewer's primary interest is following the film's narrative, engaging them in this task by constantly changing viewpoint within a scene is believed to occupy attention and limit awareness of the editing (Reisz & Millar, 1953; Bordwell & Thompson, 2006; Smith & Henderson, 2008).

Discontinuity

Continuity does not always maintain in films, and several continuity errors can be found even in animation movies. However, despite the existence of discontinuity in films, viewers can still remain caught up in a film. An example for a continuity error can be found in the following scene taken from the Beauty and the Beast (Trousdale & Wise, 1991). After Gaston arrives at Belle's house in order to ask her to marry him, he bends over her and squeezes her against the entrance door. Then, Belle tries to get rid of him by opening the door. In this shot the door opens *outward* (Time 15:52) and as a result, Gaston is thrown outside the house into the mud. In contrast, when Belle throws Gaston's shoes outside, the door opens *inward* (Time 00:15:58).

Furthermore, immense continuity errors can be found in the movie Hercules (Clements & Musker, 1997). For example, in the following scene changes of characters occur. After Hercules is seen as a national hero and a celebrity, several fans invade his residence. While Phil encourages Hercules, five white teenage girls burst into the building (Time 00:56:12). They stand at the door step then run toward the camera. In the following shot (Time 00:56:15), when they mob Hercules, the girl wearing blue has changed into a black girl. Moreover their number had grown—in that shot and in the following shot there are six groupies. After Phil whistles in order to distract them, the girl in blue turns back into a white girl (Time 00:56:26). However,

most viewers would not even notice that something went wrong. This phenomenon is known as *Change Blindness*.

Change Blindness

A series of demonstrations of change blindness done by Levin and Simons provide the main reference for this phenomenon (Smith, 2012). In a previous experiment continuity errors were deliberately introduced into a film sequence of two women conversing across a dinner table (Levin & Simons 1997). However, none of the viewers, during the free-viewing trial, reported seeing anything odd. Even when participants were directed to search for continuity errors in this sequence they could only notice a small amount of errors which were mainly around the characters' faces. Prior eye-tracking studies (Mital, et al., 2011; Smith & Henderson, 2008) had shown that viewers will mostly be focused on faces and spend virtually no time on peripheral details. For instance, without attending (fixating on) a peripheral object such as the plate, the viewer will not notice a change in its color (Smith, 2012).

Although it may seem that way, this phenomenon (i.e. change blindness) does not weaken the argument of continuity as an essential condition for gripping the audience to a film. The likelihood of detecting a change is in direct proportion to the amount of attention paid to the object. If the change is close to objects of interest such as a person's head it is more likely to be detected (Rensink, ORegan, & Clark, 1997). Therefore, if the viewers fail to detect the change after the distraction it can be assumed that they have not attended to the object. Smith (2012) argues that the critical component in the creation of continuity is viewer attention. Thus, if the viewer does not pay attention to the changes that occurred he would fail to notice striking changes to the scene (Smith, 2012). In other words, the impression of continuity can still maintain even if discontinuous events are present. If one attended those mistakes, one would be pulled out of the film.

To summarize, without continuity the viewer's attention could be withdrawn to the editing techniques, he would find it very hard to follow the narrative and even lose interest. As was described above, if there would be a jump cut, for instance, the immersion experience would fade and it may violate the reliability of the film.

Continuity is crucial but not sufficient to the absorbance of the spectator. Even though in most films continuity is maintained right from the start of a film, immersion does not happen immediately. It takes some time until one is drawn into the world of the film.

A possible explanation for that is that we are not yet emotionally engaged with the characters at the beginning of the film. Often the most significant scenes of empathy occur at the end of the film. The reason for that is that the spectator must gather sufficient information about the character in order to elicit empathy (Plantinga, 1999). Therefore, in addition to the impression of continuity, the existence of emotional engagement must be held so as to evoke the experience of immersion.

Emotions

One of the major incentives for watching feature films is the emotional experience they offer. The dependability of movies to provide emotional experiences for diverse audiences lies at the center of the medium's appeal and power (Plantinga & Smith, 1999). Emotion is a conscious cognitive experience (such as fear, excitement, etc.), combined with a particular behavior (laughing, crying), and certain physical reactions (such as goose bumps, altered heart rate and pupil diameter change). Films evoke a sheer diversity of emotions in their audience. People cover their faces, shrink in their seat, scream, cry and roar with laughter. The irrationality of such reactions is striking. It is, after all, only a film (Tan, 1996).

The main function of emotions is to control the cognitive processes. The idea that emotions serve some purpose was put forward by Darwin. Darwin argued that for humans emotions are used in communication and also in aiding their survival. Emotions evolved via natural selection and therefore have universal cross-cultural counterparts. According to Frijda, emotions are regulated by the person. In addition, they are elicited in response to situations which one finds them as relevant to him. Without personal concerns there can be no emotion (Tan, 1996; Frijda, 1986).

According to the law of apparent reality (Frijda, 1988), emotions are evoked exclusively by events that are appraised as real, and their intensity corresponds to the degree of how much this is the case. This definition covers emotion in general, as it occurs in real life (Tan, 1996). Viewers know full well that what they are seeing is a fictional world created by means of artifact.

Hence, it raises doubts regarding the emotional experience during fiction films, mainly during animation films which contain representations that are even farther from the real world.

Colin Radford originally raised the issue with his claim that emotional responses to fiction are irrational and incoherent (Plantinga & Smith, 1999). However, it has been shown that fiction can have real effects in the world. In his article (Gerrig, 1993), Gerrig points to a series of studies, showing that real consequences can follow the overt fabrication of an imaginary state of affairs. Such phenomena occur in daily life as well as in fiction—phobics cannot control their fear by knowing that the feared object is actually harmless (Gerrig, 1993). Gerrig (1993) argues that one's emotional experience is compartmentalized from the objective knowledge one holds. Thus, feeling pity or fear for a fictional character, although knowing that the character does not exist in the real world, is possible (Gerrig, 1993).

The ability to experience strong emotions from fiction is known as the *Paradox of Fiction*. This philosophical problem draws attention to an everyday issue of how people are moved by things which, in many ways, do not really exist.

Carroll presents the *Thought Theory* as the solution to this paradox. According to this theory, not only a physical reality is capable of giving rise to true emotions. A thought can also trigger complete and genuine emotions (Carroll, 1990; Tan, 1996). For instance, when watching Spirited Away the viewer does not need to believe that 'Yubaba' really exists in order to feel fear or that her giant baby portrayed on the screen is physically present in the same room. The thought alone is sufficient to provide an emotion (Carroll, 1990). Currie suggests that when we experience fictions, we engage in a mental simulation process (Plantinga & Smith, 1999). Currie's claim leads us to the following issue.

Character Identification vs. the Invisible Witness

Experiencing emotions is the major effects in film viewing (Tan & Frijda, 1999). Hence, there has often been a controversy surrounding the issue of stimulating an emotional response while watching a movie. There are two main approaches engaging the emotional experience of the viewer: The Invisible Witness theory and the Simulation theory (i.e. character identification).

According to the Invisible Witness hypothesis the viewer is resembled as an onlooker, a witness who is not only invisible but is also incapable of any relational action (Tan, 1996). Thus, the film is experienced solely or mainly from the point of view of an observer. One of the theorists who hold that thought is Noel Carroll (Grodal, 2009). Those emotions correspond to effects in our daily lives, when we watch people to whom we relate who are involved in an emotional situation, but under conditions in which we cannot act, be acted upon, or participate in the situation, except as onlookers. We are concerned about their fate, but have to wait for the outcomes. The viewers of films are led to imagine themselves as invisible witnesses that are physically present in the fictional world (Tan & Frijda, 1999). Carroll's main argument focuses on the observation that the viewer's state of mind is often quite different from that of the protagonist and therefore it cannot count as identification. Firstly, the viewer's level of information is often different from (mostly higher than) that of the protagonist. Secondly, the emotional response of viewer and protagonist will be different because of their different positions (Carroll, 1999).

Emotions are tendencies to action (Frijda, 1986). A general theory which describes the flow of emotions of the embodied brain was proposed by Grodal (the PECMA flow). The flow which evokes emotions starts in perception of the external world, then it flows to the autonomic nervous system and to association areas; finally an action occurs (Grodal, 2009; Cutting & Candan, 2013). Contrary to what happens when taking actions in the real-world, while watching a movie the spectator barely moves. Thus, Grodal (2009) argues that in that case the viewer can actualize the motor actions only by mental simulation (i.e. identification).

According to simulation theorists, the primary method for understanding the minds of others, that people employ, is simply to place themselves "in the mental shoes" of the other, namely to identify with them (Goldman, 2005). This is plausible given the widespread use of the word ‘identification’ in ordinary viewers' reports about their interactions with films. In addition, we use this notion more generally in the context of identifying with our friends as a common phrase (Gaut, 1999). Currie says that our basic access to the minds of others comes from a form of imagination we may call mental simulation. When we see someone in a situation and attend to what is occurring, we take on the beliefs and desires we imagine they must have (Plantinga & Smith, 1999). (For further elaboration on the debate see Carroll 1990 and Grodal 1997).

In the film Spirited Away, identification with the protagonist (Chihiro) plays a major role. From the moment Chihiro sets foot in the spirits' world, we enter with her into this magnificent world. Furthermore, through Chihiro, we discover more and more about this mystical world. Our emotional experience is very much like Chihiro's, we feel what she feels. Miazaki directed the viewer to see the events from Chihiro's eyes from the first shot in the film (POV).

While Chihiro's parents eat like pigs at an empty restaurant stall, Chihiro finds an exquisite bathhouse and meets Haku for the first time. He warns her to return across the river before sunset. Chihiro listens to Haku's proposal and goes to look for her parents. Then she discovers too late that her parents have already turned into actual pigs. This discovery makes us want to run away, as Chihiro does. Getting to the river, Chihiro understands that she is unable to cross because it has been flooded and becomes trapped in the spirited world. As a result, we wish to awaken from this bad dream. By begging to "wake up!" Chihiro expresses these wishes.

Furthermore, the spectator shares the confusion that Chihiro experiences while exploring the spirit world. Moreover, besides feeling emotions as sorrow or fear while watching Chihiro, the spectator can also have an almost tangible sense. An example can be seen in the scene at the boiling room (Time 00:26:27). Chihiro comes to the rescue of a soot creature which has been crashed under a lump of coal. When she tries to pick up the lump of coal, we can actually sense its, surprisingly, enormous weight (see Figure 5).

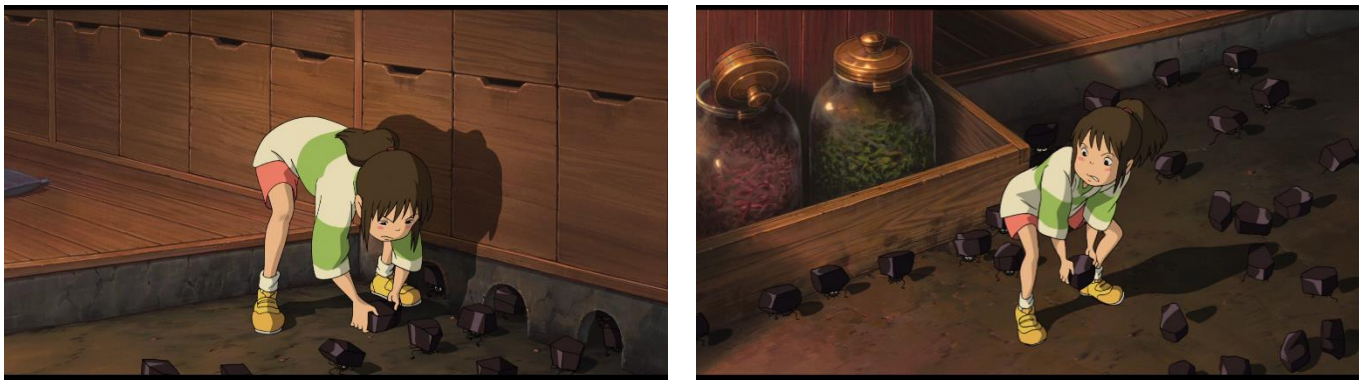

Figure 5. Two frames in which Chihiro is trying to help a lump of coal in the boiling room. The first frame (Time 00:26:43) and the second frame (Time 00:27:23).

On the other hand, a situation in which there is a gap between the knowledge of spectators and of Chihiro's can be found in the film as well. After the successful cleaning of the

polluted river spirit (the 'stinky spirit') done by Chihiro, all the workers retired to their beds. Meanwhile, No-Face tempts a worker with gold, and then swallows him (Time 01:08:30). Later on, he demands food and begins tipping extensively. Chihiro stays at the worker's residents unaware of what No-Face is up to.

Suddenly Chihiro sees a grievously-injured Haku at his dragon form (Time 01:12:30). When Haku crashes into Yubaba's penthouse, Chihiro follows him upstairs. On her way to Haku she runs into No-Face and thanks him for his help (see Figure 6). No-Face than tries to tempt her with a massive amount of gold. At that point viewers hold more information than Chihiro. Knowing she can be in danger, we fear for her. No-Face can eat her as he had already done to one of the workers. However, Chihiro is not afraid of him, instead she approaches and speaks with him.

Figure 6. Two frames in which No-Face tries to tempt Chihiro with gold in the bathhouse. The first frame (Time 01:15:34). In the second frame No-Face's hands fill up with gold while Chihiro is looking at him (Time 01:15:44).

And indeed, a few moments later the spectator's concerns regarding No-Face are found as justified. What we were most afraid of happening to Chihiro happens to others (Time 01:16:23). As the workers swarm No-Face, hoping to be tipped, he swallows yet another two greedy workers. The emotional responses of Chihiro and of the viewer are mismatched, since their positions are different. Chihiro is worried for Haku's sake, while the spectator cares for her and is worried from the possible outcomes of No-Face being in the bathhouse.

As can be seen from the above, watching Spirited Away, one can find examples for both approaches. Throughout the movie we both empathize and sympathize with Chihiro. Defining the spectator's experience as identification or as invisible witness is incomplete, to my mind. I

believe that the emotional experience is driven from the spectator being engaged in the world that a movie creates. In addition, in order to immerse in a film, a spectator must have emotional experience. Thus, it is like a feedback loop which enhances itself.

It can be suggested that the emotional experience that ordinary viewers describe as 'Identification' can resemble a similar mental state which we experience while dreaming. Dreams are considered as projections of parts of the self (Wegner, Wenzlaff & Kozak, 2004) and several of emotions are experienced while dreaming. Moreover, the events in dreams are generally outside the control of the dreamer as in films. Jung argued that one could consider *every person* in the dream to represent an aspect of the dreamer, which he called the subjective approach to dreams. Perls expanded this point of view to say that even inanimate objects in the dream may represent aspects of the dreamer. The dreamer may, therefore, be asked to imagine being an object in the dream and to describe it, in order to bring into awareness the characteristics of the object that correspond with the dreamer's personality. This seems to be very similar to what one experience while watching a film and the spectator's reference to protagonists (Lawton, 2012).

Film Techniques and Emotions

Certain film techniques tend to enhance some kinds of emotions and feelings. One of them is framing the shot. The character size and location within the frame can influence the spectator's emotions. For example, close-up shots in which a person's head covers most of the frame, provide an intimate view on the character. This shot holds information on the character's facial expressions which are innate and universal (Plantinga, 1999). Given a close-up of a character's face, spectators can often comprehend the relevant emotion, because facial expressions convey the emotional state of an individual to others. Therefore, close-up shots allow the audience to connect with the character on a more personal level than if he were far in the distance. Panoramic long shots put us too far away from the characters to read their behavior (Boorstin, 1990).

To stick to my example, In Figure 7, seeing tears swell up in Chihiro's sad face would automatically produce a similar response in the spectator. For me, when seeing Chihiro cry after all that she has been through, I can feel a lump in my throat (Time 00:49:33).

Figure 7. A close-up frame in which Chihiro is crying while eating.

Plantinga (1999) argues that facial expressions in film not only communicate emotion, but also elicit, clarify, and strengthen affective responses, especially empathetic responses (Plantinga, 1999). In Plantinga's account, no imagination is needed for this. However, Plantinga argues that the narrative context is important in order to magnify the effect of facial close-ups, as insufficient narrative development may counteract the spectator's tendency toward empathic mimicry (Vaage, 2010).

Another way to elicit empathy in film is to use POV shot. Murray Smith points out that a POV shot is not necessary neither sufficient to trigger emotional empathy. The spectator can imagine the emotional experience of characters without POV shots, however, POV shots in a narrative structure aid the spectator in imagining what the character's experience is like. While sitting on the staircase, a POV shot of Chihiro looking down at the valley below (Time 00:21:51), in my example (see Figure 8), the POV shot helps the spectator imagine what Chihiro is thinking and feeling (e.g. fear of heights), (Vaage, 2010).

Figure 8. Three frames in which Chihiro is climbing down the stairs in order to get to the boiling room and ask for a job from Kamaji. The first frame (Time 00:21:39) is cut immediately to the second frame which is a POV shot, followed by Chihiro's frightened gaze (Time 00:21:42).

Moreover, at one of the following shots, after one of the stairs breaks she is forced to run through the staircase. Miyazaki puts the spectator at Chihiro's place (see Figure 9). The viewer experiences the fall from Chihiro's eyes as if the viewer himself is falling.

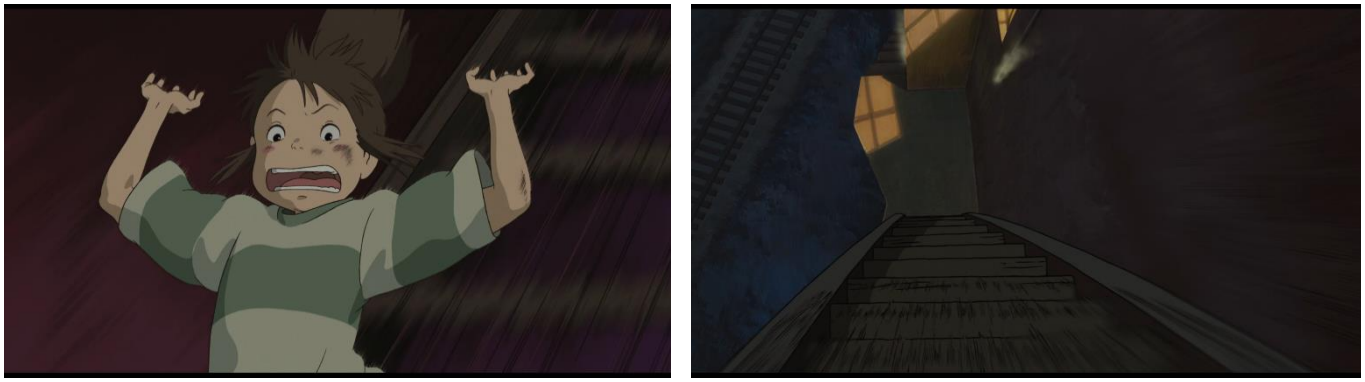

Figure 9. Two frames in which Chihiro is shown falling down the stairs. The first frame (Time 00:22:01) shows Chihiro's fearful face, replaced by the second frame (Time 00:22:02) which illustrates the falling from her eyes. (i.e. a

The POV shot is often thought of as the primary means to elicit character identification on behalf of the spectator. However, horror films and thrillers often use POV shots to suggest a menacing and unseen presence in the scene. A shot in a horror film taken from the point of view of a killer, shows that there is no necessary tendency to empathize with whom we see through his eyes. In fact, the identification is perceptual (the viewer imagining seeing what the character fictionally sees), and it does not follow that the viewer identifies with the character in all other aspects (Gaut, 1999).

Another type of shot that can enhance the emotional response of the viewer is canted-framing. In this shot the camera is tilted at an angle such that objects in the scene appear slanted out of an upright position. Canted framings are used to create an impression of chaos and

instability (Prunes, Raine & Litch, 2002; Mazur, 2000). A low-angle shot, in which the camera is low to the ground and pointed upward, may be used to make something appear large or imposing.

In addition, editing has a great impact on the viewer's emotions. It can affect the experience of the spectator by changing the rhythm of the scene. Manipulating the duration and durational relationships among parts of a film can produce feelings and moods such as melancholy, tension and relaxation, joyfulness or well-being, anxiety or boredom (Feagin, 1999).

The way shots are joined together can also affect the emotional state of the audience. A great example for that is the film editing (montage) effect known as the Kuleshov effect. Kuleshov edited together a short film in which a shot of the expressionless face of the actor Ivan Mosjoukine was alternated with various other shots (a plate of soup, a girl in a coffin, a woman on a divan). The film was shown to an audience who believed that the expression on Mosjoukine's face was different each time he appeared, depending on whether he was "looking at" the plate of soup, the girl in the coffin, or the woman on the divan, showing an expression of hunger, grief or desire, respectively. The footage of Mosjoukine was actually the same shot each time (Prince & Hensley, 1992). Hence, different combinations can evoke different feelings.

Kuleshov's point was that in film, editing is all: context determines meaning. But underneath, Kuleshov's experiment illustrates a yet more fundamental truth about the psychology of vision: people have an innate empathic instinct. If we see a face we have a natural, automatic impulse to predict what the person behind the face is feeling, to taste that emotion inwardly to see if it is suitable and, if it is, to taste it as our own. If it is not there (as in the Russian experiment) we will even try to fill in what is missing (Boorstin, 1990).

Sound is another factor that is used by the filmmaker to control our emotions. One technique is to manipulate what the audience perceives as "diegetic" sound. Diegetic sound is sound that comes from the world of the film, something that the characters could hear, like a car horn or dialogue. Non-diegetic sound includes narration or soundtrack. The filmmaker may use the viewers' expectations and assumptions of what is diegetic in order to surprise them, for example.

Therefore, using different film techniques, filmmakers can convey emotion in their audience and draw them into the scene's atmosphere.

In light of the above, since humans are operated by emotions an emotional engagement in a film would keep us involved. Therefore if a film would not evoke emotions and/or generate impression of continuity (as was already shown), its spectators would be pulled out back to the external world.

Human conduct and behaviour ought to be governed by that which is beautiful and attractive (i.e. aesthetic) (Anand, 2014). What we find as not visually pleasing is, by definition, unattractive for us (Oxford English dictionary, 2014). Without aesthetics in films, the emotional engagement of the spectator will be damaged. Moreover, if the protagonists would be aesthetically unattractive, repulsive, or offensive they could not evoke strong emotions as empathy or sympathy. Therefore, it is no coincidence that most movie stars are people who are perceived as beautiful people. Seeing an aesthetic object may lead to feelings of attraction and emotional well-being (Ramachandran & Hirstein, 1999). We tend to feel positive feeling to beautiful objects and subjects. As aesthetic the protagonists would be the easier it would be to empathies with them.

Hence, if a film is perceived as unaesthetic, even if it is continuous and elicits emotions in its viewers it would not attract them.

Film Aesthetic:

Aesthetic is a branch of philosophy dealing with the nature (Carroll, 1999) of art, beauty, and taste, with the creation and appreciation of beauty (Merriam-Webster dictionary, 2014). Visual aesthetics is the capacity of assigning different degrees of beauty to certain forms, colors, or movements (Cela-Conde et al., 2004). Aesthetics covers reflection upon the phenomena of signification considered as artistic phenomena. The aesthetics of cinema is therefore the study of the cinema as an art and the study of films as artistic messages (Aumont et al., 1992).

Over the years filmmakers developed skills that became the basis of film as an art form by using aesthetic elements (Bordwell & Thompson, 2006). Finding order of some kind, abstract patterns in systems of plot and style, such as repetition, contrast, symmetry, parallelism, and so

on, is a possible motive for aesthetic enjoyment (Tan, 1996). Those motives and elements capture the audience's attention and appeal to viewers by simple repetition (Bordwell & Thompson, 2006). Bad aesthetics can result in disengaging from a film. Attention to aesthetics gains an audience's trust, makes them forget they are watching a film and by extension feel any kind of emotion (OReilly, 2012). This appeal can be triggered by the way a certain scene is filmed or edited (Tan, 1996). Moreover, the way a film is styled defines its whole atmosphere.

Aesthetic Elements Used In Films

There are a variety of techniques that are used in films in order to evoke aesthetic experience. The representation of space affects the reading of a film. Depth, proximity, size and proportions of the places and objects in a film can be manipulated through camera placement and lenses, lighting, décor, effectively determining mood or relationships between elements in the diegetic world (Prunes, Raine & Litch, 2002).

Décor is one of the important elements of "putting in the scene". It can be used to amplify character emotion or the dominant mood of a film. (Prunes, Raine & Litch, 2002). In the following shots that were taken from Spirited Away (see Figure 10), Pseudo-Western-style architecture can be seen. The whole film is built on the theme of retro, nostalgia, and reconstruction of history. The style of the mystical town in the movie is a mixture of Western and Japanese and it stages a modernizing Japan in the Meiji period (1868-1912) (Miyazaki Interview, 2001). In addition, the variegated spirit world that Miyazaki creates in the film visually represents the fantasy space that serves as a counterpoint to the realities of the everyday life of Chihiro.

Figure 10. Four frames in which the Western and Japanese architecture style is shown**.** In the first frame (A; Time 00:07:51) Chihiro and her parents are exploring the spirited world. The second frame (Time 00:17:02) shows the bathhouse building. On C (Time 00:17:39) and D (Time 01:06:14) a variety of spirits and creatures which inhabit the spirit world is presented.

Color is also used to create aesthetic patterns and to establish character or emotion in narrative cinema (Prunes, Raine & Litch, 2002). People tend to have strong predilections for particular colors (Brunick & Cutting, 2014) and use of color scheme can stress elements in the scene (Prunes, Raine & Litch, 2002). Furthermore, not only does light affect the way colors are rendered, both in terms of hue and depth, but it can focus attention on particular elements of the composition (Prunes, Raine & Litch, 2002; Bordwell & Thompson, 2006). Lighting can also articulate textures. Additionally, space and time can become aesthetic elements in their own right (Bordwell & Thompson, 2006).

The aural properties of a sound (its timbre, volume, reverb, sustain, etc.) have a major effect on a film's aesthetic, as does image quality (HD, for example, provides an aesthetic experience). A film can register the space in which a sound is produced (its sound signature) or it can be otherwise manipulated for dramatic purposes (Prunes, Raine & Litch, 2002).

Furthermore, editing contributes a great deal to a film’s organization and its effects on spectators and strongly shapes their aesthetic experiences (Bordwell & Thompson, 2006). Unobtrusive stylistic devices, such as a camera movement, a still life shot in between two action

scenes, or a special montage sequence, are aspects that can prompt aesthetic pleasure in viewers (Tan, 1996).

For the purpose of talking about animation, aesthetics are simply any of the elements that make up the world of a film, the building blocks of images and sounds (OReilly, 2012). The beauty within Spirited Away is not only found within the narrative, but the very structure and aesthetics of the animation. The fact that Spirited Away is hand-drawn enhances its relation to fine arts. Japanese animators have inherited visual aesthetics from the style of the art of Ukiyo-e. Cavallaro (2006) points out that Miyazaki, in particular, has an aesthetic similar to Ukiyo-e in terms of his use of two-dimensional drawing and watercolor (Suzuki, 2006).

Though it has significant role in engaging us, even aesthetic alone is not enough. As was demonstrated, Spirited Away is evoking aesthetic experiences which immensely contribute to the viewers' immersion in the spirit world. However, this film, as many others, is based on passing the narrative through spoken language. So as aesthetic as it may be, watching this film without understanding Japanese and without the assistance of subtitles would break the narrative.

The act of watching any feature film is accompanied by interest and by following the narrative (Tan, 1996). Narrative context is probably the most complex and significant elicitor of empathic response. Insufficient or inappropriate narrative development will counteract or even contradict our tendency toward emotional contagion and mimicry (Plantinga, 1999). Therefore, lack of narrative (recall my example of misunderstanding Japanese) would prevent evoking of emotions, and as a result it would not allow the spectators to immerse in the film.

In light of the above, continuity, emotions and aesthetics must all coexist in a film in order to have the effect with which any moviegoer is familiar. Combining them all allows the film to draw its audience into the new world it creates in their minds. Moreover, manipulating these three elements in a film, generates a much stronger stimulus and the filmmaker can have enormous influence and control on his audience. Firstly, in order to do so, a stimulus must match the cognitive system. The following part will discuss these notions.

Part II: Film and the Cognitive System

Questions as to precise mechanisms which enable films to have such a direct and powerful effect on their spectators have remained largely unanswered (Tan, 1996). However, much can be concluded on the relations between the cognitive system and the capture of the spectator by the film.

The Cognitive System

Films are audiovisual stimuli. While watching films we use our eyes and ears, and the experience of film is shaped by our brains (Grodal, 2009). Hence, we use brains and bodies that have evolved in a totally different environment. Although we did not evolve to watch movies, the human brain is capable of perceiving, let alone comprehending, motion picture films. This ability has long been recognized as a challenge by psychologists, especially for theorists of visual perception (May et al., 2003).

Film Suits the Cognitive System

While watching a movie we are exposed to jumps in time and space. Cutting and Candan (2013) argue that this never occurs in real life, and it is completely different from anything our ancient ancestors were exposed to and evolved to accommodate. Therefore, the fact that we can still see objects and understand their behavior means that the information provided by films does not violate the needs of basic perceptual processes (May et al., 2003). One proposed explanation of why the continuity editing works is that it produces a stream of audiovisual information that is similar enough to our experience of the real-world to allow us to perceive it directly, without any specific cognitive skills (Anderson, 1996; Bordwell, et al., 1985; Cutting, 2005).

For a film to match our cognitive and perceptual proclivities, an impression of continuity must be held. The continuity occurs in the viewer's mind, therefore there is no continuity without a viewer (Smith, 2012). In order for us to perceive a continuous scene, the information encoded must be perceptually "stitched" together and added to a working memory representation of the scene (Smith, 2012).

Although edited film, with its potential for large spatial and temporal jumps, can present scenes and sequences that are very different to those experienced in our real lives, it nonetheless

relies on our ability to integrate different view-points and attentional foci into a single train of thought. This forms the basis for our cognitive analysis of film watching (May et al., 2003).

Prior studies have demonstrated that gaze cues are able to trigger an automatic and rapid shifting of the focus of a viewer's visual attention. Moreover, it was reported that three month-old infants turned their eyes to a target more rapidly if the location of that target had just been cued by an adult's gaze direction (Hood, et al. 1998). In other studies (Driver et al., 1999; Friesen & Kingstone, 1998; Langton & Bruce, 1999), participants were asked to make a response to a target stimulus whose location may or may not have been cued by, for example, the orientation of another's head and/or the direction of eye gaze. These experiments have shown that gaze cues will trigger rapid, reflexive shifts of adult participants' visual attention, even when the gaze direction does not predict the likely location of a target stimulus, and when participants are explicitly asked to ignore these cues (Langton, Watt & Bruce, 2000).

Gaze cues do therefore seem to be processed obligatorily and cause viewers' attention to be shifted towards the cued region. This has the effect of facilitating the processing of any target that subsequently appears in that location, and also primes an infant's eye-movement response in that direction, although the mechanism for this is not known. Head turns and shifts of gaze may result in a viewer following the eye-line to the target of the gaze (Langton, Watt, & Bruce, 2000). Some of the continuity editing rules (such as shot/reverse-shot, the 180° rule) use that innate tendency to follow a character's gaze. It is used in shots such as Eye-line match shots. This enables to create the Kuleshov effect, for example. Furthermore, it creates within the viewer the relation between a character to its target of gaze (Langton & Bruce, 1999).

As was mentioned above, using the continuity editing rules causes greater edit blindness than edits not adhering to the rules. The majority of the techniques are thought to have settled in their final form due to their compatibility with our existing cognitive abilities (Anderson, 1996; Smith, 2012). Therefore by breaking the rules and examining how it influences the detectability of cuts or by characterizing cuts that are more "invisible" to viewers than others we can learn about the cognitive system. The film supports the viewer's assumption that space and time are contiguous between successive shots (Prunes, Raine & Litch, 2002).

Indeed, a previous experiment tested the relationship between continuity editing rules and edit blindness. The study had presented the first empirical evidence of edit blindness and its relationship to natural attentional behavior during film viewing. A match-action cut is believed to be the smoothest way for transition between two viewpoints of an action and create continuity for the viewer (Reisz & Millar, 1953; Smith, 2013). As predicted by match-action editing theory, participants failed to detect a third of all match-action cuts compared to only a tenth of between scene cuts (Smith & Henderson, 2008). The sudden onset of motion before the match-action cut and the continuation of motion after the cut seem to mask the cut, making it harder for viewers to detect it (Smith, 2013). Motion is assumed to drive attentional synchrony and provide a reliable cue that an editor can use to guide attention. Therefore it plays a critical role in creating continuity (Smith, 2013). According to Smith the continuity editing rules use natural attentional cues such as off-screen sounds, conversational turns, motion, gaze cues, and pointing gestures to trigger attentional shifts across cuts. The combination of attentional cues pre-cut, and matching minimal expectations post-cut allows viewer cognition to precede seamlessly from shot to shot, scene to scene, sequence to sequence, and across the entire narrative (Smith, 2012).

Our inability to detect continuity errors in film under normal viewing conditions (i.e. change blindness) demonstrates that not all details of a scene are attended or represented in enough detail for us to detect a discontinuity (Levin & Simons, 1997). Levin & Simons (1997) used a matched-exit/entrance to show one actor leaving a room in one shot and then a different actor continuing the action in the next shot. Even though the two actors were wearing different clothes and were of different ages only 33% of viewers reported the change when asked if they had "noticed anything odd". This demonstration of change blindness in a dynamic scene emphasizes the role of location and movement of a character (i.e. spatiotemporal information) in convincing us that a scene is continuous (Smith, 2012).

When a different object appears that continues the expected action, we initially perceive it as the same object, as was seen in the scene that was taken from Hercules, in which, the black girl continues the expected action of the white girl (see page 9). Furthermore, this scene contains a lot of motion in it; the girls are running and jumping. This frenetic motion in the scene contributes to the viewer’s change blindness.

The viewer motivation is to gather the relevant information in order to follow the narrative. Therefore, despite the presence of discontinuous events in films, if not attended the impression of continuity can still remain. Only by performing correspondence between our stored representation of object identity and the current form of the object will we detect the change (Smith, 2012).

The continuity impression must not be foiled. When the evidence of our eyes conflict with what we know to be true, we have to ignore what we see; this takes conscious effort, which pulls us out of the picture, and it makes us doubt the credibility of the movie (Boorstin, 1990).

A cognitive basis can also be found in the use of Close-ups of emotional faces to evoke empathic responses in the spectator (Plantinga, 1999). In Plantinga's account, this is an automatic affective response. Watching an emotional face will make the spectator feel like the character through automatic mechanisms, such as subconscious mimicking of the other's facial expression. A similar feeling will be induced via automatic feedback from the spectator's own facial muscles (Vaage, 2010).

Understanding how we conceptualize an object goes a long way toward understanding how we feel about that object. Cognitive scholars emphasize how certain salient characteristics in an object lead us toward certain emotions. When we cognitively evaluate objects to determine their significance for us, we assign characteristics to them, and this evaluation leads us toward particular emotions. Animation freely allows to manipulate such characteristics of objects. A cognitive understanding of the emotions helps us to pay close attention to the stimuli that evoke an emotional response (Plantinga & Smith, 1999).

In Spirited Away Chihiro's illustration matches our aesthetic needs. As a child she has a set of facial and body features that make her character appear "cute", therefore activating in others the motivation to care for her. Moreover, cuteness has biological function; infantile features triggered nurturing responses in adults and this was an evolutionary adaptation which helped ensure that adults cared for their offspring, ultimately securing the survival of the species (Glocker et al., 2009).

Chihiro has a "characteristic 'cute' appearance" such as proportionately smaller nose and larger eyes (Jones, 1995). Yobaba, on the contrary, is very unaesthetic. Villains are more likely

to be unpleasant not only by their acts but also by their appearance so the viewer would not tend to care for them.

However, not all the elements used in films match our cognitive system. Zooming, for example, can violate it. Zoom doesn't emulate the natural feeling of getting closer. Thus, this Zooming appears to bring us closer by increasing the focal length of lens; we begin by watching through a wide angle and end up watching through a telephoto[3]. This changes the optical qualities of the shot – in telephoto shots, planes stack up on top of each other and background can go out of focus. It is much easier to zoom in on something than actually move the camera. But the eye is never really fooled by a zoom. We don't feel that we have moved closer, we feel we are watching through binoculars. Therefore the use of zoom may draw attention to the film technique. In the classical continuity style, editing techniques avoid drawing attention to themselves (Prunes, Raine & Litch, 2002). Thus, one will not simply zoom his camera in on something without covering the zoom effect with another camera move (Boorstin, 1990).

Supernormal Stimulus

Ramachandran has developed a highly speculative theory of human artistic experience as part of Neuroesthetics. One of the eight laws of the artistic experience is the Peak shift effect. In this phenomenon animals sometimes respond more strongly to exaggerated versions of the training stimuli (Cai, 2014). For instance, gull chicks beg for food by pecking at the red spot on their parents' long yellow beak. Niko Tinbergen has found that a long stick with three red stripes on it is, paradoxically, much more effective at stimulating fervent begging than a beak, even though it does not resemble one (Ramachandran, 2004). This is called a Supernormal stimulus. The Peak shift effect can be applied to human pattern recognition and aesthetic preference.

Supernormal stimulus is an exaggerated version of a stimulus to which there is an existing response tendency, or any stimulus that elicits a response more strongly than the stimulus for which it evolved. As was shown in the peak shift effect, the long stick with three red stripes on it was much more effective at stimulating begging of gull chicks than a beak. Such ultra-normal stimuli must excite beak-detecting visual neurons in the chick's brain more

[3] A lens with a longer focal length than standard, giving a narrow field of view and a magnified image.

powerfully than an actual beak does, because of certain accidental features of these neurons' wiring (perhaps embodying the rule “the redder the better”).

This paradoxical effect was also demonstrated in nesting birds. Tinbergen discovered that birds that lay small pale-blue eggs with gray dots would abandon them to sit on giant black-and-blue artificial eggs, so big the birds constantly slid off and had to hop back on (Tinbergen, 1951). As another, example, male silver-washed fritillary butterflies are stimulated to solicit females by the flickering movement of their wings. The natural frequency of flicker is in the region of 8-10 Hz. However, in laboratory experiments it was found that the male butterflies would court more vigorously to flickering stimuli with much higher frequencies (up to 140 Hz) greatly exceeding anything encountered in the animal's natural environment (Staddon, 1975).

The elicited behaviors evolved for the "normal" stimuli of the ancestor's natural environment, but the behaviors are now hijacked by the supernormal stimulus. Animals encounter supernormal stimuli very rarely in nature. They will encounter them mostly as human made artificial stimuli. The human environment has changed with modern society, and evolution has not kept pace in what our instincts are guiding us towards. As a result there is a disconnection between our instincts and the environment we inhabit.

Film as a Supernormal Stimulus

I argue that the same situation may hold for movies that we humans enjoy. In that case, a film will be a supernormal stimulus for humans who will prefer it over the reality and will react to it strongly. Moreover, based on the cinema medium attributes, filmmakers can deliberately exaggerate creative components such as shading, highlights, and illumination to an extent that would never occur in a real image.

In other words, filmmakers as artists will try to make a 'super' stimulus to get the viewer to have a higher frequency response. To capture the essence of something, an artist amplifies the differences of that object, or what makes it unique, to highlight the essential features and reduce redundant information. This process mimics what the visual areas of the brain have evolved to do and more powerfully activates the same neural mechanisms that were originally activated by the original object (Ramachandran & Hirstein, 1999).

In animated films, the confines of the real world do not exist as they do in live action films. The filmmaker is confronted with creating the entire narrative space from scratch (Buchan, 2011; Buchan, 2006). The option given to visual artists and animators alike is to abandon tenets of realism in favor of an alternative perspective on the visual world. Animation alone can bring life to inanimate objects, defy laws of physics, and create visual effects impossible in live action film (Brunick & Cutting, 2014).

Processes like grouping, segmentation, and symmetry detection might be intrinsically pleasurable to the visual system because they facilitate detection and orienting toward objects. Supernormal stimulus can be embedded in order to evoke an emotional response (Ramachandran, 2004; Ramachandran & Hirstein, 1999). It is argued that the sense of beauty and aesthetic judgment presupposes a change in the activation of the brain's reward system (Salah & Salah, 2008).

Across shots, filmmakers control our gaze, and they do this very well, sufficiently so that their work creates attentional synchrony among film viewers. Almost every viewer looks generally at the same given place on the screen all the time and throughout every shot (Cutting& Candan, 2013; Smith, 2013).

Filmmakers who hope to gain maximal control over viewers' mental responses use continuity conventions and any suitable cinematic device to achieve such a goal. A new method for assessing the effect of a given film on viewers' brain activity was described by Hasson et al. (2008). They propose that inter-subject correlation analysis (ISC) may be useful to film studies. Thus, while the ISC cannot provide an aesthetic judgment as to the right cinematic style to be taken, it may serve as an objective scientific measurement for assessing the effect of distinctive styles of filmmaking upon the brain, and therefore substantiate theoretical claims made in relation to them (Hasson et al., 2008). Data from that experiment suggest that achieving a tight control over viewers' brains during a movie requires, in most cases, intentional construction of the film's sequence through aesthetic means.

Moreover, movies evoke very powerful feelings which we don't tend to experience in such intensity in our routine. Aesthetic judgments may be linked to emotions or, like emotions, partially embodied in our physical reactions.

Close-ups of protagonists' emotional faces are often presented for much longer than is necessary for the mere communication of emotion, or for the cogitation necessary to comprehend the character's situation. In such cases, their purpose must be to promote spectator empathy through facial feedback and emotional contagion. Emotional contagion is the phenomenon of "catching" others' emotions or affective states. It occurs in many ways and in diverse contexts. When our friends laugh and smile while telling us a story, we often laugh and smile in response, even if we fail to see the humor in the story itself. Their laughter is contagious (Plantinga, 1999).

In some cases the surface structure of the film is enjoyable in its own right (Tan, 1996). As was mentioned before there are different elements that can create aesthetic experiences. Thus, by manipulating those elements the filmmaker can evoke different aesthetic and appealing experiences in its audience. In addition to the appealing power of aesthetics it can also be used to control the viewer.

Filmmakers have learned through one century of experimentation what forms of dynamic scenes are easily comprehended by their viewers and which are not. Their craft knowledge delineates the comprehensible from the incomprehensible as well as any other body of empirical research that has taken a century to collect (May et al., 2003).

Evolution of Films

The physical form of Hollywood films has been evolving over the last 75 years. Films have gotten quicker, faster and darker (Cutting & Candan, 2013). Shorter shots help rivet attention to the narrative and heighten the emotional response of viewers. In addition, patterns of shot durations were found, that are differential waves of shorter and longer shots progressing along the entire length of a film. Those editing patterns have been evolving over time towards a nested pattern of shot lengths that may mirror the natural fluctuations of human attention (Cutting, Brunick, & DeLong, 2011; Cutting, Brunick, DeLong, et al., 2011; Cutting, et al., 2010). Similar patterns have been observed in human reaction time tests and are thought to govern the availability of attention for processing sensory information (Cutting & Candan, 2013).

Cutting et al. (2011) argue that put more directly, shorter shots, increased motion, the coupling of shot lengths and motion, and decreased luminance all appear to serve the filmmaker

to better control the eye movements and the attention of the viewer (Cutting, Brunick, DeLong, et al., 2011; Smith, 2006). These might also increase viewer engagement. Moreover, it may be that film has become better adapted to human perceptual and cognitive processes. This also suggests that movies better match the organization and expectations of the mind than does the structure of everyday events.

It is not just the content that pulls us. When seeing novel stimuli it evokes a characteristic movement of the eyes, head and sometimes of the whole body in the stimulus direction, which manifestly facilitate stimulus perception. Pavlove had called this phenomenon orienting reflex. The orienting reflex is a response to a stimulus unexpected in a given situation. The reflex consists of targeting, arousal and perceptual components. By paying attention for a split second we are able to assess the value of this stimuli. (Cutting, 2014). Films through new stimuli all the time in the frequency that trigger that reflex constantly, as cutting has shown.

In conclusion, evolution of films points out that films can not only suit the human cognitive system but can also be a Supernormal stimulus for it.

Only In “Films”

Some forms of film do not exist in the real world, as the stick with three red stripes does not exist in the chicks' real world. This shows that some stimuli can be invented in order to arouse and increase the film experience. The *Bullet Time*, for instance, does not occur in reality. In the bullet time action slows to a crawl while the viewpoint revolves around a single element of a scene, such as a bullet speeding from a gun toward its target. These forms of portrayal have only become possible by digitally modifying film shot with many cameras and editing it together into a seamless whole. It certainly bears no relation to anything ever experienced by a human viewer of real events, and yet is comprehended instantly, on first sight, by every moviegoer. In itself, this is evidence against the commonly held view that film techniques are a form of convention or grammar that has to be acquired, and that film audiences can only see and understand film because they are immersed in a culture pervaded by film (May et al., 2003).

Usually the spectator does not see events that are irrelevant for understanding the narrative. Film is often a combination of chopped stories. However, in real life we also

experience moments which can be considered as uninformative. A reason for that chopped stories' structer of films was suggested by Herbert Simon. The larger a structure is (e.g., a story), the more it should be broken into smaller chunks. These chunks, and the relationship between them, will make the flow easier to remember (Cutting & Candan, 2013).

Apparently every conceivable human emotion is capable of providing entertainment when experienced in the cinema. Not only pleasant sensations but also negative emotions considered as unpleasant in everyday life such as terror, helplessness and disgust can be experienced as pleasurable in a certain scene (Tan, 1996). Several studies have focused on the question of why sad films can be enjoyable, this is known as the *Sad-Film Paradox*. A recent study (Hanich et al., 2014) investigated why we like to watch sad films. They conclude that audiences do not simply enjoy the sadness evoked by a film. Instead, it is the feeling of being moved that recipients of sad films and other forms of art enjoy. In the case of sad films, sadness contributes to and intensifies the feeling of being moved.

Film Experience as the Perfect Emotional Experience

Films communicate information and ideas, and they show us places and ways of life we might not otherwise know. Furthermore, films offer us ways of seeing and feeling that we find deeply gratifying. A film takes us on a journey, offering a patterned experience that engages our minds and emotions (Bordwell & Thompson, 2006). They evoke very powerful feelings which we do not tend to experience in such intensity in our routine. While, in fact, spectators are protected and nothing can hurt them in the air-conditioned movie theater. The filmmakers discovered that they could control aspects of cinema to give their audience richer, more engaging experiences (Bordwell & Thompson, 2006). Moreover, films have the power of changing one's mental state. Thus by choosing a certain Genre we can actively change our mood.

Another aspect that emphasizes the film as a perfect emotional experience is the term "embodied transparency" used by Zunshine (2012) to describe the moments in fictional narratives when characters' body language involuntarily betrays their feelings, particularly if they want to conceal them from others. She believes that the pleasure we feel derived from such moments is best explained by thinking about what they do to our theory of mind. Instances of embodied transparency offer us something that we hold at a premium in our everyday life and

never get much of: the experience of perfect access to other people's minds in complex social situations. In films, not only do we see what the characters see, we see how they see it.

The experiences are often driven by stories, with characters we come to care about, but films might also develop an idea or explore visual qualities or sound textures (Bordwell & Thompson, 2006). Emotions play a large role in aesthetic processing. Experiments (Cupchik et al., 2009) designed specifically to force the subjects to view the artwork subjectively (by inquiring of its aesthetic appeal) rather than simply with the visual systems, revealed a higher activation in the brain's emotional circuitry. Results from these experiments revealed high activation in the bilateral insula which can be attributed to the emotional experience of viewing art. Thus by amplifying aesthetic elements in film one can evoke stronger emotions in the viewer.

Conclusion

In conclusion, some essential conditions have to be safeguarded in order to draw spectators into films and enable them to get carried away in this fictional world. Filmmakers have to maintain continuity, emotional engagement and aesthetics in order to attract the spectators and keep them attended. In this paper, I suggested a plausible reason to the phenomenon of immersion. The film's medium grants filmmakers the power to enhance the effect which movies have on their audience by manipulating these three conditions. Moreover, films have evolved over the years in such a way that their grip on the spectators has increased. Therefore, referring to a film as super stimuli to the human cognitive system seems perfectly reasonable.

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