Synaptic Signals: Time Travelling Through the Brain in the Neuro-Image

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Abstract

This essay presents some thoughts on schizoanalysis and visual culture around the proposition that cinema survives in the digital age as a type of image that, after the movement-image and the time-image, could be called the neuro-image. By considering clinical schizophrenia as 'degree zero' of schizoanalysis in a more critical sense, a reading of *The Butterfly Effect* unfolds the temporal dimensions of schizoanalysis as typical for a definition of 'the neuro-image'. The argument is that the neuro-image speaks from the (always speculative) future.

Keywords: schizophrenia, the neuro-image, *Difference and Repetition*, third synthesis of time, the future

I. Introduction

Schizophrenia is intimately connected to our times. As a neurological disease, schizophrenia differs from neurosis, as Deleuze and Guattari emphasise in *Anti-Oedipus* (Deleuze and Guattari 1984: 122). Neurosis is based on a repression complex related to a reality principle that remains intact. In schizophrenic psychosis, the reality principle no longer holds and is replaced by the internal reality of the brain. Deleuze argues that neurosis is not an adequate model for understanding the contemporary world. By contrast, the (schizophrenic) brain can provide us with a model for our contemporary existence, especially in relation to electronic and digital images:

> Neurosis is thus not the consequence of the modern world, but rather of our separation from this world, of our lack of adaptation to this world. The brain, in contrast, is adequate to the modern world, including its possibilities of the expansion of electronic or chemical brains: an encounter occurs between the brain and colour, not that it is enough to paint the world, but because the treatment of colour is an important element in the awareness of the 'new world' (the colour-corrector, the electronic image …). (Deleuze 1989: 317, n. 20)

Deleuze explains his statement by referring to Antonioni's project 'Technically Soft', which shows an exhausted man who is on his back dying and looking at 'the sky which becomes ever bluer, this blue becoming pink' (Deleuze 1989: 317, n. 20). Deleuze's conjunction of the brain, image technology and an aesthetic effect is remarkable and demands to be unpacked. Could this awareness of a 'new world' by the treatment of colour relate to the reality of the brain-screen and to a schizoanalysis of cinema? To investigate this further I propose to look at *The Butterfly Effect* (2004) and propose productive connections with Deleuze's work on cinema, with the (schizophrenic) brain and with Deleuze's philosophy of time. This will allow me to see if, by way of a schizoanalysis of cinema, I can distinguish a new type of cinematic image. After the movement-image and the time-image, I suggest to call this new type of image the 'neuro-image' (see also Pisters 2008, 2011).[1]

The main character of *The Butterfly Effect*, Evan Treborn (Ashton Kutcher), suffers from a neurological disease that he inherited from his father and that was enhanced by a traumatic childhood experience.[2] Through this narrative, the film addresses the problem of time and the desire to change our destinies by travelling back and forth in time. The film's tagline is 'Change one thing, change everything'. This tagline refers to chaos theory and to how chaos relates to the natural state of being in the human brain. The film's emblematic title image is a brain scan that very subtly suggests the flapping wings of a butterfly, combining in this emblematic image the link between chaos theory and modern neuropsychology that the film plays with. On the DVD extras, scientists explain how chaos theory in physics has learned that a very tiny difference (such as a slightly different position in space) can create enormous differences in resulting movements and outcomes that are unpredictable. Psychologists explain how this insight from physics has also changed the practice of psychology, acknowledging the unpredictable effects of the smallest events on our brain-screens and mental life.[3] *The Butterfly Effect* takes these insights of modern science and grounds them with a knowledge of psychiatric disorders and the

real traumatic impacts that human beings can have upon each other. It then gives this experimental grounding a more fantastic spin, allowing its main character, who suffers from epileptic seizures and blackouts, to travel through time, change one little thing in the past, and thus change the future present.[4]

As Deleuze has shown with his cinema books, the problem of time is intrinsically related to the medium of film and has metaphysical dimensions.[5] In the second part of this article, I will return to the philosophical questions of time and the brain with respect to the neuro-image. In fact, a new relation to time will be a crucial argument in the conception of the neuro-image, which, as I will argue, has the future as its basic form of time; speculations about the future determine its present and past. First, however, I want to remain close to the film, its specific temporal experiments, and its clinical and scientific references to the brain, so as to consider it as just one possible experiment (among many possible others) in connecting a different conception of time to the delirious schizo-brain. In this sense, *The Butterfly Effect* offers not only an imaginative take on a contemporary neurological condition, but could also be read in a more allegorical way about our 'times'.[6]

II. The Temporal Architecture of the Schizoid Brain

The story of the film is told from three moments in Evan's life: Evan at the age of seven when he and his friends Lenny (Elden Henson), Tommy (William Lee Scott) and Kayleigh (Amy Smart) have a traumatic (incestuous) experience orchestrated by Mr Miller (Eric Stolz), who is Kayleigh and Tommy's father; Evan at the age of thirteen, when the four friends cause an accident; and Evan at the age of twenty, when he is in a mental institution in severe states of delusion, where the film starts. The plot moves back and forth between these different moments of time. But the time layers are interwoven with other possible pasts and their respective futures to which Evan wakes up in changed presents. In his blackouts Evan seems to be able to change the past. Wanting to save Kayleigh from a known future in which she is traumatised, depressed and lonely, working in a diner, he goes back to the moments of their childhood, makes different choices and returns to a present where Kayleigh has changed, differently, into: a sorority girl; then a heroin junky prostitute; and also an earthy type of hippy, depending on the impact of different changed pasts. But the destinies of all other characters, including his own, change in each temporal alteration as well, and in some cases very dramatically (in one version, Evan saves Kayleigh

but kills Tommy; in another, he causes Lenny's institutionalisation; in yet another, he prevents the accident when they are teenagers but is wounded himself, and he wakes up in a present where he has no arms and his mother dies of lung cancer because she starts chain smoking after Evan's accident).

Aesthetically, the images of the time travel and memory flashes also have different colour saturations and densities, which create patterns of recognition. Furthermore, a special shade of red, called 'Miller red' in the director's commentary, indicates the presence of danger. 'Institutional green' is connected to Evan's father's insanity and thus the hereditary legacy of his seizures and frightening abilities. We see here quite literally what Deleuze, as quoted earlier, has called 'an encounter occurring between the brain and colour' that is 'an important element in the awareness of a "new world" '. The brain and film aesthetics are interconnected, indicating that the combination creates new worlds. *The Butterfly Effect* suggests quite literally that the brain should be seen as a film: 'Think of your life as a film, rewind, go back, re-edit', the doctor in the mental hospital tells Evan when he tries to recover what happened during one of Evan's blackouts. The problem is that the complexity of the brain itself (and chaos) does not allow us to foresee all the consequences and implications of our choices, in spite of our desire for control. But the film strongly emphasises that all these different worlds have a mental reality on Evan's brain-screen and as such is pointing to the reality of our contemporary screen culture.

Throughout the film, Evan Treborn is put in an fMRI scanner several times and the unusually excessive plasticity of his brain is discovered mostly in the outer layers of the cerebral cortex where haemorrhaging and massive neural reconstruction can be noticed.[7] 'Forty years of memory in one year', Evan says of his own brain, 'it's an overloaded city, like a reprogrammed brain'. In these sequences, he is referring to neuroscientific insights about the abnormal plasticity and 'wild' synaptic connectivity of schizophrenic and epileptic brains (DeLisi 1997: 119–29). Epilepsy can be considered another modern affective brain disorder that is an important reference in elaborating schizoanalysis. Gary Genosko has demonstrated that Guattari was especially interested in Marco Bellocchio's film *Fists in the Pocket* (1965) because of its treatment of epilepsy. Genosko compares this film to Anton Corbijn's film *Control* (2007), about Joy Division's lead singer Ian Curtis who suffered from severe epileptic attacks and finally committed suicide. Genosko points out that the affective intensities of epileptic seizures have the potential to create new visions, new aesthetics (Genosko 2009: 167–73).

I would like to emphasise here this understanding of epilepsy as a form of schizophrenia in which neural connections are made much too quickly. In *The Aesthetics of Disappearance*, Virilio refers to 'pyknolepsy', a mild form of epilepsy in which a person is disconnected from reality and misses parts of the ongoing, over-saturated present. In pyknolepsy and even more in epilepsy, the brain operates too quickly, makes too many connections at the same time, causing literal overload resulting in seizure (see Virilio 1991).

The medical data in *The Butterfly Effect* thus correspond more or less to recent neurological findings about schizophrenia. Research has also shown that schizophrenia is generally more common in urban populations, which, considering the urbanisation of the contemporary world, makes it all the more a symptom of today's hyperstimulated culture (Sundquist et al. 2004; March and Susser 2006). By predicting at the end of *The Time-Image* new image-types as omni-directional brain cities that are overloaded with information, Deleuze's cinematographic brain-screens resonate as well quite literally with the scene described above from *The Butterfly Effect* (see Deleuze 1989: 265). Moreover, the wild time-travelling in Evan's seizured brain corresponds with neuroscientific perspectives according to which 'the temporal architecture of schizophrenia is characterised by bursts of complex, nonlinear phenomena alternating with truly random events' (Paulus and Braff 2003: 3). It is this temporal architecture of schizophrenia that I take as an important indication to explore the temporal dimensions of contemporary cinema. My point here is not to look for exact correspondence or proof in scientific discourse, but to make productive connections between different fields that all give important indications for the necessity of a schizoanalysis of contemporary screen culture. The temporal architecture of schizophrenia leads us back to the problem of time and Deleuze's philosophy of time as developed in the cinema books and in *Difference and Repetition*. A return to these books can give more clarity in the temporal dimensions of the schizoid brain-screen in *The Butterfly Effect*.

III. Difference and Repetition: The Third Synthesis of Time and the Neuro-Image

Time is an important aspect in Deleuze's film books and together *The Movement-Image* and *The Time-Image* can cover the whole range of the actual and the virtual (or matter and memory), the indivisible plane of immanence of Deleuzian philosophy. Movement-images and

time-images relate both to the actual and the virtual but they do so in different ways, as is clear from the difference between flashbacks (in the movement-image) and crystal-images (in the time-image). In this sense there seems to be no need for a third type of image, a neuro-image as I am proposing. There are, I believe, many instances that justify the neuro-image as simply an extension or intensification of the time-image. However, a return to *Difference and Repetition* can allow us to distinguish yet other metaphysical dimensions of time, and to make a distinct case for the conception of the neuro-image as a third type of image, or in any case a third dimension of the image.

Difference and Repetition is a book that poses the problem of the virtual and the actual in terms of difference and repetition, and addresses the complex problems of the conditions of appearances, things, life forms as they differ and are repeated. As James Williams has indicated, a consciousness of repetition is proposed by Deleuze in terms of certain variegated syntheses of time. Williams argues that Deleuze's syntheses offer a 'complex but deeply rewarding and important philosophy of time [that] will, no doubt, come to be viewed as one of the most important developments of [Deleuze's] philosophy' (Williams 2003: 85). In chapter 2 of *Difference and Repetition*, Deleuze develops the idea of the passive synthesis of time. As in the cinema books, Bergson is the main reference here, although the starting point of Deleuze's reflections is Hume's thesis that 'repetition changes nothing in the object repeated, but does change something in the mind which contemplates it' (Deleuze 1994: 70). Repetition has no in-itself, but it does change something in the mind of the observer of repetitions: on the basis of what we perceive repeatedly in the present, we recall, anticipate or adapt our expectations in a synthesis of time. This synthesis is a passive synthesis, since 'it is not carried out by the mind, but occurs in the mind' (Deleuze 1994: 71). The active (conscious) synthesis of understanding and memory are grounded upon this passive synthesis, which Deleuze, referring to Bergson, calls duration and which occurs on an unconscious level.[8] So although Bergson refers to the observation of our inner life in duration as consciousness, the temporal contractions that generate it are largely unconscious. Deleuze distinguishes different levels of passive syntheses that have to be seen in combinations with one another and in combination with active (conscious) syntheses:

> All of this forms a rich domain of signs which always envelop heterogeneous elements and animate behavior. Each contraction, each passive synthesis, constitutes a sign which is interpreted or deployed in active syntheses.

> The signs by which an animal 'senses' the presence of water do not resemble the elements which the thirsty animal lacks. The manner in which sensation and perception – along with need and heredity, learning and instinct, intelligence and memory – participate in repetition is measured in each case by the combinations of forms of repetition, by the levels on which these combinations take place, by the relationships operating between these levels and by the interferences of active syntheses with passive syntheses. (Deleuze 1994: 73)

The first synthesis that Deleuze distinguishes is that of habit, the true foundation of time, occupied by the passing present. But this passing present is grounded by a second synthesis of memory: 'Habit is the originary synthesis of time, which constitutes the life of the passing present. Memory is the fundamental synthesis of time, which constitutes the being of the past (that which causes the present to pass)' (80). As Williams explains, the first synthesis of time occurs because habits (repetitions) form our anticipations based on what we have experienced before, 'as in the passive assumption that something will occur' (Williams 2003: 101). The second synthesis, Williams calls archiving, 'as in the passive sense of the present passing away into the past as a stock of passing presents' (ibid.). The second synthesis of time is equivalent to Proust's involuntary memory (Deleuze 1994: 85). In the description of these two syntheses of time, Deleuze refers explicitly to Bergson. The first and second syntheses rely on each other as in the alliance of the soil (foundation) and the sky (ground), but they also have their own characteristics.[9]

The conception of the syntheses of time is incredibly sophisticated and complicated and I cannot do justice to the richness of the arguments Williams and others have constructed around them so powerfully and convincingly. Nevertheless, I take that it is possible to argue that the first synthesis of time, habitual contraction, can be recognised as movement-images that Deleuze describes as the sensory-motor aspects of the brain-screen. Similarly, I consider that the second synthesis of time can be related to the dominant form of time in the time-image, where the past becomes more important and the ground of time manifests itself more directly. It has to be noted that each synthesis of time has its own relation to other times. The first synthesis of time as the living or passing present relates to the past and the future as dimensions of the present. In this way, the flashback (and flashforward) in cinema can be seen as the past and future of the movement-image that is based in the present. In the movement-image, we always return to the present. In the second synthesis of time, the past becomes the ground, the time within which

time operates, and thus the present and the future become dimensions of the past. So, instead of the synthesis of a particular stretch of duration, the present now becomes the most contracted degree of all of the past, the 'pure past'. In *The Time-Image* the different time-images that Deleuze distinguishes are grounded in Bergson's conception of the 'pure past'. As such, time-images become dimensions of the second synthesis of time; the present and the future become dimensions of the past as its crystallising points, and the virtual becomes more indistinguishable from the actual than in the movement-images that have the present as their founding dimension.[10]

However, in *Difference and Repetition*, Deleuze also distinguishes a third synthesis of time: the third synthesis of time is the future as such. 'The third repetition', he writes, 'this time by excess, [is] the repetition of the future as eternal return' (Deleuze 1994: 90). In this third synthesis, the foundation of habit and the ground of the past are 'superseded by a groundlessness, a universal ungrounding which turns upon itself and causes only the yet-to-come to return' (91). In this third synthesis, the present and the past are dimensions of the future. 'In the work of the third passive synthesis', Williams explains, 'there is the sense of the openness of the future with respect to expectancy and archiving' (Williams 2003: 101). This openness and its risks also imply the possibilities of change (making the future different from the past and the present). It is the condition for the new. The third synthesis is complicated since it does not simply repeat the past and the present, but instead cuts, assembles and orders from them, to select the eternal return of difference in a series of time: 'Identities, or the same, from the past and the present, pass away forever, transformed by the return of that which makes them differ – Deleuze's pure difference of difference in itself' (103).[11] The three syntheses of time together account for Deleuze's philosophy of time.

Addressing the third synthesis of time, Deleuze breaks off from Bergson as Nietzsche becomes the main point of reference. In *The Time-Image*, Bergson also seems to disappear in favour of Nietzsche's appearance, though in the cinema books, Nietzsche is not explicitly connected to the question of time. Chapter 6 of *The Time-Image*, for example, discusses Orson Welles and the powers of the false, and Nietzsche is the important reference for understanding the manipulation of such powers. These powers are discussed, however, as a consequence of the direct appearance of time, which is mainly elaborated in terms of the pure past of the second synthesis of time. At the end of the discussion of Welles's cinema, the powers of the false are connected to

the creative powers of the artist and the production of the new (though not explicitly to the eternal return and the future). Also, the series of time are mentioned in *The Time-Image*, especially in the chapter on bodies, brains and thoughts (ch. 8). Here the bodies in the cinema of Antonioni and Godard relate to time as series. In the conclusion of the book, Deleuze explains this chronosign of time as series:

> the before and after are no longer themselves a matter of external empirical succession, but of the intrinsic quality of that which becomes in time. Becoming can in fact be defined as that which transforms an empirical sequence into series: a burst of series. (Deleuze 1989: 275)

We can see that after all the insistence on the Bergsonian temporal dimensions of the movement-image and the time-image, this form of time (series of time) remains rather underdeveloped on a theoretical level in the cinema books. Referring back to *Difference and Repetition*, we can now consider that the powers of the false and the series of time that can be sensed in some time-images might belong to this third synthesis of time. Taking this logic one step further, what I suggest is that this third synthesis of time that already appears in the *Time-Image* (in a more or less 'disguised' form) is the dominant sign of time under which neuro-images are formed.[12] The neuro-image belongs to the third synthesis of time, the time of the future (though this certainly does not exclude the other times, as the past and the present now become dimensions of the future).[13] Moreover, it has to be noted that each synthesis also opens up to the other syntheses (each with their own respective dimensions of time). So we get here a complex architecture of time, that is played out with ever greater consciousness on our brain-screens in the neuro-image.

IV. The Schizoid Brain: Perspectives from the Future

So how does all this relate to *The Butterfly Effect*? Is it possible to see this film as based upon the 'third synthesis of time'? As was clear from the plot descriptions that I gave, the film is preoccupied with time. The various pasts could be seen as flashbacks dependent on a present where Evan is at high school, and thus considered as based on the first synthesis of time. However, this present is actually too unstable and does not form the foundational basis of the traditional flashback which investigates the past from a centre in the present (think of the famous flashbacks in Marcel Carné's *Daybreak* [1939], where all events

lead to the situation in the stable present where Jean Gabin has locked himself up in an apartment). Could the variations of the past then be explained as dimensions of the pure past and thus be based in the second synthesis of time? There are arguments to be made for that; after all, the present situation depends on what happened in the past (the children at age seven and at age fourteen). And so we could consider everything that happens as indistinguishable crystals between the virtual and the actual, never knowing exactly when we have left one domain and entered the other. But that does not explain the series of time that the film produces. Rather, I suggest, the past and the present are dimensions of the (always speculative) future imagined on Evan's schizoid brain-screen. Each moment Evan changes something in the past, the present changes (in unpredictable ways) accordingly. This is what happens when we are in the third synthesis of time: the past and present are 'recut' with different speeds, intensities and orders. The third synthesis of time is related to the creation of the new, to hope for the future, an eternal recurrence of 'difference', but also to death (death is the future for all of us, but also calls for rebeginnings). After Evan has revisited 'all of the past' and 'all of the present', like a database of options of 'new worlds' from a future perspective, we return to the beginning of the film where Evan is in the psychiatric hospital and is told that the diaries (that give him entrance into his pasts) are nothing but fantasies to cope with his guilt (of having killed Kayleigh in what is most likely to be the 'real' version of the past and the present). Here the director's cut of the film differs significantly from the theatrical version.

In the theatrical release of *The Butterfly Effect*, several scenes were deleted which were re-edited in to the director's cut ('Thank God for DVD,' the directors exclaim with relief). In the first deleted scene, Evan finds documents in an old shoebox that indicate he inherited his disease from the male side of his family. Not only his father but also his grandfather had been hospitalised for the same mental illness. In another scene, he learns from his mother that he was actually her third baby; two others were stillborn before him. This leads to the ending that the directors originally planned, where Evan, after so many variations of the past and its futures in the present all go wrong, decides to go back to the moment before his birth and strangle himself with the umbilical cord, preventing his own birth. His mother then, this cut suggests, will have a daughter from another husband (breaking the male insanity heritage) and Kayleigh will marry somebody else. The studio did not want this ending, considering it too dark.[14] It is a dark ending indeed. But apart from being dark, it is also a mysteriously powerful narrative option that

in fact can only be explained as an 'insane' solution to the question of (im)possible futures. But metaphysically it is the absolute zero degree of the third synthesis of time: to have died before birth, in order to create a new present – all from the point of view from the future. *The Butterfly Effect* is told from the perspective of the future and shows the pathological (deadly) dimensions of this Time of the Future that is Now.

But as I want to argue in the larger project, the neuro-image has also more creative and political aspects that relate to a productive form of schizoanalysis that acknowledges the affective and illusory realities of our contemporary brain-screens (Pisters 2011). One can think of the ways in which contemporary Hollywood cinema often quite literally speaks from a future perspective, *Minority Report* (2002) with its precogs characters and pre-emptive crime fight being the most obvious example. On a narrative level, many films start from a point in the future. Here *Inception* (2010) is the most notable case in point, where we enter the main character's brain architecture from a moment in the future where he is old and dying. One can also think of *Avatar* (2009) as a neuro-image that speaks from a speculated future of the planet. But one can also think of political cinema, such as the Palestinian film *The Time that Remains* (2010) that remixes political reality in order to 'gain time' for the future, to sustain in the creation of imaginative realities. Contemporary culture is full of neuro-images that are based in the third synthesis of time. But we need schizoanalysis to understand its many possible dangers and empowerments.

Notes

1. In the first volume on Deleuze and schizoanalysis of cinema (Pisters 2008), I make an explicit like between schizophrenia as disease and schizophrenia as (cultural and political) process or strategy. In this volume I will depart again from pathological schizophrenia but discuss its temporal and metaphysical dimensions. All this is more elaborated in *The Neuro-Image* (Pisters forthcoming).
2. When referring to schizophrenia, I will propose an inclusive definition of mental illnesses as 'delusional or affective illnesses' that are defined as brain disorders by contemporary neuroscience, including neurological diseases such as epilepsy, autism and (manic) depression.
3. I refer to the director's cut of the film as distributed on DVD, which is commented upon by the filmmakers and which contextualises the film with both scientific theories and insights and film historical backgrounds *(The Butterfly Effect: The Director's Cut* 2004). Besides the directors' commentary, the DVD contains notable extra material such as 'The Science and Psychology of Chaos Theory' and 'The History and Allure of Time Travel Films'.

4. In the DVD extra, *The Butterfly Effect* is framed within the genre of time-travel movies.

5. Freud defines the unconscious in terms of displacement, condensation, and repression, all related to sexuality. The Deleuzian unconscious is based on Bergson and related to the synthesis of memories and duration (see Kerslake 2007). In *Difference and Repetition*, Deleuze relates Eros specifically to the second synthesis of time (Deleuze 1994: 85).

6. Garrett Stewart discusses time and memory in *The Butterfly Effect*, as well as in *Donnie Darko* (2001), as a Hollywood Gothic science fiction, as opposed to the European uncanny humanism of films such as *The Double Life of Veronique* (1991) and *Swimming Pool* (2003) (Stewart 2002: 327–50).

7. fMRI stands for functional magnetic resonance imaging, which is a non-invasive brain scanning technique that measures changes in blood flows related to neural activity. It is one of the most recent and commonly used neuroimaging technologies.

8. Deleuze's argumentation is complex and extended. For insightful and very precise discussions of *Difference and Repetition*, James Williams (2003) and Joe Hughes (2009) are indispensible references.

9. Deleuze gives the ground of the past the characteristics of the sky: 'the foundation concerns the soil, it shows how something is established upon this soil [...] whereas the ground comes rather from the sky, it goes from the summit to the foundations [...]' (Deleuze 1994: 79).

10. Alia Al-Saji (2004) elaborates on the influence of Bergson in *Difference and Repetition*, referring mainly to the second synthesis of time.

11. Elsewhere, he clarifies this differently: 'When thinking of the future (F) as different from the past (P), we may be tempted to think that the difference lies between P and F. But Deleuze's point is that in a selection we move from an assembly P/F to a new assembly P'/F'. We select a new past and a new future. So any difference is between P/F and P'/F'' (Williams 2006: 112).

12. Alain Resnais's cinema, for instance, can be considered as 'neuro-images avant-la-lettre'. It is important on the one hand to acknowledge the fact that Deleuze has already mapped out the contours of the neuro-image in his cinema books. On the other hand, it also allows us to see how Resnais's cerebral screens anticipate the digital logic of our contemporary screens as a will to art (and thus indicate a resonating link between the neuro-image's brain-screen and the digital age in a non techno-deterministic way). See for an extended analysis of Resnais's cinema as early neuro-image, chapter 4 of *The Neuro-Image* (Pisters forthcoming) or the online lecture 'Signs of Time: Cerebral Metaphysics of the Neuro-Image' at http://vimeo.com/11779080.

13. Richard Rushton also refers to the syntheses of time in connection to cinema, indicating how the virtual and the actual can be read as the first and second synthesis of time in the movement-image in *Letter from an Unknown Woman* (1948). His focus (in a discussion with Mark Hansen) is on spectatorship, and he relates the time-image to the third synthesis of time and the dissolution of the subject (Rushton 2008). I propose a more meta-theoretical perspective by arguing that the movement-image, the time-image and the neuro-image are each based in a different synthesis of time, each has their own relations to past, present and future, and each opens up to the other syntheses.

14. In the theatrical version, Evan scares Kayleigh away the first moment they meet when they are seven so that they never cross paths again. The film ends eight years in the future where Evan recognises Kayleigh in a crowded city streets but after a moment of hesitation lets her pass by. All versions of alternative endings can be viewed on YouTube.

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