CADAVRE EXQUIS
FORKING PATHS FROM SURREALISM
TO INTERACTIVE FILM

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INTRODUCTION

The opening scene of the film *Cadavre Exquis* is frozen (stopped in time). Three characters meet in the same room. However, the viewer (who interferes in the narrative) has the possibility to travel[1] through the freeze-frame, getting closer to or moving away from each character. When the viewer[2] gets closer to a character he/she may select him/her. That choice results in a flashback that leads up to the frozen moment. By choosing the last character the viewer will unfreeze the opening scene, setting it in motion.

Three scriptwriters[3] were invited to write the scripts. During the initial phase, the scriptwriters were not aware of the other participants and enjoyed

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[1] The technical description of this possibility may be found in the section "*Cadavre Exquis*: the interactive film".

[2] This is a film prepared to be viewed individually. Although it can be viewed by several people simultaneously, only one of the viewers can interfere in the narrative (the one who has control over the interface).

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full creative freedom over their character: each narrative would have to begin, at most, 24 hours earlier, and end in a room shared with two other characters.

The film *Cadavre Exquis* is part of the project *The Forking Paths*, which is available in an online platform (oscaminhosquesebifurcam.ciac.pt) dedicated to interactive film experiments. In addition to other experiments, the platform includes the films produced for the project: *The Book of the Dead* (2019), *Valsa* (2015) and *Haze*[4] (2014). The project *The Forking Paths* began in early 2013, at the Centre for Research in Arts and Communication (CIAC), Portugal. It was implemented in the Film Studies Lab (LEF) and is part of CIAC's wider research "Creation of Digital Artifacts". CIAC's mission is to produce digital artefacts that seek intrinsic connections between art and technology. The aim of this project, which has multiplied itself into several interactive film experiments, is to conduct an original research targeting the discovery of potential new knowledge, namely through practice and through the results of this practice. The Forking Paths platform intends to bring together experimental interactive films of different origins, genres and formats that seek to develop innovative connections between the spectator-user and the narrative. Using different models, we propose an interaction that focuses less on the narrative issue and develops through potential aesthetic choices from the viewer. Ultimately, this project, in particular the interactive film *Cadavre Exquis*, seeks for clues that may lead to possible paths within the evolution of audiovisual language.

CINEMA AND SURREALISM

The first surrealist film is Germaine Dulac's *La Coquille et le Clergyman*. The poet Antonin Artaud made the script and then rejected the film. He had several motives, the main one was perhaps Germaine Dulac's production, which failed to achieve the poet's vision: "I thought that a script could be written withou takink into account the knowledge and the logical connection of the facts (…). For example the possibility for a script to resemble and relate to the mechanics of

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[4] Present at *FILE*, Electronic Language International Festival, 2015, São Paulo.

a dream without being the same dream". (Artaud, 1995). If Dulac did not fulfill Artaud's ambition, Buñuel and Dalí came very close with *Un Chien Andalou*.

In 1965, during the celebrations of the 40th anniversary of Surrealism (1924-1964), which triggered exhibitions and debates, the magazine *Études Cinématographiques* (1965) published two volumes dedicated to surrealism, specifically on its relation with cinema, trying to clarify not only what surrealist cinema was supposed to be, but also what could be accounted for as surrealist in cinema. In general, when talking about cinema and vanguards, with its manifestos and theories, there is little information on a surrealist theory of cinema, or even on a concrete movement that brought together surrealist filmmakers and cinema theorists. But the relationship between the two is undeniable as are the many ways they have undergone through multiple interpenetrations. What the studies and testimonials published in this magazine do is try to reestablish the relation between cinema and surrealism, not only as an enchantment that the former exerted on the second and vice-versa, but also by showing it is possible to speak of surrealist cinema.

To question the relations between cinema and surrealism implies understanding everything involving these relations, because, according to Gianni Rondolino (1977), the formulation between cinema and surrealism is "ethics, even before aesthetics, at the basis of which was the overcoming of everyday reality in a global experience.". Thus, the basic concerns of surrealism, its ethical and moral background, will lead the rapprochement between the surrealists and cinema, first as mere spectators. Soon they started producing their own dreams materializing them on the screens.

Michel Beaujour believes that cinema and the arts that claim to be surrealist are both condemned "to bastard compromises by the rigidity of a doctrine developed with the intention of bringing about a revolution, not aesthetic, but moral and social"; this condemnation is no more than all the ethical commitment that guided surrealism in all its actions. Let us not forget the words of Gianni Rondolino when he states that the relations between surrealism and cinema were more ethical rather than purely aesthetic.

If talking about surrealism and cinema is somehow talking about what is *ailleurs*, it may lead us to think that there was no such thing as surrealist cinema. In his book *Surrealism and cinema*, Michael Gould (1976) begins by apologizing for the title of the book for it may be misleading. He doesn't just devote himself to writing about those who are considered surrealists, those related to the movement at some point in their lives, he will also address a certain surrealist sensibility because, according to him: "If surrealism is anything, it is not what one would expect it to be; it is *something else*" (the emphasis is ours). For Gould (1976), limiting the surrealist experience to the surrealist movement and, more so, trying to classify cinema according to categories used for other arts implies running the risk of incurring simplifications.

"Jean Cocteau once remarked that all films are surreal" (Gould, 1976). And Gould (1976) believes he was right because the surrealist experience may occur in the very process of perceiving the film, just as Buñuel invites "every spectator of his films (…) to use the pictures as most useful to him" (Gould, 1976), the public is therefore the one who needs to possess a surrealist sensibility and perceive the films as such. Cinema has features that allow the viewers to participate in surrealism, directly or indirectly, either through the construction of the film or simply by watching it. But Gould recognizes that this sensibility, although potentially present in everyone, manifests itself in the true surrealists, capable of, like Dalí, seeing everything as *a possible surreal goldmine*. What is important for Gould is to show that the relationship between surrealism and cinema is beyond motion and may be found in filmmakers as diverse as Sternberg, Samuel Fuller, and Hitchcock.

Gould (1976) draws a line between movement *per se* and a sensibility that may be considered *quite another matter*. The definition of a surrealist sensibility is essential to realize that surrealism is beyond the movement and that it has influenced cinema in several ways. The acknowledgement of this influence goes beyond the barriers of the vanguards when Vincente Minnelli says that: "The possibilities for using surrealism in cinema are wide and exciting." (Betton, 1987), thus, speaking about surrealism and cinema always implies

speaking about something that surpasses cinematographic theories, making it necessary to understand the surrealists' conception of cinema, in order to define what may effectively be regarded as surrealist cinema.

Generally, it is said that "Few films are, in essence, purely surreal." (Betton, 1987). Those who are regarded as such, *La coquille et le clergyman*, by Germaine Dulac; *L'étoile de mer*, by Man Ray and Robert Desnos, and the first two by Buñuel and Dalí, *Un chien andalou*[5] and *L'âge d'or* (Betton, 1987), are usually followed by Cocteau's first film, some films by Jean Vigo or *Animal Crackers* by the Marx brothers, as well as some animation films. But if we take Cocteau into consideration, when he says that all films are surrealistic, it becomes difficult to find surrealist cinema which, we believe, is beyond the films mentioned above, but it does not include all films either.

Later, in 1979, in the "XV Confrontation Cinématographique de Perpinyà", dedicated to surrealist cinema, it proved difficult to characterize this type of cinema (Romaguera i Alsina, 1989). Only those films that were directly related to the movement were given this category, despite a clear indication of a much wider influence of surrealism on cinema in general. In 1924, Max Morise published a chronicle, *Les beaux-arts*, in the 1st issue of *La révolution surréaliste*. Among other things, he argues that "the succession of images, the flight of ideas are a fundamental condition of any surreal manifestation" (Betton, 1989). For Morise (1924) there is a surrealist plastic present in literature, painting or photography created by the group. The possibility of a succession of images offered by cinema, and, mainly, the fact that it conveyed a greater simultaneity than other arts, such as painting and sculpture, "paves the way for the solution of this problem." In addition, cinema, an art that happens in time, is very close to the surrealist desire to create an image that begins in an instant and goes back and forth, drawing a curve comparable "to the curve of thought".

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[5] This list is provided by G. Betton in the book *Textos y manifiestos del cine*. The film by Man Ray and Desnos does not appear on the list of pure surrealist cinema.

Therefore, if the possibility of recovering the course of thought, i.e. the flow of the unconscious and letting it surface in its own temporal extension, is, for the surrealists, an essential component of their artistic making, cinema emerges as something that makes it technically possible to accomplish this art form. Another important component of surrealist art is the attempt to recover not only the course of thoughts but also the dream itself.

The spirit present in the creation of *La révolution surréaliste*, in 1924, is the spirit of undertaking a confrontation against the Cartesian domain of reason. According to Breton (1994), the contributors of the magazine agreed on the following points: "the surrounding world, which calls itself Cartesian, is unsustainable, mystifying, unsightly, and any forms of insurrection against it are justified.". It was necessary to change the state of things and seek a way that no longer divided man into two: reason and instincts. Based on Freud's teachings, surrealists sought to show their ability to reveal more about man, especially in the field of dreams, than the pure reason of waking states could ever convey: "For Freud, this world is the symbol of unconscious desires, unconfessed tendencies; and, by deciphering it, man would come to an integral awareness of himself."(Duplessis, 1983).

The Surrealists proposed to dismantle the construction of narrative logic (both syntactical and semantically), which largely explains their attraction to authors like Mallarmé, Rimbaud and, of course, Isidore Ducasse. This also explains their attraction to a medium, such as cinema, which allowed using montage techniques as well as other technical possibilities in order to break the rules of writing and create a narrative fully based on images. But this rupture did not relinquish a connection with the real world. For they sought the marvelous and, according to Bréchon (1971), for the surrealists the marvelous was born of a conjectured and desired presence, unlike mystery which always conveyed a certain sense of absence.

Just as Buñuel believed that the world had not undergone the transformations the surrealists desired, so did the artistic achievement of the surrealists fall short of their yearnings. Not in the sense of the undeniable

quality of their works, but because of the difficulty of the task they set themselves to escape from the impoverishing rhetoric and to penetrate the mysteries of the human soul —the unconscious— letting it steer the process of creation.

Fernando Trueba (1998) comments, in his *Diccionario de cine*, that Dalí "he detested the avant-garde cinema that was practiced, mainly in France, in the 1920s. And it is true that nothing could be further from surreal automatism than those elaborate formalist exercises". Ironically, when Dali sent Harpo a script for a film by the Marx brothers, it was rejected, probably because he closely resembled the films he himself despised. What, at first glance, seems only a fact of the anecdote about Dalí's character, can be used to explain the surrealists' dilemma, and their great frustration: in many moments their intentions surpassed their own achievements.

In any case, it is acknowledged that the relation of the surrealists towards cinema is much more that of spectators than of directors. For Artaud (1995), and for surrealists in general, " cinema is essentially revealing of a whole occult life with which it puts us directly in relation (…); cinema seems to me especially made to express things of thought". Bringing this belief onto the screen proved to be much more difficult. Mainly from what has already been observed, even though cinema is a moldable material, it is not as evanescent as surrealists would wish, and always promotes a kind of creation, which, as a rule, betrays the principles of surrealism (Magny, 1986).

Therefore, surrealists prefer to let the poetry emerge, with a certain primeval freshness, without masking it through intricate means of completion. Of course, there is a certain distance between surrealistic *intention* and *gesture*. But, guided by ethics, they seek to be faithful to their principles. If we think of the surrealist movement itself, with its date of birth and death, we will see that there were few productions, although, as spectators, many were the films included on the list of Breton's group. If we think of the surrealist spirit, considered eternal, or if we think as Cocteau himself that all films are surrealistic, there is no need for this anguish to meet the definition.

SURREALIST TECHNIQUES/AESTHETICS AND CADAVRE EXQUIS

Reality penetrated the body of artistic creation: photography and cinema, even in their most radical manifestations, provide a frame of captured light and reality. Their ability to capture the world apparently separated both cinema and photography from the field of Arts themselves.

Meanwhile, the poetry of the new medium was soon apparent, and cinema was absorbed by the artists. The oneiric nature of film, with the image appearing from, and in, the shadows, opened the way for Surrealist cinema. They tried to recreate poetry on screen with words and objects from the world of painting and literature.

Yvonne Duplessis (1983) describes what she considers to be the "surrealistic techniques" also converted in "poetics "of the creation surrealist itself: humor, the marvelous, dream, mental alienation, *Cadavre Exquis* and automatic writing. In the First Manifesto, Breton reveals the "secrets of magical surrealist art" —here he teaches how to create a surrealist text and what can be the utility of being a master at such a craft. Breton, ironically, not only criticizes literature in general, but he also uses one of his techniques, humor, to better make himself understood. Thus, we see surrealism being built by the authors of choice within the group, using words and/or images contrasting the common usage.

Jarry and Cravan, and especially Jacques Vaché, had a very special notion of humor and were important influences for Breton and surrealism in general. In 1939, Breton writes *Anthologie de l'humour noir*, emphasizing in the preface Freud's comments that declared the importance of humor as a source of liberation. And it is precisely this sense of liberation and pursuit of pleasure that is intrinsic to a certain type of humor that will fascinate surrealists. In addition to humor, as an element capable of destabilizing everyday life, surrealists sought other ways to create, escaping the constraints of rationality. Several experiments were carried out by the group (when the First Manifesto appeared, it already had five years of experimentation behind it), including automatic writing, dream revelation, hypnosis, games, everything that took

them to the second states, which, for Breton (1995): "What passionately interested was the possibility they gave us of escaping the constraints that weigh on watched thought."

Cadavre Exquis, for example, was a game that tried to break with the codified mentalities. "Several people gathered pass over a paper in succession, on which each one writes a word or makes a line; it ends up obtaining a succession of improbable phrases or a design that defies any reality. The example made classic, and which gave the game its name, refers to the first sentence obtained in this way: *Le cadavre exquis – boira le vin noveau*" (Duplessis,1983).

INTERACTIVE FILM

The evolution of the forms of immersion in the history of cinema has contributed to a paradigm shift: the narrative thread does not have to be linear and the doors to an effective interaction between the narrative and the viewer(s) are opened. Nowadays, experimental cinema and digital media use the most advanced technologies as aesthetic strategies that seek to submerge the public, giving them the freedom to build the narrative, by interacting with it. Like the first films of the Lumière Brothers, which emerged as a form of entertainment, some of the earliest forms of audiovisual interactivity also took place at fairs and theme parks, where the viewer senses what is happening on the screen: vibration on the chair, water jets, among other features that allow us to engage other senses, besides our sight, making the experience more complete and more immersive, just as Heilig idealized his *Cinema of the Future*. In the study on the effect of immersion in virtual art, Oliver Grau states: "popular and spetacular versions of virtual spaces existed as amusement park and fairground attractions in the 1970s and 1980s, particularly in the form of small immersive circular cinemas" (Grau, 2003), confirming the idea that most of the inventors of audiovisual media were illusionists, whose interests were focused on entertainment shows for the masses.

Zielinski describes the early experiences at movie theatres as "a darkened room, where the spectators, like Plato's cave dwellers, are virtually held captive

between the screen and the projection room, chained to their cinema seats, positioned between the large-size rectangle on which the fleeting illusions of motion appear devices that produce the images of darkness and light" (Zielinski,1999).

According to Lev Manovich, computational technology has become the new cultural motor in the last decades, allowing the reinvention of the media (Manovich, 2013).[6] However, according to Baudrillard (Baudrillard, 1997), an author with a pessimistic view of new technologies, interactivity with machines does not exist, or at least does not imply a real exchange. In other words, there is no interactivity when it comes to exchange: there is a certain interest in rivalry or domination behind the interface. Lunenfeld also expresses some reservations about interactivity, particularly regarding cinema. According to this author, the experiments around interactive cinema have not yet been successful, nevertheless he admits that it is a developing field and that we can still reach a level of interactivity, where the spectator-user can fully take on a role of both director and editor (Lunenfeld, 2005). Manovich, in turn, argues that interactive virtual worlds seem to be the logical successors of cinema and, potentially, the cultural motor of the twenty-first century, just as cinema was the cultural motor of the twentieth century (Manovich, 2011).

Against a certain degree of pessimism, several film projects have tried to apply interactivity in cinema, either at the stage of *montage* (transforming viewers into co-authors of the creative process) or at moments of bifurcation, where the viewer chooses the path to follow, among two or more possibilities, or offering different viewing options for the film narrative. Several are also those claiming the title of "the first interactive film" in the history of cinema. One of the most successful projects is the Czechoslovakian film *Kinoautomat – one man and his house*, created in 1967 by Radúz Činčera, for the World Expo in Montreal. In this film, the audience is asked (nine times) to choose one of two given possibilities to continue the narrative. At the first screening in Montreal, the process of choice was mediated by an actor.

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[6] Here we safeguard chronological distances between theories.

Several projects allow the viewer to opt for one of two endings. This is the case of the film *Mr. Sardonicus*, produced and directed by William Castle, in 1961. Before the final scene of the film, the viewers can vote using a card they are given at the beginning, with two possible drawings, just as it happened in the Roman arenas, where the gladiators fought to entertain the audience: a thumb up and a thumb down, which allows them to choose whether the character should be mercifully spared and live or be punished and die.

I'm your man, directed by Bob Bejan, in 1992, also claims the title of first interactive film in the history of cinema. Just as in previous projects, the viewers decided the unfolding of the narrative using interactive buttons installed on their chairs.

Another film announced as "the first interactive film in the history of cinema" was released in 1995, *Mr. Payback*, written and directed by Bob Gale. Depending on the audience's interaction, this film lasted approximately half an hour. The viewers were called upon to decide at various points in the narrative, again, by using a remote which was attached to the chair. The film was not very well accepted by the critics, mainly due to the absence of a plot, nevertheless it marked an important step in the way viewers experienced cinema, although the experience itself has been considered by many more like playing a videogame rather than watching a film. Inspired by the work of William Castle in the 1950s, John Waters used the Odorama in the films *Pink Flamingos* (1972) and *Polyester* (1981): the audience members are given 10 numbered scratch cards that release scents. Having an important role in the narrative, these scratch cards must be sniffed as their number appears on the screen. In 2000, Berlin artist Florian Thalhofer[7] created the *Korsakow System*,[8] an application that allows users without any programming experience to build relatively complex non-linear interactive

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[7] http://korsakow.org, http://www.thalhofer.com

[8] During some research to produce a documentary on alcohol consumption, Florian Thalhofer learned about the Korsakow Syndrome: a neurological process that leads to the loss of recent memories and to a compulsion to tell stories, frequent among chronic alcoholics. It was based on these experiences that he built the Korsakow System.

narrative projects, which can later be viewed online or on DVD/CD-ROM. In the Korsakow System, the narratives are based on SNUs (smallest narrative units) that have multiple points of contact between them. Thus, a K-film consists of a collection of SNUs with multiple points of contact with each other. This system was widely publicized in Amsterdam, namely by Mediamatic, a Center for Arts and New Technology, which allowed its wide exploration, constantly testing the boundaries between cinema and technology. The program is available for download (through paid licenses), as well as tutorials that facilitate its use. This system allows users a new level of creativity in the context of storytelling, raising the issue of "authorship" for debate, since the viewer is both author and user.

Between 2002 and 2005, Lev Manovich devoted himself to the development of the *Soft Cinema*[9] project, a dynamic computer-oriented installation in which the viewers can, in real time, build their own audiovisual narrative from a database containing 4h of video and animation, 3h of narration and 5h of music. Although the *montage* technique can be found here, the intrigue in the narrative is non-existent. The *montage* sequence results from a pre-programming process carried out by the viewer using the keyboard. The narrative is generated by the database. According to Manovich (2011), the database is the counterpart of the traditional narrative form. The concept of FJ (film-jockey)[10] was created with this project. The result of this work was published in 2005, in DVD, demonstrating the possibilities of the software when applied to cinema. In the three films featured on the DVD, human subjectivity and the choices made through a custom software are combined to create movies that can be rearranged endlessly, without ever repeating the exact same narrative sequences. Thus, in each viewing, the spectator-user encounters a new narrative. In addition to the DVD release, the project has been widely exhibited in museums, galleries and festivals all over the world and has served as the practical basis for research on interactive cinema.

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[9] http://manovich.net

[10] http://www.softcinema.net

Switching: An Interactive Movie (Morten Schødt, 2003) is a Danish film that has the DVD as the main media. Its innovation is that there are no specific points to choose the path to take, the narrative is structured around a circular system in which everything repeats itself. The spectator-user can intercede at any point in the film, moving to different times and places within the narrative. The interface and content are not divided, the movie itself is the clickable object.

Late Fragment,[11] from 2007, is a co-production between the *Canadian Film Center* and the *National Film Board of Canada* that offers an arborescent structure where the spectator-user is able to choose different paths and gain new perspectives regarding the narrative by choosing which character he wants follow.

Later, in 2010, the horror film *Last Call* of 13th Street, a television channel specialising in horror films, was announved as the world's first interactive horror film. Using a software that enables voice and command recognition, one of the spectators present in the movie theater receives a phone call from the protagonist asking him/her to help her choose the best way to escape the serial killer who is chasing her. Through this technology, the film becomes unique depending on the instructions of the person who answers the phone.

Take This Lollipop,[12] directed in 2011 by Jason Zana, includes data and images of the spectator's Facebook profile in the narrative as a strategy to take him/her from an extradiegetic to an intradiegetic level. In 2012, Evan Boehm and Nexus Interactive Arts create *The Carp and the Seagull*[13] an interactive 3D movie that takes advantage of WebGL and HTML5 technologies. The film describes a tale of the fisherman Masato, who one day encounters the spirit Yuli-Onna that appears to him in the shape of a seagull.

In 2006, at the *Hong Kong Disneyland* theme park, *Stitch live*, a combination of digital puppetry, real-time animation and holographic projection emerges for the first time. In this show, which can now also be seen at Disneyland Paris

[11] https://www.latefragment.com
[12] https://www.takethislollipop.com
[13] https://thecarpandtheseagull.thecreatorsproject.com

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and Tokyo Disneyland, the virtual character talks directly with the guests with the help of a moderator. Children are encouraged to sit in the front row so that the virtual character can easily "see" them, facilitating the communicative process between the animated 3D character and the young spectators.

In 2014, the film *Possibilia*[14] (2014) is released, directed by Daniel Kwan and Daniel Scheinert (the DANIELS).[15] In this film, Rick and Pollie are in a difficult separation process. Pollie is preparing to move out and leave Rick. He asks her to stay and they start a fight. The public is given the opportunity to watch the argument between the characters through different perspectives, offered by small images (thumbnails) that are at the bottom of the screen. The text remains the same, however the perspective and the tone of the argument change according to the spectator-user's choices. Throughout the film, these small parallel images multiply themselves, allowing the spectator to change the way the story is told, while maintaining the same argument. At the end, having exhausted all possibilities, Pollie returns to the door, leaving Rick alone, closing the film narrative at the point where it had begun.

The project *Circa 1948*[16] (2014), by Loc Dao, leads spectator-users on a virtual tour to different places in Vancouver just as they were in 1948. This is achieved using projected images all over a room to surround the spectators. Their movements are followed by kinetic technology.

However, recent examples of interactive film experiments, such as Tobias Weber's *Late Shift* (2016), continue to adopt the same structure used by the pioneering interactive films in the 1960s: an arborescent structure based on a simple and occasional choice made at certain moments of the narrative, where the spectator-user can choose path A or B.

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[14] This film was produced with technology of the digital media company Interlude, known for the recent interactive video clip *Like a Rolling Stone* (http://video.bobdylan.com/desktop.html).

[15] http://www.danieldaniel.us

[16] There is also a homonymous application available for IOS.

CADAVRE EXQUIS: TIME

Philippe Soupault (1965), in an interview with Jean-Marie Mabire published in the aforementioned volumes of Études Cinématographiques, stated: "Cinema was for us an immense discovery, at the time when we were developing surrealism. (…) we then considered the film as a wonderful mode of expression of the dream." Cinema has a feature that will make Breton's dream come true: the possibility of fragmenting time, of showing past, present and future simultaneously. "(Time) is maimed, plundered, annihilated. The present and the future no longer contradict each other. We live today and tomorrow, just as easily as today; we live until, simultaneously, yesterday and tomorrow" (1982). Time in cinema was perfect for those who wanted to bring out the structure of dreams.

Barry Dainton (2010) summarizes the different proposals of the structure of temporal consciousness into three models: Retentional Model, Extensional Model and Cinematic Model. In the Retentional Model, the experience of change and succession occurs in episodes of consciousness, whose contents represent temporally extended intervals, despite the lack of temporal extension. These episodes have a complex structure and comprise the momentary phases of immediate experience as well as the retentions of the recent past. The streams of consciousness are thus composed of successions of these momentary states. In the Extensional Model, the episodes are themselves temporarily extended and are able to incorporate changes. The streams of consciousness are composed of successive episodes of extended experience. Finally, in the Cinematic Model, immediate perception lacks any temporal extension. The same applies to the contents we are directly conscious of, which somehow resemble photograms. The stream of consciousness is thus composed of a continuous succession of momentary states of consciousness, hence resembling films that consist of frame sequences.

The idea of a freeze-frame (of the opening scene) is just that: a frame with no sequence. However, in the film (*Cadavre Exquis*) the viewer can travel through the photogram[17], giving it a sequence: a possibility of a past and a future, or

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[17] Using two keys, the viewer may travel within the freeze frame, moving forward or backwards.

better, a possibility of new present frames taking place after or before the initial photogram. The aim is to achieve a relaxation and a reconstruction of the idea of time in cinema, where the relation between space and time is overruled by an eminently oneiric temporal dimension.

The notions of movement-image, time-image and crystal-image, proposed by Deleuze, serve as structuring basis for the film *Cadavre Exquis*. By appealing to immersion, they cause a reaction contrary to the usual passive-submissive reaction. According to Deleuze (1990), the sensory-motor sensations, indirect representations of time, tend to be replaced by exclusively visual and audible conjunctures, namely the *opsign* and the sonsign, direct representations of time. Through this theoretical background, *Cadavre Exquis* uses eminently visual situations by means of a control of an inner movement of the shot, endeavoring to meet the *opsign* concept. It is also related to the concept of *sonsign* in sound situations that arise without any corresponding or related images.

We intend to come closer to the idea of surrealist film through a collective and, in a way, unconscious process of script creation. As mentioned in the introduction, three scriptwriters were invited to create three narratives based on a character who, at the end of the narrative (24 hours later, at most) would meet two other characters in a room. The scripts would form a succession of sub-narratives which, just as in the *Cadavre Exquis* game, converge in the main narrative, eventually ending up in a succession of unlikely scenes. A common opening scene would be added: the scene of the three characters in the same room. It is hereby intended a connection to the idea of automatism and to the processes that govern the unconscious: dream-condensation and dream-displacement are not perceived at the time they occur; while we are dreaming we are not aware of the process.

Just like the window that cut the man from Breton's dream in two, so does reality move across the body of artistic creation: photography and cinema, even in their most radical manifestations, carry with them the light imprint of some captured reality. Cinema has quickly showed how it transformed the reality that crossed it in very particular images. It evolved using its own means. For some, such as André Malraux, a cut within a scene was the debut of Cinematographic Art,

i.e. the appearance of the *montage* technique. The *Montage* technique is a topic where opinions both converge and diverge, but it is, undoubtedly, one of the main issues introduced by cinema. The montage technique enables the recreation of the structure of dreams, allowing a circularity promoted by dream-condensations and dream-displacements. In the specific case of the film *Cadavre Exquis*, this potential is amplified by the possibility the viewer is given of interacting with the film, enabling a spontaneous creation process. The viewer's choices make the movie happen. Random choices that build and destroy a latent structure.

The opening scene: three characters are in a room. A complete freeze-frame. The viewer is offered the possibility of manipulating this film frame. The movement within the freeze-frame allows the viewer to move in to a close-up or away from a close-up of each character. When a character is displayed in a close-up, we can select him/her. The selection of a character triggers a flashback that shows the viewer the character's recent past. Finally, when the past of the three characters has been visited, the action is set in motion and we are taken to the present, i.e. to the opening scene.

The sequencing of ideas in the film does not obey a discursive logic, presenting itself as "a construction where we would not use joints or cement". Meaning and syntax diverge often, causing a rupture in speech, which is amplified even more by the very particular use of punctuation, to the extent of utterly suppressing it in certain parts. For Bréchon, not using punctuation, a process he believes was created by Apollinaire and *Cendrars* and widespread by surrealism, is a way of *rétablir la continuité de la parole poétique*. The film is supposed to consist of a continuous movement of the word (absence of punctuation) and the discontinuity of images.

IMPLEMENTION OF THE INTERACTIVE FILM

Cadavre Exquis was implemented as an installation controlled by motion detection. At the time of this writing it has been presented to the public three times: At the Literary Festival of Macau, China, in March of 2019; at *FICLO* (Festival of cinema and literature) in Olhão, Portugal, in April of

2019; at Artech 2019, in Braga, Portugal, in October of the same year (Silva et al, 2019).

This provided us with the opportunity to observe the public's reaction, discussed ahead.

SPECIFICATIONS

In this section we briefly review the implementation details of the interactivity modes in *Cadavre Exquis*: the spectator/user starts at an establishing shot (State 0) of a room (R1) where three characters (C1-C3) are visible and then the camera settles on the rightmost one (character C1). Through motion detection the user can then pan the camera back and forth between the three, or select the character currently in focus. Selecting characters C1 or C2 plays their respective films (M1 or M2), then returns the viewer to the original room; selecting character C3 plays its film M3, then brings the viewer to the same room, but at a different moment (R2), where character C3 has been replaced by character C4. In this new section, all works as before except that selecting character C4 plays its own film, then resets the program to its initial state (State 0).

HARDWARE AND SOFTWARE

The software for the interactive film was developed in *Processing*, an open-source graphical library and IDE for the Java programming language, popular among digital artists. The main form of user input was body motion, detected through a Microsoft Kinect, and this was programmed through the KinectPV2 (Kinect for Windows v2) Processing library. The Microsoft Kinect is a motion sensing input device produced by Microsoft, originally designed as a gaming device but much used by digital artists for a myriad of applications. We used the 2013 Kinect for Xbox 360 version with a PC adapter. This version can capture video at 1080p, has an IR sensor that can track a user in the dark, and can track the motion of up to 6 users, with 25 joints tracked per skeleton.

The rather hefty demands that Kinect puts on the hardware (both in terms of processor speed, graphics card and interface, requiring a dedicated USB 3.0

Figure 1. Frame of the interactive film *Cadavre Exquis*.

port) caused some difficulties with the hardware we had available at the start of this project. These difficulties might not deserve mention had they not led to some design choices that may be of interest, which shall be discussed ahead.

FINITE STATE MACHINE: STATES AND INPUTS

The *Cadavre Exquis* software was implemented as a simple finite state machine. At each moment the program is in a particular state, and at each cycle a check is performed to see if certain conditions are met; if they are, the machine changes state and the cycle repeats. The new state is entirely determined by the previous state and by the input or environment conditions that are tested for. There is nested looping structure to the machine, with two main hubs (the two distinct moments in the room where the characters sit) that fork into three films each, one of the films connecting the first hub to the second. Although there is a directional structure to the film from the first moment in the room to the second and finally to the payoff mini-film that serves as conclusion, there is a loop structure at the finite state machine level, as the user can go back to the start of the experience by raising his left hand at any moment. This action lives at a metalevel, as it does not integrate into the narrative itself, but rather resets it from outside.

It may be useful to exemplify what we mean by a finite state machine. We can represent it by a directed graph as in figure 2. Each state is represented by a node, and each directed edge corresponds to a change of state triggered by some test, e.g., a timed activation, a user action, etc. For instance, in the node corresponding to state R1C1 (waiting at the first character of the first instance of the room) there are two outward arrows —one is activated by the raising of the user's right hand, and leads to the state where the film of the first character is played (state *Play_Film_R1C1*). The other leads to state *R1C1_to_R1C2* where a film is played corresponding to the panning movement from character 1 to character 2. These end states have their own checks in turn. For instance, State *R1C1_to_R1C2* allows for no user interaction and is self-terminating, the transition to state *R1C2* (camera stopped on character 2) being triggered by a timing event of the movie itself (it ends when the camera centers on character 2). State *Play_Film_R1C1* can also self-terminate, when the playing of the short film of character 1 ends, but it can also terminate before that if it receives user input (crossing hands above the head, which advances the film to the end, or raising the left hand, which resets to *State 0*). So we see that the program is a repeating cycle where the computer checks for events either from user input or from the computer itself (timing events, such as end-of-file events, etc.) and follows a set of rules for changing states.

The most important events are the user's gestures, which were the following. For version 1, presented in in the literary festival of Macau:

While in the room with the three characters:

- Swipe right hand to the left: pan camera to left of current character.
- Swipe left hand to the right: pan camera to the right of current character.
- Raise right hand: Play film of the character on which the camera is centered.
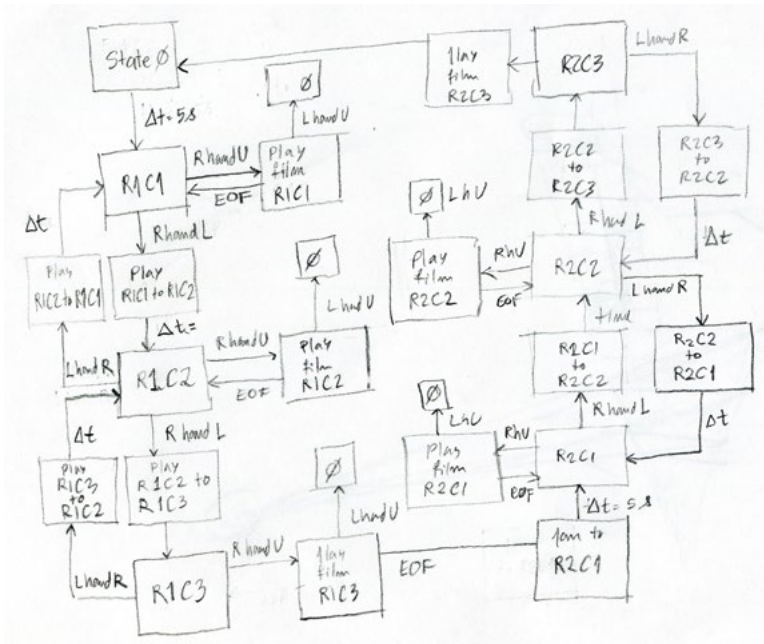- Raise left hand: Reset film to state *INIT*.

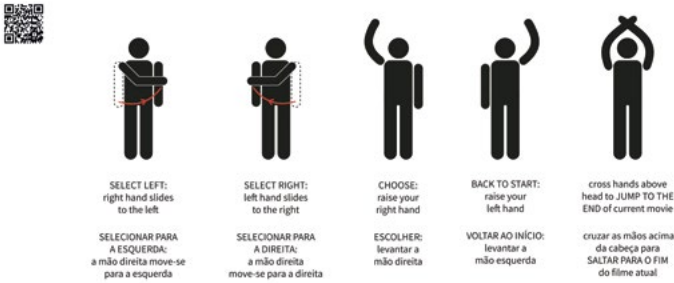**Figure 2.** The section of the finite state machine around note R1C1.

While playing a character's film:

- Cross hands: End a character's film and return to the room.
- Raise left hand: Reset film to state *INIT*.

For version 2, presented in Olhão, all was the same except for the last motion, which was replaced by:

- Cross hands above head: End a character's film and return to the room.

However, the finite state machine was altered in this case, as the commands might be entered at different moments than in version 1. We will discuss this ahead. In both cases the possible interactions were explained to the visitors by signage (figure 3):

| SELECT LEFT: right hand slides to the left | SELECT RIGHT: left hand slides to the right | CHOOSE: raise your right hand | BACK TO START: raise your left hand | cross hands above head to JUMP TO THE END of current movie |
| SELECIONAR PARA A ESQUERDA: a mão direita move-se para a esquerda | SELECIONAR PARA A DIREITA: a mão direita move-se para a direita | ESCOLHER: levantar a mão direita | VOLTAR AO INÍCIO: levantar a mão esquerda | cruzar as mãos acima da cabeça para SALTAR PARA O FIM do filme atual |

Figure 3. Signage presented to the visitors at the Macau exhibition.

The installation itself consisted of a white tent (figure 4) on which a single user might enter at a time, to be confronted with a table on which a monitor stands, and beneath it a Kinect sensor pointed at the user. A black cloth makes the technical ensemble less conspicuous and hides the controlling PC under the table. At the entrance is signage that explains the possible motions, and always one of the authors, or a helper, that demonstrates these motions at the start of the process. Then the user enters the tent to confront the initial scene of a room with three characters. An interesting aspect regarding the tent is that it appears in a scene of the film itself, providing a connection between the physical installation and the narrative —the spectator steps into the environment of the film and recognizes that fact only upon watching the action, as if belatedly recognizing that, rather than peeking into someone's dream, he is watching from inside it.

SLIGHT OF HAND AND MISDIRECTION —PROVIDING FOR WEAK HARDWARE

The Microsoft Kinect has some hefty requirements on hardware and initially we needed the program to work in some rather inadequate computers: we had the frame rate barely going above single digits. This led to some design decisions in version 1 of the program. We limited detection to a single user, and kept the panning motion interaction limited only to the static states, i.e., the user's input was only taken when the camera had centered on a character
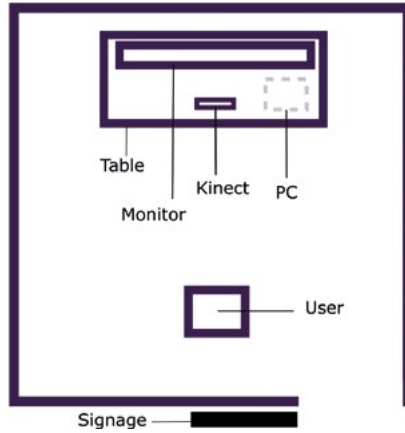
Figure 4. Plan view of the installation.

and stopped its panning motion. Only then were the user's motions queried to see where the camera should move next, or whether the character's movie should be played. If a panning motion was selected then again the camera would pan to the next character, and during that motion the Kinect would be turned off. This provided an interaction that, though limited to a few instants, was more fluid and responsive when available. Also, it avoided glitches in the video on hardware that was already very taxed.

There was another design decision, of special interest as it carries a bit of misdirection. The original idea for the motion detection in the character selection was for the swiping hand to be followed, performing a linear mapping of hand position to video position, made smoother by a motion easing calculations. The problem is that this may not work so well when the frame rate is very low. So we decided for a gesture that would require only a very weak tracking. But we still wanted the gesture itself to be a wide, flowing one, as this performative aspect is important for the user's feeling of interactivity. We opted for a wide sliding gesture: to pan the camera to the left (resp. right), the right (resp. left) hand slides from rest position to the left (resp. right) side of the body. This wide motion was demonstrated to each user as he entered the installation. The wide gesture gives the user the implicit notion that the whole

motion is being tracked, but in fact there is a ruse here: we ignore the movement completely and check for only one condition: is the right hand to the left of the left hip (for the other case, substitute every left/right for right/left). This is a static test only, designed to look and feel like a dynamic one. The final position is easy to reach in the flowing motion that is suggested but is hard to reach by accident otherwise (preventing accidental activations). It is also awkward to maintain once reached, as the hand will go naturally back to rest before the panning transition between characters is played out —this avoids accidental activation of unwanted further panning. Finally, the fact that the test is performed at the end of the arm's motion helps to catch it with poor hardware, as this position of momentary stop and direction change (at the end of a pendulum motion of the arm) is held for a longer fraction of a second that any other in the motion itself.

REACTIONS TO EACH VERSION OF THE FILM, AND SUBSEQUENT CHANGES IN DESIGN

In the first presentation of the film, in Macau's Literay Festival, we gathered the following lessons from the user interactions:

- It was crucial to demonstrate the motions and to explain the interaction verbally before starting, in spite of the written introduction and signage at the entrance of the tent. Otherwise there was a steep initial learning curve.
- After a short demonstration, most users handled the interaction smoothly. Most followed the expected pattern of doing wide motions that are easily detected.
- A few users somehow managed to reverse engineer our slight-of-hand and understood that the wide motions were unnecessary. Hence, to move left, they just kept the right hand static at the left side of the body. To pan twice, for instance, they just put it and kept it there instead of doing two individual swiping motions at each character.

- The *existence* of interaction prompted the user's expectations for *constant* interaction. Some users were disappointed that there was no interaction during the short films of each character (apart from the cancelling motions). One especially enthusiastic user insisted on dancing along with the actress in the final short film, clearly expecting this to cause some reaction from the software.

- As we expected, a long line formed outside the tent, since the interaction was single user only. To deal with this we had a second tent that displayed the non-interactive version of the film, so that spectators of the main installation would only sample the interactivity and not watch the full film, thus speeding up the line. The crossing hands gesture could be used to stop the viewing of each film midway —crossing and uncrossing the hands making the film jump to its last three seconds.

- We found the crossing hands gesture to have a problem —some users would tend to cross arms (and hence hands) distractedly while watching the films, which would finish the film in an undesired way.

- Some users would get too close or too far from the ideal position in front of the Kinect, which would make motion detection less effective.

From these observations we made the following changes to version 2, displayed at Olhão, Portugal:

In version 2 of the program (shown at Olhão) we had better hardware to deal with the Kinect, and had also optimized the videos to eliminate glitches on changing direction of play, so we changed the finite state machine, to accept user input also during the panning motion. This catered to the user's need for constant interaction. The commands for panning left or right now are active during the panning movement itself; this allows the user to switch his or her mind mid movement and invert the panning direction at anytime, or hurriedly give a command to continue moving past a character without stopping the panning motion.

This made the interaction more fluid than before, eliminating user's frustration with accidental commands. By version 3, presented at Artech 2019, perhaps because this motion detection had been optimized and made more fluid, it also had a curious side-effect, as some users found it amusing to play a sort of ping-pong with the film, by moving each hand in turn in a swatting motion, as if passing a ball from one hand to another, to watch the camera pan under their will. This is as interesting effect, showing how delighted users are at finding new unintended interactions, a pleasure akin to that of young children still discovering the interactions between their limbs and the world. This however took them away from the intended purpose, and risked turning the film into an exercise in digital calisthenics, in another example of how one must be very careful not to let the addiction of digital interaction too much free rein. At the same time, it makes us wonder how far we may take such movement discovery in a direction that may further the work itself.

We also changed the crossing hands input, demanding that the hands should cross above the head, thus eliminating undesired activations. This required a change to the detection of the individual raised hands motions (otherwise, each individual hand raising to do the crossing motion would be misinterpreted as a command in itself), in this way: an individual raised hand motion only counts if the opposite hand is at rest (within some parameters). This eliminated all accidental activations. Though one can conceive of exceptions, these were never once seen in the field, as they are mostly contrived motions that don't naturally occur.

At the Olhão presentation we opted to fix the distance of the user to the Kinect sensor by placing a chair at the optimal detection point. An unexpected result was that more people seemed to guess that they could make a continuous pan by just keeping the arm pointed to one direction instead of doing the repeated swiping motions. This is probably because the sitting position of the body is an incentive to static positions of the arms. Another unexpected result was that one person moved the chair from the intended position —as her eyes had trouble focusing at that distance— and then in her preferred position

she had trouble being detected by the Kinect (the solution being to stand up as in the original presentation). One must think of the atypical user. Another such example is that especially short or especially tall users could have some motions not as well detected as an average height user.

LESSONS LEARNED FROM THE RECEPTION OF THE WORK

Apart from minor technical aspects, the main lesson we take from these two presentations of the work is that the existence of an interactive aspect to the film tends to make that aspect dominant, and cause a dash of expectations if it doesn't pervade the whole artifact. Hence, such interactive aspects must be handled with extreme care so as not to hinder the fruition of the film as an object of art. This is however a common danger in all media that mixes multiple arts —think of operatic works, where librettist and composer, scenery and costume so often compete for attention rather than truly blend into a powerful whole. Potency of effect comes not as easily from blending the strength of multiple

Figure 5. Poster of the film.

aspects but from the singular focus on a single one and a ruthless submission of all others to a supporting role. The main lessons of art seldom change, even as they take new forms.

CONCLUSION

We can hardly consider *Cadavre Exquis* as a direct descendant of the Surrealist Movement. Even because, as we said, the movement had a birth and death date, but its spirit, and above all its aesthetics, remain in many creations and creators. The whole pre-production, production and post-production process of a film is necessarily rationalized and planned in detail, thus apparently being an antipode to surrealist techniques. If we take the principle of automatism literally, no film could be considered Surrealistic, but if we believe Jean Cocteau's statement that all cinema is surreal, we can say that our project belongs to a surrealist poetics and aesthetics.

We intend to come closer to the idea of surrealist film through a collective and, in a way, unconscious process of script creation. As mentioned in the introduction, three scriptwriters were invited to create three narratives based on a character who, at the end of the narrative would meet two other characters in a room. The scripts would form a succession of sub-narratives which, just as in the *Cadavre Exquis* game, converge in the main narrative, eventually ending up in a succession of unlikely scenes. A common opening scene would be added: the scene of the three characters in the same room.

It is hereby intended a connection to the idea of automatism and to the processes that govern the unconscious: dream-condensation and dream-displacement are not perceived at the time they occur; while we are dreaming we are not aware of the process.

The very idea of film interactivity may be regarded as an intolerable artificiality, but, at the same time, as a catalyst to the idea of collective creation, due not only to the possibility of coauthorship offered to the viewer, but also to the freedom he/she is given to deconstruct the filmic structure at any time.

Actually, the idea of *Cadavre Exquis* as unconscious associations of collective ideas, free of a pre-established order, imputes a certain subversion of the conventional filmic discourse to the interactive film. However, the question remains, whether or not there was, in fact, a pure surrealist technique in all surrealist art forms. Breton himself recognizes how hard it is to reach the second states so desired by the surrealists. Truly automatic writing, games, or art in general was a utopia. With temporal distance in mind, Breton makes very lucid reflections that prove the impossibility of allowing himself to be totally controlled by automatism in the act of creation. He also acknowledges that even those who used the above-mentioned techniques to produce a poem later selected the passages they considered to be the most literary accurate.

The fascination with the question of time and its possible relations with cinema, interactive cinema, and literature is the matrix of the mother project *The Forking Paths*. The psychosomatic processes that can grant us different sensations and, consequently, different perceptions regarding their passage acquire, in cinema (and in their relation with interactivity), a potential for eminent experimentation.

REFERENCES

Agel, H. (1982). Estética do cinema. São Paulo, Cultrix.

Artaud, A. (1995). *El cine*. 4ª reimpressão. Madrid, Alianza Editorial.

Beaujour, M. (1965). "Surréalisme ou cinéma?" Etudes, pp. 38-39.

Betton, G. (1987). Estética do cinema. São Paulo: Martins Fontes.

Bréchon, R. (1971). Le surréalisme. 2ª ed. Paris : Armand Colin.

Breton, A. (1972). Manifestes du surréalisme. Paris, Gallimard.

Breton, A. (1994). Entrevistas. Lisboa, Salamandra, 1994.

Dainton, B. (2010). Time and Space. London: Taylor & Francis Ltd.

Deleuze, G. (1990). A Imagem-Tempo. São Paulo: Brasiliense.

Duplessis, Y. (1983). O Surrealismo. Lisboa, Inquérito.

Dupuis, J. F. (1979). História desenvolta do surrealismo. Lisboa, Antígona.

Fotiade, R. (1995). "The untamed eye: surrealism and film theory", Screen, vol. 36, nº 4, inv/95, pp. 394-407.

Gould, M. (1976). Surrealism and Cinema. London: The Tanivity Press.

Le Poivedin, R. (2015). 'Perception and Time', in Mohan M. (ed.), *Oxford Handbook of the Philosophy of Perception*, Oxford: Wiley-Blackwell.

Lunenfeld, P. (2005). "Os mitos do cinema interativo". In Leão, L. (org.). *O chip e o caleidoscópio: reflexões sobre as novas mídias*. São Paulo: SENAC.

Magny, J. (1982). "Prémiers écrits, avant-garde français et surréalisme", CinémAction, nº 20, ago/82, pp. 12-20.

Manovich, L. (2013). Software takes command. New York: Bloomsbury.

Manovich, L. (2011). The language of new media. Massachusetts: The MIT Press.

Michael, G. (1976). Surrealism and cinema, London, The Tanitivy Press.

Morise, M. (1924). "Les beaux- arts". In La révolution surréaliste. Nº 1. Paris : Gallimard.

Philippe S. (1997). Sur dada – essai sur l'experiénce dadaïste de l'image. *Entretiens avec Hans Richter*. Nîmes, Éd. Jacqueline Chambon.

Pöppel, E. (1978). Time Perception. Berlin: Springer Berlin Heidelberg.

Romaguera, J i Alsina, H. (1989). Textos y Manifiestos del Cine. Madrid: Cátedra.

Rondolino, G. (1977). "Cinema e surrealismo", in Studi sul surrealismo, Roma, Officina Edizioni.

Rudolf, E. (1996). Dada and surrealist film. Cambridge, The MIT Press.

Sadoul, G. (1983). História Mundial do Cinema. II. Lisboa, Horizonte.

Silva, B., Araújo, A.B.,Tavares M. (2019). Cadavre Exquis: A Motion-Controlled Interactive Film. In Proceedings of the 9th International Conference on Digital and Interactive Arts (ARTECH 2019). Association for Computing Machinery, New York, NY, USA, Article 66, 1–4. DOI:https://doi.org/10.1145/3359852.3359933

Soupault, P. (1965). "Entretien avec Philippe Soupault par Jean-Marie Mabire", Etudes cinématographiques, nº 38-39, 1º trimestre, pp. 30-3.

Trueba, F. (1998). Diccionario de cine. 3ª ed., Barcelona, Planeta.

Voguel, A. (2006). Film as a subversive art. Singapore: DAP/CT Editions.