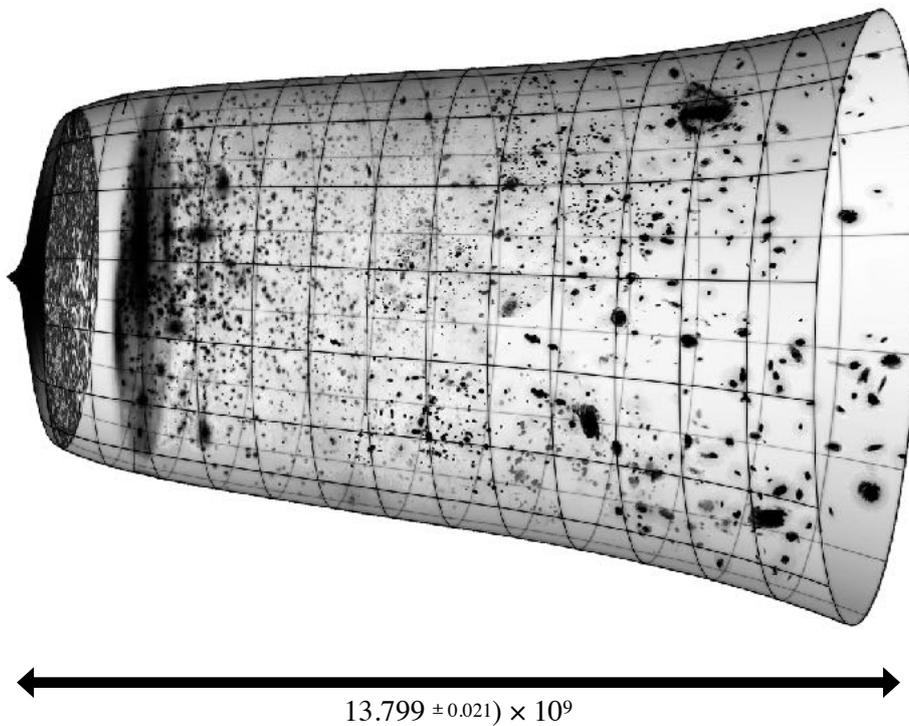| Title	HSARCCRASH
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Place	Rotterdam
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$13.799^{\pm 0.021}) \times 10^9$

Abstract

This text gazes at the phenomenon of crash. Observed as a manifestation of vigorous transformation embedded in a period of time. It highlights the limitations of representing these processes with a two dimensional timeline.

Trying to rethink our methods of capturing change in time begins with altering our perception of time before starting to represent time, while acknowledging the influence of time.

It researches theories and techniques surrounding the notion of coming to thought in time. Exploring what it means to create interior time through thought.

Then this text contemplates on the spatiality of time, considering how time came into being. When projectiles caused by the Big Bang not exclusively shot into directions of future, but into directions that could be perceived as laying beyond certain future's pasts.

It peeks at techniques used in film restoration that cover up the internal remains to analogue film, once pivotal cues, but now rendered useless holes. This computing method offers a new way of generating film growth just as a timeline that runs from the inside outwards.

This thesis then perceives the now, where the worldwide outbreak of a virus is causing a severe acute respiratory syndrome. How this crash is taming our behaviour, but most importantly, is pinpointing our position. Making us aware of being inside this period of crash.

Written through language, while being aware of the restrictions of language as a vehicle to communicate the potentiality of representation.

Table of Contents

Introduction

This writing surrounds crash. It focusses on how crashes are perceived through different ways of representing time. And how the crash itself represents change, not solely as a merging velocity of two or more physical bodies, but as a time based process that defines interiority through unsettling it. Its strategy is to question *and* embody speed, sequence, and the sense of time. Additionally, it intends to resonate with the writer's simultaneously produced video work, which aims to re-format the retrospective 'time-line' due to its limitations.

This thesis starts off with thinking through our tendency to map certain events after they have started happening, meaning that they are still happening or finished happening. Either way, this retrospective glance shows that certain systems or interiors have been functional up until their collision, but now ceased to exist in their previous form through this very disruption.

The text follows the notion of the time that is created by thought, existing inside the time it takes to think, as put forward by Agamben (2005). It considers thought in process as a model to represent time, escaping our habit to perceive and present time in a two-dimensional timeline. It then glances at the age of our universe to search for a base on how to interpret and represent time.

Change in time can be captured with recording film, its quality being that of an almost direct translation. Yet it harnesses the problematics of linear time conception at the same time. Subsequently this thesis fixates on techniques of film restoration, which breaks up chronology from within. Offering speculative thought on how to perceive and represent change over time.

Then the text targets the first atomic bomb explosion, a crashing event that put a stamp on the course of humankind. Rather than trying to perceive the explosion itself as being the crash, it tries to map it as the start of one longterm crash. This leads this thesis to contemplate on the question of how to witness and register crash from within the crash, from a focus on techniques that perceive change in time.

Lastly, it seems crucial to mention, that this thesis tries and fails to break away from the 'logic' of binary oppositions in language. Since every word is a vehicle of meaning, describing what the meaning of a particular word is directly tells us what this word does not mean (Derrida, 1982). Language shapes our understanding of time. Art might be able to provide us with an alternative way of perceiving time, enabling to serve as a catalyst for multiplicity in interpretation (Jackson, et al., 2011). However the challenging nature of text therefore also encapsulates its intrinsic motivative force to convey a deeper thinking on terminology through vast words such as <u>time</u> and <u>crash</u>. Words in need of a time-consuming, crashing deconstruction first.

Tearing the Representation of Time

During a crash the interior tears open. When the velocity of two cars meet at a certain speed, their windows burst open, balloons inflate due to a burst of nitrogen and momentarily fill a portion of the interior. The metal skeleton ripples and tears. During a crash the interior tears open. Humans riot on the street, they overthrow a government. The city burns for a moment and the government crashes and ceases to exist. During a crash the interior tears open. The market value of stock suddenly drops. Algorithms in huge data-centres located close to the hearth of the financial market react. More stocks, with an even faster rate start to decline. The market crashes. During a crash the interior tears open. A virus mutates. It shows cracks in the system build to harness financial continuity through momentum build on expansion perceived as progress. Not able to plan the future anymore, the perception of time changes. Uncertainty towards the prediction of a future increases simultaneous with the inability of localisation inside this crash.

Structures tearing open as a result of their crash are in retrospective revealed as certain enclosures. A torn open enclosure is not an enclosure anymore, due to their disruption they cease to exist. It is solely by means of our reflection upon these time-based events that we are able to see the previous less distinct visible interiority. This moment were something formerly taken for granted is altered, morphed, merged or crashed could be taken as a norm vigorously transforming into its new form. As if steps are being skipped in the process of ageing, or an increase in thermodynamic entropy.

The representative mapping of time based events has been a part of our curriculum to generate a historical sense. Although being such a common model used to present past events, it generates a peculiar projection of time. According to the linguist Gustave Guillaume, we experience time but do not posses the representation of time, and therefore we need to take a detour using constructions of a spatial order. Guillaume signifies this as verbal time being represented by grammar as an infinite line that contains two segments, past and future, separated by the present cutting through them. According to Agamben (2005, p65) "this representation, which Guillaume even calls a time-image, is inadequate precisely because it is too perfect. It presents time as though it were always already constructed, but does not show time in the act of being constructed in thought". The problem with this translation of time, as stated by Agamben, is that it only features events in their achieved state. It neglects the phases through which thought had to pass while being constructed. In other words: the time it took to think, since mental operation uses time just like physical or verbal action. Therefore Guillaume defines *operational time* as "the time the mind takes to realise a time-image*"* (Agamben, 2005, p66).

According to Agamben (2005, p66) "Languages organise their own verbal systems by referring the constructed image back to the operational time in which it is constructed". He then continues "In this way, Guillaume is able to complicate the chronological representation of time by adding a projection in which the process of forming the time image is cast back onto the time image itself". This allows Guillaume to restore time in a representation that is deprived of time, being a process that can be perceived as a loop, rather than a line, it creates a sense of spatiality.

Language moves from potentiality, through the process of formation into the state of having been constructed. Noted by Agamben (2005), these three dimensions defined by Guillaume assemble the schema of chronogenesis. This period of chronogenesis is constantly activated in discourse through enunciation. However this would also mean that there is a delay due to the different times in which processes are nested, and the moment of enunciation would imminently have a delay. Even when thought happens efficiently and quick, it "could never coincide perfectly with itself and the self-presence of consciousness consequently would always take on the form of time" (Agamben, 2005,

p67); thus explaining why the thought of time and the representation of time could never coincide. Forming the sentences in which thought is expressed, and through which a time-image could be realised for it to be enunciated already asks for the use of operational time, which cannot be represented because it is still part of that representation. In every representation of time, another time is implied of which its full bandwidth is not being used.

> "It is as though man produced an additional time with regard to chronological time, a time that prevented him from perfectly coinciding with the time out of which he could make images and representations. This ulterior time, nevertheless, is not another time, it is not a supplementary time added on from outside to chronological time. Rather, it is something like a time within time (not ulterior but interior)" (Agamben, 2005, p67).

This creation of a *time within time* is a time of creation. Time in which we find ourselves while creating in thought. This time of new things emerging could be baptised as the time of inspiration. Another model of thinking about time and its representation through unsettling the linear time-image is Agamben's proposal of "messianic time", which he summarises as "the time that time takes to come to an end". This should not to be confused with "eschatological time" which in theology is considered as the final events of history —in past, present or future— or rather the ultimate destiny of humanity. Eschatological time is the time of the end of time, whereas messianic time is specified as "the time we take to bring to an end, to achieve our representation of time". It therefore is endless in its potentiality.

Both of these models unsettle the timeline, enabling us to perceive processes through representation of thought. Showing us that by thinking about thinking we can take off from a horizontal timeline and start to perceive processes of thought within their making. It offers a view from a more intergalactic perspective where the horizon is missing.

The Crush before and after the Crash

Fig. 1   Fig. 2   Fig. 3   Fig. 4
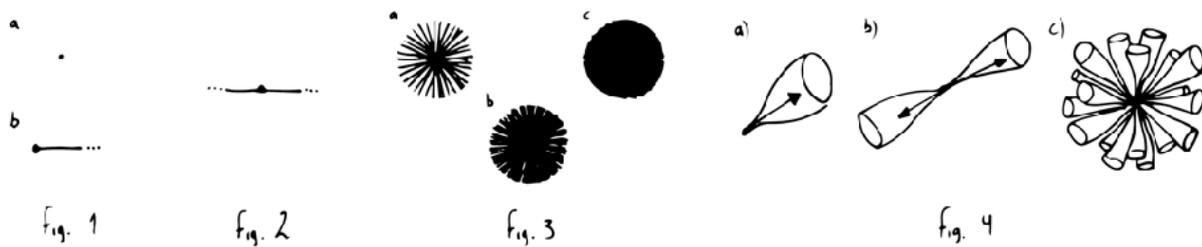
Instead of coming into existence through the Big Bang, time might have been eternal. And instead of being a factor exterior to space, time might be the interior of space. All considerations led by research of time are speculations and the means by which we represent time still operates through either two- or three-dimensional projections. Different theories exist surrounding the age of time and for a long time the crash that we named Big Bang was seen as the first point in time. The time that created time coincided with the age of the universe, estimated at $(13.799 \pm 0.021) \times 10^9$ years.

Sixty years ago, Thomas Gold of Cornell University argued that the expansion of the universe indicates the passing of time in a particular direction (Weiss, 2000). This direction of time was then titled a *time arrow*, pointing away from the Big Bang and therefore towards what we would name future. In everyday experience time appears to flow in one direction. Twenty-one years ago, Lawrence Schulman of Clarkson University in New York showed that regions where time flows equivalent to our known direction could potentially coexist with regions where it flows backwards from that time-perspective. He assumed that the interior of the universe either expands or contracts, each period being preceded by a Big Bang or Big Crush, respectively. "Then, as it starts to contract, the arrow of time flips, a la Gold" (Weiss, 2000, p6). Schulman speculates on a star or galaxy surviving this rebound, with its time arrow intact but flipped. Under these circumstances celestial bodies in our universe could have originated from our distant future in reversed time, which would make them appear very old.

Physical Review Letters published a model (Barbour, et al., 2014) which argues that time is not something that pre-exists, but rather as something that begins and flows away in structure forming directions. This means that we could perceive the Big Bang as both a beginning and as a hub which interconnects a multitude of universes. The potential universe directly opposing our time arrow would then consist inside an extension of our past time, as if it exists *behind* the Big Bang, with a time direction opposing ours. In the basal model of time-representation it would look like a timeline but with the pasts in the centre, the presents next to it and the futures at all possible ends. Barbour mentions that even when time flows in different directions, we still could never experience reverse since we are bound to our time-arrow and can never experience the other one since it is in our past.

The framework offered by this information also changes the notion of time travel. To travel back in time would mean to travel against time. It also hints that time is bound to space, this universe has a certain time arrow, dissimilar to another universe's time arrow. The arrow however, appears to be a rather two-dimensional indication of this multidimensional process. If the Big Crash would have blasted spacetime in every direction, then there would be universes with time arrows perpendicular to ours. And this is exactly the error inside thinking when it comes to projecting unrepresentable phenomena onto three-dimensional projections. However a model of representation is in essence a simplified translation of that what it tries to represent, it does not try to become a miniature clone of it.

Growing Outwards

Capturing movement in time through burst photography —or film— used to be bound to the use of a thin strip —or film— coated on one side with a layer of a gelatine emulsion containing light-sensitive crystals. Onto this strip photons would crash and cause a chemical reaction in a chronological order, later to be developed by a fixative chemical process. Creating an immediate miniature representation of time onto a physical timeline. This has been the basis for our understanding of capturing moving image, even when transitioning to the digital realm where the physical strip is not essential anymore. The transformation from analog to digital filmmaking restricted the resolution of images compared to celluloid, but delivered ease and speed in production. Until several years ago, digitally produced cinematic films were still transferred onto analogue film since most movie theatres used analogue projection (Fossati, 2018).

Nowadays most movie theatres have changed to digital projectors. This transformation brought along with it the challenge of digitising older analogue footage, so that it could still be shown using the newer digital projectors. Since feature film in analogue form would not fit onto one single film reel, it was up to the projectionists to switch reels during the full length of the movie. To signal when to switch to the next reel, already loaded onto another projector, the projectionist punched 'cue dots' into the top right corner of two consecutive frames at the end of a reel. These now redundant holes in the footage are concealed through the digital process of "interpolation". Interpolation uses the information from the frames preceding and following the two frames that have punctures (Fossati, 2018). It is a calculation which makes a hybrid clone of two originals. In the case of concealing the cue dots through interpolation, a "Region of Interest" (ROI) defines the area around the dots. Not using the entire frame saves processing power and time, while preventing automatic replacement of undamaged pixels (Fossati, 2018).

This technique can thus be used to create an entire new frame. Perceiving the filmstrip as a timeline with the currently looked upon frame as the present, defines the following frames as the future and the preceded frames as the past. Taking that current frame out and reconstructing it through the process of interpolation would mean that we used the past and the future to extract a speculative representation[1] of present.

Even nowadays when digital film is being used inside digital interfaces, it is represented as a chronological linear projection of captured time in the shape of a strip. But digital processing used for analogue film brought forward a way to break free from this timeline. In principle we would only need two images to endlessly create new footage. Filming through the process of cloning hybrids, brings us back to the idea of a perception of time. Which in this case not only starts in the middle of its eventual timeline but grows outwards from within.

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[1] *In our vocabulary a speculation is the lesser grounded version of prediction. Not enough data is collected to make an accurate prediction, it therefore becomes a speculation of a more assumptive demeanour. In computing however, these processes retain a different 'hierarchy'. Prediction is done to determine where an execution will continue, so that it can read the next instructions from memory. Speculative execution goes one step further and determines what the result would be from executing the next instructions. It is ahead of prediction, but not lesser grounded.*

Predictended Remontage

The biggest crash due to human progression might be one with zero —officially announced (Laurence, 1945)— casualties. In the summer of 1945 in the Alamogordo Desert of New Mexico the first atomic bomb was being detonated. Under the code name of 'Trinity' a bomb named 'The Gadget' was set off. The interior of this bomb housed the nucleus —cores— of atoms that split into nuclei, thus triggering a rapid chain of events that led to the release of 92 trillion joule of energy. Although no casualties were recorded, that moment of crash influenced all time to come. From now onwards humankind was capable of annihilate all life on earth. When Robert Oppenheimer cited multiform Vishnu with the infamous words "Now I am become Death, destroyer of worlds" (Freed & Giovannitti, 1965) he related his involvement to the responsibility of inventing and creating a weapon with the ineluctable potential of destroying worlds. It was however not Oppenheimer personally, but humankind that then became the potential destroyer of worlds.

This brought us in proximity to the potentiality of the ending of our time which is not the same as the end of time. This can be paralleled with Agamben view on Walter Benjamins thinking concerning the historically determined perception of images in relation to the messianic history. Messianic theology holds the concept of salvation as a final goal of history. "First, it is a history of salvation: something must be saved. But it is also a final history, an eschatological history, in which something must be completed, judged" (Agamben, 2002, p314). The anticipating upon a time to come makes the potential of that time visible in every moment. The arrival of the messiah is happening constantly in the contemporary times, due to its unpredictable moment. Not knowing the moment of the end of times makes people be prepared for it every day just as it could happen any time. "The Messiah has always already arrived, he is always already there" (Agamben, 2002, p315)

'The Atomic Age' is been generally used to categorise the period succeeding that first weaponised atomic explosion. This term was coined by William Leonard Laurence, a science journalist who was lead to report the explosion of 'The Gadget'. Being the exclusive journalist on site, he was responsible of preparing four different press releases that preceded the explosion, unknowingly of what the outcome of the explosion would be. According to Guillaume (1929), this could be observed as a representation of time as constructed, however written from within the time of potential. Four different scenarios were written to then publish one of them in the newspaper. The article that was issued definitively stated that the shockwave and sound felt by many citizens were due to an accidental detonation and explosion of pyrotechnics. However fortunately —according to this decoy article— this did not result in any casualties (Laurence, 1945). It was a representation of the recent past for the audience of the present, written in the past of the recent past, as one of four speculations about the future.

Laurence's article *predictended* —predicted/pretended— that time would continue in the same way as before. The minor accident that occurred with pyrotechnical equipment was nothing serious. Often we do not perceive ourselves being surrounded with a situation of change and therefore are not aware of our position inside it. By writing the *good news,* nothing seemed to have changed.

Film can function both as timeline and a representation of a shown time-based event. Post production methods such as interpolation can be used as means of montaging a new future to films internal time. The example of writing a version of *tomorrow's news* seems almost like a time-mirrored version of *remontaging* an existing film. If in a thought experiment the montaging of a film can happen succeeding the film it has made, then subsequently the viewing can happen *prior to* its existence.

Predicting Represented Present

This text has been trying to peek into different methods of representing events in time. Approaches to map time and thus speed open up a framework of regarding time, mapped in movement, thus being velocity. This raises the question of what it would mean to stand still. Or rather, what it means to perceive movement, change or crash, from its structural collapse inside its momentum.

Due to the viral outbreak that is happening as this text is being written, we suddenly realise that we are in the midst of a crash, currently prone to a shift of our habitual approaches towards almost every facet of what in hindsight we might call our *regular life*. Changing our living conditions to a stable form that would come close to the norm of living we were used to, seem to be no longer an option, at this point in time. Restrictions in physical contact, having to get work done remotely while subsequently communicating that same work through new platforms are only one part of this contemporary indecipherable situation.

It is hard to ground ourselves inside this new period of time, mostly because there seems to be a lot that we do not know yet. The current projections through the use of statistics seem to be of an assuming value due to its corruptive state as the data is being collected and measured through different methods worldwide. A lot of the statistics are not coherent and therefore not relevant to combine. The figure of death toll has from a statistical point of view little value when the exact amount of infections and recoveries are missing. The recent events showed us how statistics gradually grow, more information is being resourced from increasingly relevant sources as the days go by. The more information we have, the higher the resolution of our scope on the situation becomes. An example in the short term is that the death toll numbers which are published on a Monday are including numbers from two weekend days, and so is our perception catching up twice as fast than on another weekday. On the longer run this leads to an enhancement in perception of our position inside this crash. This growth that enhances our perception is bound to the time arrow. The more data we collect, the better we can predict our future, however this data is coming from a retrospective accumulation. It is never in *realtime*.

This is an unnerving but highly exciting moment, because it shows how much we do not know about this crash, exactly because we find ourselves in the middle of it. Predicting a representation of the present seems to be what is being tried every day. And it seems impossible at this very moment to predict both present and future. This could be a moment to question the reasons why we are inclined to a constant mapping and planning of our trajectory on both an individual and societal level. Being inside a situation that cannot be resolved with an immediacy teaches us that we have to endure more time consisting of these long term temporary circumstances.

What is movement and how could we represent it, especially when we are constantly moving ourselves? It is our inability to stand still because we find ourselves in a space that is time, and in a time that is actually a space—which is time. We are surrounded by events that have seemed to stop our routine, but might have stretched it out instead. Seemingly stationary, but still running in a stretched slowness. Nothing that we find in our habitat —including ourselves— is purely frozen static. Both physical things and immaterial stills captured in thought, would still vibrate through time. It is a consequence of existence in space, or existence inside brains in space. There is no pause ever. To exist equals being subject to an increasing entropy, effectively fading, rusting, oxidising or slowly corrupting.

Conclusion

This thesis has gazed at the various understandings of the notion of time and absorbed the many stages of transformation through its representations. It started with embracing the restriction of communication through language, then tried to peek into the potential of a decrease in resolution. Found when for instance a multidimensional concept of spacetime is translated into a two- or three-dimensional model.

Frameworks, or enclosures, can sometimes be perceived after their disruptiveness. There is time needed for the mind to realise time. The representation of time in a timeline can only happen in retrospective, for otherwise it would show the future as already constructed. Thinking about the time inside thought placed in time, could enable us to steer away from a horizontal linear time representation.

The beginning of our universe could have become a passage into reversed time. This leads to thinking about time as existing in form, something that is graspable, but unrepresentable. Time is motion bound to space where a two-dimensional arrow keeps appearing, graspable, representable but insufficient. Representing is translating the concept in another realm, where what is being represented is not native. Therefore the translation is an eroded version of that what is represented, since not every detail travels through this translative process.

Another kind of translation took place after the transformation from analog to digital filmmaking. Which decreased the resolution but increased ease and speed. When old footage needed to be translated onto the new medium, the technique of interpolation started to emerge. Interpolation is capable of escaping the conservative conception of timeline, which originated from film reels, and offers a representation of time that starts in its own middle and grows outwards.

A forecast, prophecy, speculation or prediction are the somewhat opposites of a retrospective representation. The atomic bomb that made us into destroyers of worlds was preceded by four predictions. Potentiality inside a historically determined perception of time that lead to a time unpredictable but constantly anticipated upon.

Due to the viral outbreak that is happening while this text was being written we found ourselves inside a crashing, prone to a shift of our habitual approaches towards life. It is exactly in this moment inside crash where it is hard to ground ourselves in time due to its uncertainties. Statistics shape our constantly updates timeline, increasing our resolution of perception. Teaching us with a certain sluggishness that we find ourselves in a situation that cannot be resolved with an immediacy. Besides being perceived as seemingly stationary, time still runs in a stretched slowness. Nothing is timeless therefore standing still is impossible. Existing means being subject to an increasing entropy. There is no still.

This writing in the end led to the retroactive effect in which it found to be originated from a longing to search for moments to capture change in time, whilst under the influence of time. But it had to conclude at some point in the future that we potentially might never became under the influence of time at all. And it seems that the research into crash has crashed, and the crash has disappeared in the text, and it was time that remained.

$13.799^{\pm 0.021} \times 10^9$

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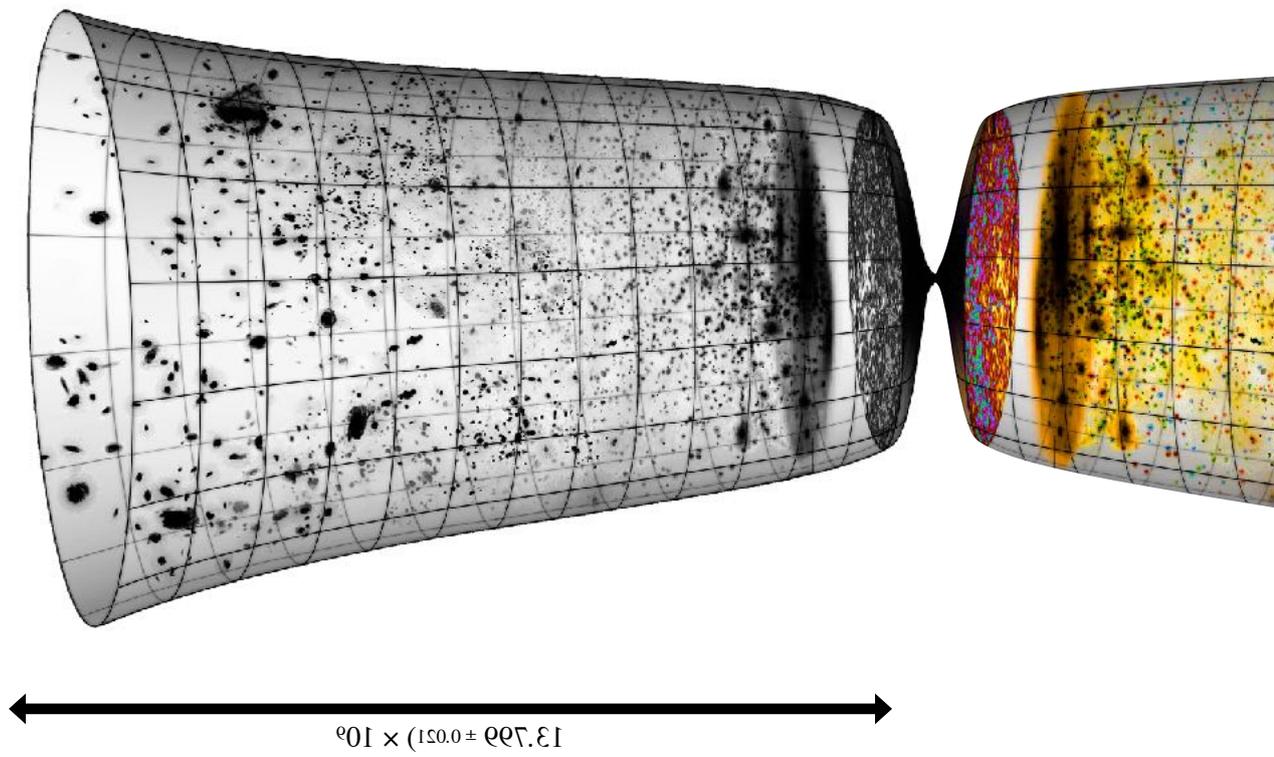
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2020

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the word "time" has been used 194 times, consuming 3,71% of this thesis