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On the Exactitude of Big Data: La Bêtise and Artificial Intelligence

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Abstract: 'On the Exactitude of Big Data: La Bêtise and Artificial Intelligence'

This article revisits the question of 'la bêtise' or stupidity in the era of Artificial Intelligence driven by Big Data, it extends on the questions posed by Gille Deleuze and more recently by Bernard Stiegler. However, the framework for revisiting the question of la bêtise will be through the lens of contemporary computer science, in particular the development of data science as a mode of analysis, sometimes, misinterpreted as a mode of intelligence. In particular, this article will argue that with the advent of forms of hype (sometimes referred to as the hype cycle) in relation to big data and modalities of data analytics there is a form of computational stupidity or functional stupidity at work. The exaggerated promises of big data to solve everything are overblown expectations which will lead ultimately to a form of disillusionment with data science. This can be seen in a number of domains, for example smart city technologies, the internet of things, and machine translation. In addition to the negative effects of exaggerated claims of Big Data is the possibility that societal norms will facilitate Big Data technological change by incorporating the bêtise of Big Data, thus leading to a change in our relationship to technology, examples of this would be privacy standards and ownership of data. This paper will conclude by setting out the analysis some of the limitations of Artificial intelligence and Big Data in order to allow a re-examination of the claims made.

Introduction

In order to frame our understanding of Artificial Intelligence (AI) and its limitations as a form of stupidity, the spanish writer Jorge Luis Borges offers useful metaphors of the problematics of data, memory and maps. Borges two short stories, 'The Exactitude of Science' (1946) and 'Funes the Memorious', (1942) draw our attention to the limitation of memory (of remembering everything) and to the futility of mapping everything. These two aspects of data, remembering everything and capturing everything, are problematics for Data Science today.[1] In the short story 'Funes the Memorious' the overwhelming memory of the individual instance is explored as form of embodied memory. For the extraordinary character of Inesco Funes the weight of the individual instance is overpowering and acts as a form of paralysis. He is, therefore, not just physically paralyzed but also psychologically stunted as a result of the horse riding accident.

[1] These problematics can also be extended to particular domains of the use of Big Data such as the Smart City. The Marie Sklodowska Curie Actions (MSCA) RISE 777707 Real Smart Cities sets out to critique the use of Data within the urban landscape, this paper has come out of some findings from that project, see realsms.eu for further details. This paper is the extended version of a paper given by the authors 'Bias by Design' at the Entretiens du Nouveau Monde Industriel, Dec 2017.

However, the price he pays for remembering everything is the loss of his ability to abstract and, therefore, to think.

> "Funes not only remembered every leaf on every tree of every wood, but even everyone of the times he had perceived or imagined it . . . He was, let us not forget, almost incapable of general, platonic ideas. It was not only difficult for him to understand that the generic terms dog embraced so many unlike specimens of differing sizes and different forms; he was disturbed by the fact that a dog at three-fourteen (seen in profile) should have the same name as the dog at three-fifteen (seen from the front) . . . he was not very capable of thought. To think is to forget a difference, to generalize, to abstract. In the overly replete world of Funes there were nothing but details, almost contiguous details." p. 153

Funes is incapable of thinking, incapable of forgetting about the difference and therefore unable to think about the general and to abstract beyond the particular. His mind, one could argue, is cognitively overloaded with the particular instance of memory. The memory of the thing and the memory of memory of the thing, or the memory of thing be given to remembering. In this article we will argue that the relationship between remembering everything and the inability to abstract is present in the modern development of data capture on a massive scale. Big Data describes a trend where the number of data points collected grows exponentially year on year, and where the information, as a form of calculability, expands. A distinction is necessary between data and information, data is considered as the point of measurability but not as information. A theory of information enables us to distinguish data from information, to simplify, information is what gained from the data but not the data itself. [2]However, we argue, the collection of data (even on a massive scale) does not develop a form of intelligence or thinking. It is true that as the amount of data captured grows, more and more complex modes of data analysis can be developed. Within the computer science and data science research communities, and also within the neoliberal marketing of multinational consumer technology companies, these forms of data analysis have been given names such as Artificial Intelligence, machine learning, and deep learning. As a result, it is not surprising that these forms of data analysis have more broadly become mistaken as forms of intelligence, or as forms of thinking. This, as will be argued later, is form of functional stupidity or to use Deleuze's terminology a form of La bêtise, that is developed more recently by the work of Bernard Stiegler[3]. This functional stupidity[4] has become predominant in modes of computation and modes of analysis from big data and machine learning.

In the recent history of Artificial Intelligence there have been exaggerated claims about the capacities of data analytics which could lead to, for example, theory free models or what

[2] Simondon refers to a notion of information rather than a concept. For Simondon 'the notion of information presupposes the existence of a system in a state of metastable equilibrium that can individuate itself, information unlike form, is never a unique term, but the meaning or significance that arises from a disparation.' *L'individuation à la lumière des notions de forme et information*, p.28/p.35 cited by Bernard Stiegler, 'Around the notion of information' Kent, Oct 2018.

[3] Bernard Stiegler, *Etats de Choc, Bêtise et Savoir au XXIème Siècle,* Paris, mille et une nuits, 2012.

[4] Bernard Stiegler, *Dans la Disruption, comment ne pas devenir fou*, Paris, LLL, 2016, p. 29.

Chris Andersen in *Wired* called 'The end of theory: the data deluge makes scientific method obsolete'[5]. Chris andersen argues that the inductive reasoning methodology of science has become obsolete with advances in data analytics and the growth of data, correlation supersedes causation, no explanation is needed. The end of theory is a form of stupidity in itself.[6] The current debates about Artificial intelligence are linked to new developments in Data Science and Data Analysis. There is an ontological link, therefore, between AI and Data Analysis and in particular in relation to Machine Learning or deep learning. As the terminology suggests machines can learn which of course has resonances across the history of Artificial Intelligence whether this be in popular science fiction accounts (Azimov) or through the work of Alan Turing. [7]

Artificial Intelligence (AI) has history dating back at least to 1956, when the term was coined at the Dartmouth College. At that time the field of Artificial Intelligence covered a range of topics including Natural Language Processing, Computer Vision, Planning and Machine Learning. In recent years, however, the field has been dominated by Machine Learning, and its sub-field Deep Learning. The use of the term Deep and Learning needs some qualification, at an intuitive level machine learning is involved the design and the study of algorithms that enable a computer to learn from data[8]. In order for the computer to learn from data: learning understood as a form pattern recognition in existing data sets and the encoding of these patterns in computer programmes. Once these programmes have been created they can then be applied to new data in order to categorise them based on the patterns they match. The process of learning is understood, therefore, as a process of abstraction: abstraction in pattern recognition. This type of learning, if it is learning at all,, is a form of inductive reasoning and this is perhaps one of the main weaknesses of this form of learning, it is based the recurrence of the past to predict the future. The process of individuating or of individuation is reduced to a series of data points from which there can be no collective reasoning. It is this process of 'learning' from data that makes the combination of Artificial Intelligence and Big Data so powerful: the argument being the larger the data set the more reliable the patterns extracted from the data and hence the more powerful the artificial intelligence can become. However, this argument misses a fundamental point about the nature of the data, data is a pharmakon and is pharmacological, it is both a cure and a poison.

The development of Big data as a form of computational intelligence needs to be analysed within the wider framework of data as *Pharmakon* both as a cure and a poison at the same time[9]. The negative toxic pharmacological aspect of data is, just as with Funes, the inability to abstract from the data itself. This toxic aspect is seen through the development of Big Data as

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[5] Chris Andersen, 'The end of theory: Data Deluge makes the scientific method obsolete', *Wired*, 23 June, 2009, https://www.wired.com/2008/06/pb-theory/, accessed nov 2018. For extended critique of this article see La Societe Automatique, L'avenir du travail, pp. 9-16.

[6] Bernard Stiegler, *Ce qui fait que la vie vaut la peine d'être vécu, De la Pharmacologie*, 2010. See introduction.

[7] The authors would like to recognise the work of Mick O'Hara Phd at GradCAM which sets out a phenomenological account of digital objects and computational theories of agency of abstraction.

[8] John D. Kelleher. *Deep Learning*. MIT Press. Forthcoming 2019.

[9] This analysis builds on the work done by the Digital Studies Group and the Institut de Recherche et Innovation along with the work of Bernard Stiegler in relation to the development of the concept of techne and pharmacology.

a form of capturing of everything possible: the traces which are left across the internet and across the spaces which we traverse - the gps locational traces as a well as the traces left across websites and search engines. The data collected every minute on the internet is colossal, in 2017 there were 15,202,700 text messages, 3,607,080 google searches and 4,146,600 youtube videos watched per minute[10]. As the data gets bigger, the negative toxic effects are becoming more apparent, besides the very material aspects of storage management and data centre energy usage, the ability to abstract from the data becomes more complex. However, in order to understand what these traces, information and data are the broader question of technology needs to be addressed, these traces which are forms of data are themselves a form of mediation in the world, a form of becoming in the world. Techne is understood as mode of mediation in the world, placeholders of memory, placeholders of intergenerational knowledge or forms of culture, as forms of retention, what Bernard Stiegler terms as tertiary retention. In Levinas terms achieving the achievement, or completing the incompletion, the human is something essentially unachieved, or incomplete. The completing/ completion takes the form of externalization in exosmotic technical objects. This mediation in the world with and through digital technologies is captured in very specific ways by the internet and digital technologies. These traces themselves have enabled the development of particular forms of economy based on the data, whether this be through data harvesting or through forms of data brokerage, where the data itself becomes a form of commodity. This data is discrete units of time and space where the crumbs and traces of the individuating activity, of becoming in the world, are stored, and the process of individuating (the becoming human) is interrupted by the manner in which these traces are recorded, stored and used. However, the first aspect of this pharmakon is the ability to remember or to remind, as Plato states, the pharmakon is a cure and poison of memory, the forms of tertiary retention of writing do not enable anamnesis (true memory) but hypomnesis (reminding), a form of regurgitation - reminding[11]. However, the promise of digital technology is presumed to be absolute, that everything is remembered, and nothing forgotten. One could wonder exactly what is left as the trace of the memory itself, whether the process of grammatisation[12] of memory, the discretization of memory denies the memory in itself as the embodiment of memory. The toxic effect here of the pharmakon is akin to everything being a form of reminding but not of true memory. The data of big data needs also to be understood as pharmacological, the reduction of everything to calculation outside of reason leads to the forms of functional stupidity or la Bêtise of Big Data. With the first metaphor of Funes the memorious, the growth of data has led to the inability to abstract from the data, to reason, there is so much data that abstraction becomes a form of computational model based on the past recurrence.

[10] Domo Report 'Data Never Sleeps 5.0' accessed from: https://www.domo.com/learn/data-never-sleeps-5

[11] Plato, *Phaedrus,* For an extensive commentary on this text, see La Pharmacie de Platon, Jacques Derrida and Bernard Stiegler, *Ce Qui Fait Que La Vie Vaut la Peine d'Être Vécue, De La Pharmacologie*, 2010.

[12] Sylvian Aurore – on the concept of grammatisation cited by Bernard Stiegler in *Ce Qui Fait Que La Vie Vaut la Peine d'Être Vécue, De La Pharmacologie*, 2010.

The second metaphor is that of the map, the map acts a mode of representation and as a mode of abstraction. In the short story 'The Exactitude of Science' Luis Jorge Borges points to the fact that in order to create a map which corresponds exactly to what is being mapped, the map would have to be the same size as the territory being mapped, which highlights the futility (Stupidity) of such an exercise.

> …In that Empire, the Art of Cartography attained such Perfection that the map of a single Province occupied the entirety of a City, and the map of the Empire, the entirety of a Province. In time, those Unconscionable Maps no longer satisfied, and the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it. The following Generations, who were not so fond of the Study of Cartography as their Forebears had been, saw that that vast Map was Useless, and not without some Pitilessness was it, that they delivered it up to the Inclemencies of Sun and Winters. In the Deserts of the West, still today, there are Tattered Ruins of that Map, inhabited by Animals and Beggars; in all the Land there is no other Relic of the Disciplines of Geography. —S*uarez Miranda,Viajes devarones prudentes, Libro IV,Cap. XLV, Lerida, 1658*

One aspect to this story is the original enthusiasm of the Cartographers Guild to have a map of the entire Empire, this reflects the relationship between colonial endeavours and the creation of cartography as a discipline in itself. The colonisation of space takes place through the development of ordnance survey maps and ordnance survey techniques which include modes of translation[13]. However, there is an inability of the map to match the territory, an inability of the local to be translated into the points of the map, and an inability of the translation from one language to another and from one place name to another.[14] There is another aspect to the short story which is worth highlighting : the lack of enthusiasm from future generations who found to map useless. The ability of the map to function as form of technology in itself and to attempt to capture everything also has implications for big data and data analytics, the futility of capturing everything becomes more obvious the more data we have. In addition, the initial enthusiasm of the cartographic endeavour followed by disillusionment has parallels within the hype cycle often experienced by modern technologies.

The technology hype cycle is a reflection of how humanity is a symptom of Amara's Law which describes how the expectations of the impact of technology changes as the technology matures and becomes adopted. As Roy Charles Amara (a futurist) observed: "*We tend to*

[13] Noel Fitzpatrick, Conor McGarrigle, *Data Colonialisation and the Smart City*, forthcoming 2019.
[14] Brian Friel, *Translations*, Dublin, 1980.

overestimate the effect of a technology in the short run and underestimate the effect in the long run". This tendency is graphically represented in Hype Cycle model developed by Gartner Research (see image), which is framed around five stages that a technology progresses through as it moves from initial research breakthroughs to broad scale adoption. A hype cycle for a technology is trigger when a proof-of-concept breakthrough garners significant media attention. This media attention can lead to inflated expectations in relation to what the technology can achieve; in a sense, the early stage technology is still not well understood, and this lack of understanding gives it a magical aura. This stage often sees significant investment in the technology. However, as the technology develops it becomes clear that that initial promises will not be fulfilled, resulting in a disillusionment with the technology and a lack of investment and funding. According to this analysis if the developers of the technology survive the trough of disillusionment, then second and third generations of the technology are developed as products and a broader understanding of the technologies true abilities is developed (enlightenment), followed by mainstream adoption as companies and consumer understand the technology and what it can be productively used to achieve. [15]

In terms of predicting innovation, hype cycles[16] can be understood as a necessary component within a technology's development: the transition from a research lab proof-of-

[15] The technology hype cycle is a reflection of Amara's Law which describes how the expectations of the impact of technology changes as the technology matures and becomes familiar to the general public. As Roy Charles Amara observed: "*We tend to overestimate the effect of a technology in the short run and underestimate the effect in the long run*". This tendency is represented in the Hype Cycle model developed by Gartner Research, which describes five stages that a technology progresses through as it moves from initial research breakthroughs to broad scale adoption. A hype cycle for a technology is trigger when a proof-of-concept breakthrough garners significant media attention. This media attention can lead to inflated expectations in relation to what the technology can achieve; in a sense, the early stage technology is still not well understood, and this lack of understanding gives it a magical aura. This stage often sees significant investment in the technology. However, as the technology develops it becomes clear that that initial promises will not be fulfilled, resulting in a disillusionment with the technology and a lack of investment and funding. If the developers of the technology survive the trough of disillusionment, then second and third generations of the technology are developed as products and a broader understanding of the technologies true abilities is developed (enlightenment), followed by mainstream adoption as companies and consumer understand the technology and what it can be productively used to achieve.

[16] A broader historical context is useful here as it can contextualise the current hype around AI. This is not the first time that AI has been at the epicentre of a hype-cycle. The first AI hype cycle occurred through the 1950s and 60s and in general was based on breakthroughs in logical inference and planning systems. Early successes in these domains were achieved by systems that worked in controlled and well-specified toy environments, known as micro-worlds. The hope at the time was that the 'reasoning' ability of these systems could be gradually scaled to larger environments. In the mid-50s claims were made that AI systems would have similar abilities to humans within 'visible future' timeframe. From the mid-60s on it became clear that the early claims for the potential of AI were unfounded and the field experienced what became known as the first AI winter. The second AI hype cycle occurred from the late 60s and through the 70s. This cycle was based on the claim that manually encoding deep domain knowledge into computational systems would enable these systems to become useful in narrowly, well-modelled, domains. These narrowly focused AI systems became known as Expert systems. Several commercially successful AI systems emerged from this wave of AI. However, the success of these systems was based on labour intensive work, where human experts created large computational ontologies that symbolically encoded the relevant concepts within a domain and also the

concept technology to a mainstream product generally requires significant financial investment, and without a phase of inflated expectations a technology may never receive this investment. The hype cycle is a mode of representation of utility or investment opportunity in technological innovation and development. This type of investment has lead to key breakthroughs in a number of fields including machine translation, speech processing and image processing. However, for our purposes this process enables a clear understanding in relation to overblown claims about technological development, Artificial Intelligence, being the case in point at the moment. This leads to erroneous claims about what AI can do, perhaps the most important ones are claims of reasoning, thinking and intelligence. Nonetheless, when it comes to the prediction of job losses because of automatisation there is a growing consensus that the number jobs will be reduced by 9%. However, what is distinct with regards to the current promise of AI conceptualised as Big Data + Machine Learning as the new magic formula that will enable computers to think, are societal adjustments and societal processes of incorporation of these new technologies, in particular Big Data. Perhaps it is these shifts that are the most concerning, shifts in relation to questions of individual privacy and collective civil liberties.

The acceptance of the proposition that Big Data + Machine Learning magically enables AI can result in the intensification of two processes within society: the first is that societies become more technocratic in nature, the second is the growth of control creep[17]. By the notion of a society becoming more technocratic we mean the growth in the use of algorithmic/data-driven decision processes to regulate life. The Technocratic society also refers to Adorno and Horkheimer's analysis of the rise of a particular form rationality since the enlightenment, a rise in technocratic reason. Examples of technological regulation in society already exist across many areas of life, from the use of AI to regulate traffic flows in and system, to the growing use of AI in judicial decisions (including parole and sentencing decisions). The magic of the black box servers as a metaphor is used to refer to these decision making processes, which are not decision

relationships between the concepts. The requirement for large scale labour intensive encoding of domain knowledge eventually resulted in disillusionment with AI and the onset of a second AI winter. The current round of AI hype began in the mid 2000s following a number a breakthroughs in the field of machine learning, and in particular the sub-field of machine learning known as deep learning. This cycle is based on the idea that AI (understood in this case as the data analysis techniques of machine learning and, more specifically deep learning) could unlock the potential of Big Data to solve significant societal problems. For example, in areas such as precision medicine, and smart cities; but also in consumer focused contexts such as online advertising and social media profiling. This brief history of AI highlights that the concept of AI is broad enough to encompass many different technologies, in each of these three era of AI hype the promise of computational intelligence was based on a different form of technology (in each case, a new hope, a new magical elixir).

[17] John D. Kelleher and Brendan Tierney. *Data Science*. MIT Press. 2018.

in the true sense, but predictions made on the patterns of the data. A worrying by-product of these systems is the proliferation of sensors to collect data. The second process control creep, from (Innes, 2001)[18], is the repurposing of data originally collected for one purpose being repurposed and used to regulate other aspects of life. For example, the use of traffic control sensors being repurposed for security and policing. The concern we raise here is that although hype, it could be argued, is a necessary process for the development of a technology, the hype in relation to AI as currently constructed can results in societal changes that profoundly change how we live long-after the current hype cycle has completed, the long-lasting concrete results being the proliferation of sensors, the acceptance of the repurposing of data, and the acceptance of algorithmic data-driven regulation and governance across all aspects of our lives. However, the underlying logic behind the acceptance of data-driven regulation is a form of thinking, a structure of thinking which could be understood as form of artificial stupidity. The systemic stupidity which enables forms of governance built upon data driven decision making processes[19].

The structure of thinking itself, to return to Deleuze's conceptualisation of the Betise, is being influenced by the development of Big Data and Machine learning as a mode of Artificial Intelligence. The systemic stupidity of this form of AI has become dominant as a tyrant or as a tyrannical mode, i.e. as a structure of thinking in which choices are data driven. The negative process of Big Data structure of thinking is influencing our individual and collective noesis, from an individual privacy perspective but also our collective liberty as political and social agents. We shall return to this further below.

The question of the right to be forgotten is raised in particular way once we start to think of digital technologies, the right to be forgotten has been a phrase that has been used to refer the right of an individual to have the data which has been collected by them deleted[20]. However, there is a more fundamental question at the core, whether there needs to the ability to be forgotten as a moral imperative. Paul Ricoeur in his text *History, Memory and Forgetting* sets out an analysis of the *Pharmakon* of writing as techne, where writing enables one to remember and writing enables one to forget. The pharmakon of writing becomes the placeholder for the process of forgetting and not forgetting, Bernard Stiegler refers to this as forms of tertiary

[18] Martin Innes, *Control Creep*, Sociological Review Online 6(3), 2001.

[19] Rouvroy, A. & Berns, T. (2013). Gouvernementalité algorithmique et perspectives d'émancipation: Le disparate comme condition d'individuation par la relation ?. *Réseaux*, no 177,(1), 163-196. doi:10.3917/res.177.0163.

[20] https://gdpr-info.eu/issues/right-to-be-forgotten/

retention, where the exosomatic forms of writing and digital objects enable the anamnesis and the hypomnesis. However, within Ricoeur's analysis there is a duty to forgetting, what he refers to as a Just memory.[21] It is this notion of the just memory which is being challenged by forms of imprints which are data traces which are outside our control and outside our ability to be forgotten. The just memory cannot take place if everything is remembered and nothing forgotten, the ability to forget which it could be argued is also a cognitive necessity, a necessary forgetting in the case of trauma, the working out of grief in the Freudian sense, iit also a form of our necessary ignorance - stupidity. The argument for just memory allows for the process of being forgotten. When everything is captured, our movement in space and time, when our social interactions, language usage, traces and crumbs left throughout all our online activities represents an exponential increase in the number of data points about each individual leads to the impossibility of forgetting. Even if an individual were to attempt to delete all the traces, crumbs, interactions, language usages it would be a hugely complex, difficult task, perhaps an impossible task. The errors and mistakes of the past cannot be erased and stupidity of the youth (La Betise de la jeunesse) can not be forgotten.

There is a trade off, a necessary posology, between the toxic elements and the therapeutic possibilities of machine learning. However, before looking to Machine Learning as the new form of AI in more detail it is important ask the question of intelligence and stupidity but also of La Bêtise. Another implication for Machine Learning is the loss of labour, automated processes threaten jobs on a massive scale, we do not have the time here to consider these implications in detail, however, the distinction between labour and work is very useful here. For Bernard Stiegler, the automatised processes will be linked to forms of labour and not to work, where work is understood as form of 'oeuvre' or opened ended creative process of bifurcation.[22] In order to contrast the concept of intelligence in contemporary understandings of Artificial Intelligence, it is necessary to develop the concept of *La Bêtise*. *La Bêtise* for Deleuze, taking his inspiration from Nietzsche, is not just an ethical question of 'shame' where one recognises that one has committed a betise, or said a betise but also a form of motivation for the philosophical enquiry itself. The wonder of Philo Sophia can a wonder provoked by shame of the Betise. It is

[21] Paul Ricoeur, *History, Memory, Forgetting*, 2004, in the epilogue to the book Paul Ricoeur also refers to a happy memory and a happy forgetting. See pp.494-501.

[22] Bernard Stiegler, *The Automatic Society, Vol 1 The Future of Work*. 2016

fight against that which is making me stupid, a fight for thinking, reflection and reason.[23] Indeed, more recently Bernard Stiegler in *Etats de choc - Bêtise et Savoir du 21eme siecle* (2012) revisits questions of stupidity in the 21st century by building on a critique of post-structuralism and French marxist theory in order to establish forms of functional stupidity. Functional stupidity which is inherently linked to forms of grammatisation of knowledge, discretisation of knowledge, that in Stiegler's terms are forms of loss of knowledge or forms of proletarianisation. Gilles Deleuze sets out in *Différence et Répétition* (1968) [24]that 'La bêtise n'est pas l'animalité. L'animal est garanti par des formes spécifiques qui l'empêchent d'être "bête"', p.196., thus making a distinction between forms of stupidity and forms of animal behaviours, 'faire la bêtise' which is also, 'dire les bêtises' extends the concept of stupidity beyond simple forms of baseness. The animal is not 'bete' stupid but humans are. In the French language Bête (Beast, Animal) and Bêtise (Stupidity) have the same root latin origin which is lost somewhat in the translation into English where the semantic slippage between 'beast' and 'stupidity' is less obvious. It is important to highlight for Deleuze stupidity is not to be considered simply corporeal power but is a structure of thinking in itself. It is this structure of thinking in itself which is being affected by the use form is computation. Bernard Stiegler, in *The Automatic Society* (2016) and more recently in *the Neguathropocence* (2018) and *Quelle-appelle-t-on Panser* (2018) outlines the concept of entropy and anti-entropy to demonstrate how the very substrates of thinking are reduced to forms data exchange as entropic processes. The tyrant for Deleuze is an example of the La Bêtise as structure of thinking, the tyrant's institutionalised stupidity but they are also the first servant of their own system. The question which is at the centre of Deleuze's argument is the distinction between forms of error and forms of stupidity. 'Faire la betise' is distinguished from an error, as the error presupposes that there is the right way for the thing to be done, an error is, therefore, a questions of right. A question of rights which can be linked to the formulation of rights and laws, therefore, we can say in the ordinary use of language 'to make an error' or 'to commit an error'. For Deleuze la bêtise can never be simply captured by empirical determination: stupidity lies beyond the reduction to error. The empirical determination, as a form of measurement, as a form data can never capture la bêtise. However, because la bêtise for Deleuze is the structure of thinking itself it continues after the tyrant has

[23] Sara Baranzoni, Paolo Vignola, *L'hiver de la pensée. Symptomatologie de la bêtise à l'âge du défaut grec.* La Deuleziana, June, 2014.

[24] Gilles Deleuze, *Répétition et Différence*, Presses Universitaire de France, 1968. pp.196-199.

been superseded. Therefore, stupidity, baseness, cruelty, cowardice have a transcendental aspect which are beyond the individuals that initiate or who are responsible for the stupidity. For Deleuze la bêtise is distinguished from an error, or truth, as he states there can be a discourse full truth which is stupid, stupidity is not an error nor a tissue of errors[25]. Nonetheless, later in *Répétition et Différence* Deleuze extends his analysis of stupidity as a form of non-sense, lacking importance, banalities, confusion between generalities. Derrida in his famous seminar 'La Bête et le Souverain' will reduce Deleuze analysis to an opposition between man and animal, however, as Stiegler points this is Derrida 'qui fait la bête'[26]. The implications of Deleuze's analysis are that questions of sense and non-sense are made without reference to questions of truth and falsity, whether something is non-sensical is characteristic of something which is neither true nor false.

It is this question of functional stupidity, where there are no longer questions of truth and falsity, and where there is a generation of non-sense of stupidity. This is something that can computational linguistic programming can do very effectively, where the sense generation will continually lie outside the generation of linguistic expression which are language like - resemblances, representation of language and where the question of recognition and sense generation is asked by proposing non-sense as the mode of critique of the very language models. Stupidity is in case of this paper is taken as a form of non-sense generation. An example of such a process is the automatic generation of text by a language model[27]. The following is an example of Shakespeare hallucinated by a language model[28]

> "PANDARUS: Alas, I think he shall be come approached and the day When little strain would be attain'd into being never fed, And who is but a chain and subjects of his

[25]Gilles Deleuze, *Répétition et Différence*, Presses Universitaire de France, 1968. pp.196-199

[26] Bernard Stiegler, *Etats de choc*, p.84.

[27] A language model is a computational model that is trained on a corpus of language. The language model is trained to process a sequence of words from a language, one word at a time, and after each word has been processed the model outputs a probability table that describes for each word in the vocabulary the probability of that word being the next word in the sequence. For example, assuming a language model has been trained on a corpus of standard English, then given the sequence of words *The dog chased the* as input the model would assign the word *cat* a high probability (because *cat* often co-occurs with the words in the input sequence such as *dog* and *chased* and as a result is likely to be the next word) and assigns the word *Derrida* a very low probability (because *Derrida* rarely co-occurs with these words). A trained language model can be used to generate (or hallucinate) text using the following process: (1) choose an initial word as input it to the model, (2) retrieve the probability table generated by the model and select the word with the highest probability as the next word in the generated text, (3) use generated word as the next input to the model, (4) continue generating new words and using these words as input until the text has been generated.

[28] This example of hallucinated Shakespeare is taken from *The Unreasonable Effectiveness of Recurrent Neural Networks*, Andrej Karpathy, 20015. Accessed from: http://karpathy.github.io/2015/05/21/rnn-effectiveness/

death, I should not sleep.

Second Senator: They are away this miseries, produced upon my soul, Breaking and strongly should be buried, when I perish The earth and thoughts of many states.

DUKE VINCENTIO: Well, your wit is in the care of side and that.

Second Lord: They would be ruled after this chamber, and my fair nues begun out of the fact, to be conveyed, Whose noble souls I'll have the heart of the wars."

A crucial aspect of these AI language models is that the words output by the model are purely based on word frequency and co-occurrence within the sample of language the model was trained on, and are entirely devoid of a semantic analysis. Although devoid of semantics, language models are a fundamental technology in many AI systems that process language, including machine translation, speech recognition, and speech synthesis. The power of these models is that by solely capturing the co-occurrence probabilities between words these model are able to produce fluent text that replicates the surface linguistic characteristics found in the language sample they are trained on. However, the generation of these surface linguistic characteristics is done with no regard for meaning whatsoever, the semantic base of language is completely ignored, the truth and falsity of the statement or their ability to have reference or ontological fixedness[29] is irrelevant. In the sense of Deleuze there are Stupid as they is no reference to truth or falsity. The algorithm hallucinates the text, hallucinates in the sense of the non-sense.

The initial recognition of the nature of the text as a form of simulacrum of shakespeare quickly followed by a search for meaning, the search for interlocution which is not present. The text is literally non-sense, the reader's projected meaning becomes the only fixedness within the semantics. [30] The generation of text or the hallucination of text using deep learning techniques from computer science leads to the generation of non-sense but more profoundly a form of betise which has semblance of meaning. It is, therefore, a form of Betise which has no reasoning, no thought or reflection within itself. Perhaps the toxic of effects of this non-reasoning can be

[29] Noel Fitzpatrick, 'The existence of non-existent object - Paul Ricoeur a possible world solution'. *Kairos Journal of Science and Technology*, 2017.

[30] As part of a project for the Venice Research Pavillion in 2017 with the Irish artist Jeannette Doyle the authors developed a specific algorithm to generate text. In order to so the model was trained on texts from Jean Francois Lyotard (*The Inhuman*) and text by lucy lippard (*Six years: the dematerialization of the art object from 1966 to 1972; a cross-reference book of information on some esthetic boundaries.)* The project involved establishing a basis for choices, the curation of, the works to be manifest within the research pavilion for the 'cf' project, which was an autonomous biennale project.

overcome by the recognition of the limitations of these forms of machine learning by enabling other forms of interpretation, a form of Digital Hermeneutics, where the human being is put back in the loop and where the very basis of the language models are called into question.

Conclusion

To conclude, the question of 'exactitude' needs to be further deconstructed, the term exactitude has connotations in relation to exact, rigorous, completeness, precision, correctness and timing. However, the equivalence between the thing measure and the measurement is the semantic connotation which dominates in Big Data, the exactitude of the representation of the map is only possible when the map is exactly the same size as the territory being mapped. The reductionist approach of techno-scientific development has the opposite intended effect, that of sheer futility, the reduction of noesis to the pure reason in the Kantians sense, has as consequence that the only form of reason available is one which denies any form of individuation as process of singularity. Exactitude, is here, understood as memesis, an exact copying, however, in the notion of exactitude is also the ability to be correct, exact, precise. The second presupposition is that everything can be measured, captured and calculated, exactitude in terms of the ability to capture everything, to be exhaustive in the treatment of the problem. This presupposition of Big Data has its origins in the development of scientific rationality but also in the development of forms of entropic discretisation that is enabled by contemporary digital technologies. What cannot be measured is the singularity of the individual creative gestures, this could be termed as negentropic or anti-entropic gesture: an ability to create new bifurcations. The correctness or the exactitude of data at the core of Big Data is highly problematic, the tyranny of Big data poses the structure of thinking based solely on Data Drive Decisions. These decisions can be twofold, one type of decision enables the discovery of 'actionable insight' which enables the human to make the decision based on the data available. Actionable insight is the concept of an algorithmic analysis of data providing a human decision maker with a perspective (or insight) into a problem in a timely manner that enables the decision maker to act on that insight. In its extreme form, the ideology of data driven decisions is based on the belief that patterns learned from data are a

direct way to make objective decision. It is this second form which is the most entropic, the decision is based on the data patterns themselves as if there were the most objective in themselves, this is done as learned pattern from the data set itself. The concern is the over generalisation of such techniques to all forms of problem solving resulting in the elimination human decision making process and the replacement of human decision making processes by Data Driven ones.

Artificial Intelligence as a form of Artificial Stupidity is the lack of abstraction, lack of the ability to think, overwhelmed by the sheer vastness of the data and the size of the task. However, this functional stupidity of artificial stupidity has a number of characteristics. Firstly, the assumption and widespread belief that everything can be measured and the extension that everything of importance is measurable. The ability for data to be generated is aligned to the understanding that data and measurability are equivalent, if we have the data then it can be measured and is hence of value. Secondly, that the data is an objective fact, here the is conflation between data and objectivity. A form of factual hermeneutics, in Heidegger's terms, an understanding that everything is form of interpretation is necessary here in order to comprehend how the data itself is a form of hermeneutics. Following on from this, third aspect, is the extension from the objectivity of data to the objectivity of machine learning in and of itself. Here the question of learning as a mode of thinking or reflection as the development of noesis needs to counteract learning as something which is reduced to pattern recognition, statistical pattern recognition which is not a form of learning. Lastly, the assumption that all problems can be solved through the development of bigger data sets and more powerful computational modelling. What lies outside the AL model as it being presented at the moment is that which cannot be measured, captured or calculated, the valueless value of Nietzsche. It is here that lies the possible solution to the to development of a more therapeutic understanding of AI as a mode of reharnessing the toxic negative aspects of the pharmakon of Big Data. The societal risk is enormous, where the Big Data structure of thinking leads to the erosion of individual privacy, where the quantified self becomes akin to the self and where societies become more technocratic and collective agency and political governance are called into question by the forms of data being harvested and used to govern society. This is fundamental stupidity or imbecility of Big Data.