

Marc Lenot

“La caméra photographique est une intelligence artificielle”

Occurrence of the Notion of ‘Artificial Intelligence’

in Vilém Flusser’s Writings

It would have been interesting and useful to identify and study **all** occurrences of the expression "artificial intelligence" in **all** of Flusser's texts in **all** his languages. Unfortunately, as of now, it has not been possible to access the global database that would allow a search in all his writings. I therefore had to limit myself to a search in two corpuses: a database containing all his texts in French¹ and a number of texts available online² in other languages. Barring an omission, I believe I have identified all the mentions in French (28 original mentions, the others being translations). They are listed below, together with the mentions I was able to encounter in other texts in other languages.

It is striking that Flusser did not use the words "artificial intelligence" often (and, in two out of three cases, in the plural), and, as can be seen in this anthology, gave it rather different meanings, which are obviously unrelated to its current sense 40 years later. On the basis of this partial sample, it is not possible to detect much change in his use of this expression between 1982 and 1991. A search on a larger database might yield slightly different results.

Flusser often associates artificial intelligence with photography (artificial memory) and the image and, more broadly, with automatically generated information. He also associates it with writing, allowing the ordering of ideas, with a future paperless literature, artificial intelligences capable of speaking, and thus offering the ability to think anti-magically. But he sometimes approaches it in a more global way, as characterizing craftsmen, producers of works (between robots and humans), and also as a way (admittedly more primitive but faster) to explain the world and substitute human knowledge. Flusser obviously did not have a global vision of AI ; however, in the 1980s, some of his visions were premonitory.

The first mention identified dates back to 1982, in a conference on the school of the future. The last mention is in his lecture in Prague two days before his death.

¹ Who was at the base of the construction of the Flusser France site.

² In particular via the https://monoskop.org/Vil%C3%A9m_Flusser

The three texts in which Flusser used this expression the most are: - his November 1985 lecture in French “La Photographie en tant qu’objet post-industriel” (Photography as a Post-Industrial Object) with 11 occurrences; - his book *In the Universe of Technical Images*, published in German in 1985, with 19 occurrences;- his 1987 book *Die Schrift* (in English *Does Writing have a Future?*) with 23 occurrences

Pour une école du futur, 1982

Conference in Marseilles in April 1982³

« La réponse est évidente : l'école du futur sera le lieu où les mémoires artificielles seront alimentées et maniées, et où les intelligences artificielles seront programmées. » [The answer is obvious: the school of the future will be the place where artificial memories will be fed and handled, and where artificial intelligences will be programmed.⁴]

« L'"économie" (l'éternel retour) serait reléguée aux machines, la "politique" (la production d'œuvres) aux intelligences artificielles, et l'"école" serait, encore une fois, le sommet et le but de l'État. » [The "economy" (the eternal return) would be relegated to machines, "politics" (the production of works) to artificial intelligences, and "school" would be, once again, the summit and goal of the state.]

Le vivant et l'artificiel, 1984

Conference in Avignon on 11 July 1984 (published later⁵)

« Comment distinguer entre une œuvre produite par des hommes et une œuvre produite par des robots ? Entre une intelligence humaine et une intelligence artificielle ? » [How can we distinguish between a work produced by humans and a work produced by robots? Between human intelligence and artificial intelligence?]

« L'homme futur, conscient de la structure de la pensée, pensera, décidera, jugera et agira comme une intelligence artificielle ou comme un robot, à la différence qu'il sera engagé à donner un sens à tout cela en dialogue avec tous les autres hommes et toutes les intelligences artificielles. » [The future man, aware of the structure of thought, will think, decide, judge and act like an

³ Reproduced on p. 31-40 (quotation p. 37) in *Arts, Sciences, Technologies. Défis à la Recherche-Création*, eds. Yves Citton & Marc Lenot, Les presses du réel / ArTec, 2025. See <https://flusserfrance.eur-artec.com/pour-une-ecole-du-futur/>

⁴ Unless otherwise indicated, translations are by the author.

⁵ See <https://flusserfrance.eur-artec.com/1984-85-le-vivant-et-lartificiel/>

artificial intelligence or a robot, with the difference that he will be committed to making sense of all this in dialogue with all other men and all artificial intelligences.]

Pour une philosophie du déclencheur, octobre 1984

Article published in the Belgian magazine Clichés in October 1984⁶. There is only one mention in the French version:

« L'homme sera substitué dans le travail par des robots, et dans la connaissance par les intelligences artificielles. » [Humans will be replaced in work by robots, and in knowledge by artificial intelligences.]

But three mentions in the Portuguese version ("Disparados" published in the Brazilian magazine Iris in October 1984)

« Aperto disparador, e quem "trabalha" é o aparelho (robô), e quem "conhece" é o aparelho (inteligência artificial). » [With the shutter open, the one who "works" is the device (robot), and the one who "knows" is the device (artificial intelligence).]

« Robôs e inteligências artificiais trabalham e conhecem, e o homem dá significação a tudo isto. » [Robots and artificial intelligences work and know, and humans make sense of it all.]

« Tornam redundante todo trabalho e todo conhecimento. Exemplos: robôs, inteligências artificiais. » [They make all work and knowledge useless. Examples: robots, artificial intelligences.]

And two mentions in the English text Releaser (unpublished typescript⁷)

« We need no longer bother to change the world (apparatus will do it for us), nor to explain the world (artificial intelligences will do it for us). »

« Finally, they [the releasers] render unnecessary all work and all investigation (examples: robots, artificial intelligences). »

Critique, critères, crise, 1984

Lecture at the University of Liège on 22 October 1984⁸

« Et les programmes, eux, sont des textes élaborés de plus en plus par des intelligences artificielles, lesquelles sont des simulations de la pensée critique et calculatrice. » [And the curricula are texts that are increasingly developed by artificial intelligences, which are simulations of critical and calcul thinking.]

⁶ See <https://flusserfrance.eur-artec.com/1984-pour-une-philosophie-du-declencheur-cliches/>

⁷ <https://www.flusserstudies.net/sites/www.flusserstudies.net/files/media/attachments/flusser-releaser.pdf>

⁸ Essay published in the journal *Multitudes* in 2019. See <https://flusserfrance.eur-artec.com/2019-critique-criteres-crise-multitudes/>

Se faire des idées, 1984

Essay written in 1984, published in the journal Alliage in 1993⁹.

« De la matière alternative par fusion (plasma), des atomes, molécules, êtres vivants alternatifs par computation d'éléments quasi-objectifs, et des sujets alternatifs (des intelligences artificielles, des robots, des décisions, des créations, des actes artificiels), par computation d'éléments quasi-subjectifs, des valeurs artificielles (futurisées par scénarios), par computation d'éléments quasi-valués. » [Alternative matter by fusion (plasma), atoms, molecules, alternative living beings by computation of quasi-objective elements, and alternative subjects (artificial intelligences, robots, decisions, creations, artificial acts), by computation of quasi-subjective elements, artificial values (futurized by scenarios), by computation of quasi-valued elements.]

Sintetizar as imagens III, 1985

Article published in the Brazilian journal Iris, July 1985¹⁰.

« Mas não precisamos transformar Nietzsche em profeta da atualidade, porque, se o fizermos, seremos obrigados a ver, no acoplamento entre inteligência humana e artificial, o tal "super-homem". » [But we do not need to make Nietzsche a prophet of the present, for, if we do, we would be obliged to see, in the coupling between human intelligence and the artificial, such a "superman".]

The Photograph as Post-Industrial Object: An Essay on the Ontological Standing of Photographs, 1985

Essay published in the American journal Leonardo, n° 19:4, p. 329-332, in the autumn of 1986. The expression "artificial intelligence" appears only twice:

« Somewhat later it was found that even the elaboration of information has mechanical aspects. The result was automatic artificial intelligences. »

« If in the future people concentrate upon producing such useless information and relegate the production of useful objects to automatic machines and artificial intelligences, then we shall have a useless culture. »

⁹ See <https://flusserfrance.eur-artec.com/1993-se-faire-des-idees-alliage/>

¹⁰ See <https://flusserfrance.eur-artec.com/1985-synthetiser-les-imagens/>

This essay was based upon a conference, La photographie en tant qu'objet post-industriel, given in Aix-en-Provence, 7-9 November 1985¹¹. There are 11 occurrences of "artificial intelligence" in this conference.

« C'est l'automation du geste d'informer (l'intelligence artificielle) qui annonce le passage vers la post-industrie ; Il nous faut analyser ce type d'automation. Et il n'est pas aussi récent qu'on le pense. La caméra photographique est une intelligence artificielle. » [It is the automation of the act of informing (artificial intelligence) that announces the transition to post-industry; We need to analyze this type of automation. And it is not as recent as we think. The photographic camera is an artificial intelligence.]

« La photo, ce premier objet post-industriel informé par une intelligence artificielle, permet de saisir ce danger. » [The photo, this first post-industrial object informed by artificial intelligence, makes it possible to grasp this danger.]

« Et que le produit d'un tel engagement est la culture, y compris l'intelligence artificielle. Or, l'automation incontrôlée est la déroute de l'homme en tant que sujet. Elle élimine le sujet humain. C'est pourquoi la photo amateur, cet exemple d'une intelligence artificielle incontrôlée, doit être soumise à une analyse attentive. » [And that the product of such a commitment is culture, including artificial intelligence. However, uncontrolled automation is the defeat of man as a subject. It eliminates the human subject. This is why amateur photography, this example of uncontrolled artificial intelligence, must be subjected to careful analysis.]

« La culture pleinement automatisée où l'intelligence artificielle a échappé au contrôle fonctionne comme la nature. » [The fully automated culture where artificial intelligence has escaped control works like nature.]

« Des photos qui sont des erreurs du point de vue de la caméra, de l'intelligence artificielle, mais qui sont des situations voulues du point de vue du photographe. » [Photos that are mistakes from the point of view of the camera, from the point of view of artificial intelligence, but which are deliberate situations from the photographer's point of view.]

« Les photos sont des objets post-industriels. Elles sont post-industrielles, parce que l'information qu'elles portent a été élaborée

¹¹ See <https://flusserfrance.eur-artec.com/1985-la-photographie-en-tant-quobjet-post-industriel/>

automatiquement par une intelligence artificielle.» [Photos are post-industrial objects. They are post-industrial, because the information they carry has been automatically processed by artificial intelligence.

« On continuera à produire des bouteilles avec des machines automatiques programmées par des intelligences artificielles. » [We will continue to produce bottles with automatic machines programmed by artificial intelligences.]

« Quant aux informations "utiles" (économiques), elles seront élaborées par des intelligences artificielles et imprimées sur des objets par des machines automatiques. » [As for the "useful" (economic) information, it will be processed by artificial intelligences and printed on objects by automatic machines.]

Ins Universum der technischen Bilder, 1985

Book published in German in 1985. 19 occurrences.

« Was hier zur Debatte steht, ist die Unterscheidung zwischen menschlichen und künstlichen Intelligenzen, zwischen absichtsvoll und automatisch erzeugten Informationen. Schreibmaschinenschreibende Schimpansen sind zweifellos außerordentlich primitive künstliche Intelligenzen. » [What is being debated here is the distinction between human intelligences and artificial intelligences, between intentionally generated information and automatically generated information. Chimpanzees who are typists are undoubtedly extraordinarily primitive artificial intelligences.]

« Die telematische Methode, durch "äußere" Dialoge Informationen zu synthetisieren, durch Dialoge, an welchen theoretisch alle Menschen und alle "künstlichen Intelligenzen" mittels Kabel oder Satellit beteiligt sind, ist im Grunde nichts anderes als eine technische Anwendung der theoretischen Erkenntnis, daß alle Informationen aus Komputationen von Informationsbits entstehen. » [The telematic method that synthesizes information through "external" dialogues – dialogues in which all men and all "artificial intelligences" can theoretically participate thanks to cable and satellite – is basically only the technical application of theoretical knowledge: information is always the result of the computation of bits of information.]

« Leider hat diese Strategie eine unangenehme Seite. Sie gilt nämlich nicht nur für Menschen, sondern auch für künstliche Intelligenzen. Die Telematik kann nicht nur alle Menschen, sondern auch alle künstlichen Intelligenzen immer kompetenter machen, und diese künstlichen Intelligenzen werden ebenfalls immer "genialer" werden. Sehr bald wird daher die Frage nach dem Verhältnis zwischen menschlichen und künstlichen Intelligenzen im Mittelpunkt des Dialogs stehen. Man wird die unangenehme Wahl haben, entweder die künstlichen Intelligenzen zu

humanisieren oder die menschlichen zu apparatisieren. Aber möglicherweise ist dies nur eine vor-telematische Sicht auf diese Frage. Im telematischen Dialog werden menschliche mit künstlichen Intelligenzen derart gekoppelt werden, daß es sinnlos werden wird, in den so erzeugten Informationen zwischen menschlichen und künstlichen Faktoren unterscheiden zu wollen. Künstliche und menschliche Intelligenzen werden zu einer Einheit verschmelzen, so wie dies heute schon embryonal beim Fotografen und Fotoapparat der Fall ist. Die Menschen werden um so freier, je kompetenter die Computer sind, mit denen sie sich koppeln. Je raffinierter die künstliche Intelligenz, desto größer die Einbildungskraft jener, die gekoppelt mit ihr Bilder erzeugen. » [Unfortunately, this strategy has another less attractive side. It applies to artificial intelligences as well as to human beings. Telematics will certainly increase the skills of human beings, but it will also increase those of artificial intelligences, and these artificial intelligences will in turn be ever more "genial". The question of the relationship between human and artificial intelligences will therefore not be long in coming to the center of the discussion. It will not be easy to choose, and it will not be easy, between humanizing artificial intelligences, or artificializing human intelligences. But this may only be a pre-telematic vision of the issue. In the telematic dialogue, human and artificial intelligences will be connected to the point that distinguishing between human and artificial elements used in the processing of information will no longer make any sense. Artificial and human intelligence will merge into a single unit, just as the photographer and the camera are already merging in an embryonic way. Humans will be all the freer if the computers to which they are connected are competent. The more sophisticated artificial intelligence is, the greater the imagination of those who are connected to it and create images.]

« Zwar bestehen Informationen aus so zahlreichen Ebenen, daß es menschenunmöglich ist, jede davon herauszuheben und zu messen, doch können künstliche Intelligenzen schneller kalkulieren und komputieren. » [Information is actually made up of so many levels that humans cannot distinguish each of them and measure them, whereas artificial intelligences can calculate and compute much faster.]

« Denn nur sie {die menschlichen Intelligenzen}, nicht aber die künstlichen Intelligenzen sind fähig, zu all dem "nein" zu sagen - nicht etwa, weil der Mensch all dies angestellt hat, sondern weil er all dies "transzendiert", im Sinne von: fähig ist, daraus zu abstrahieren. » [For they {human intelligences}, and not artificial intelligences, are capable of saying "no" – not because man is the creator of these systems, but because he is able to abstract himself from them and "transcend" them.]

« Die hinter meinem Terminal befindliche künstliche Intelligenz hat Wahrscheinlichkeitsrechnung im Programm; sie kann Auschwitz ins 30. Jahrhundert verlegen und Freud in alle ihm impliziten Modelle futurisieren. » [The artificial intelligence behind my terminal is equipped with a

probability calculation program; it can transpose Auschwitz to the thirtieth century, as well as project all of Freud's implicit models into the future.]

« Die künstliche Intelligenz hinter meinem Terminal ist darauf programmiert, Begriffe anschaulich zu machen, zum Beispiel fraktale Gleichungen oder den Begriff des dialektischen Materialismus. » [The artificial intelligence behind my terminal is programmed to visually translate concepts, for example fractal equations or the concept of dialectical materialism.]

« Als eine Gesellschaft nämlich, in der die Sklaven (Wirtschaft) Roboter sind, die Künstler (Politik) automatische Intelligenzen, und in der alle Menschen für die Theorie leben (alle Philosophen sind, Könige), welche von Robotern und künstlichen Intelligenzen ernährt und mit zu kritisierenden Modellen beliefert werden? » [Like a society, namely, in which slaves (economy) are robots, artists (politics) automatic intelligences, and in which all men live for theory (all are philosophers, kings), who are fed by robots and artificial intelligences and supplied with models to be criticized?]

« Zwischen den Menschen werden künstliche Intelligenzen eingeschaltet sein, die durch Kabel und ähnliche Nervenstränge hin durch mit den Menschen dialogisieren. Es wird daher funktionell sinnlos sein, zwischen "natürlichen" und "künstlichen" Intelligenzen (zwischen "Primatengehirnen" und "Sekundantengehirnen") unterscheiden zu wollen. » [Artificial intelligences will also be connected to humans and will communicate with them through cables and other nerve branches. It will therefore be useless, from a functional point of view, to try to distinguish between "natural" and "artificial" intelligences (between "primary" and "secondary" brains).]

Programme (Tes père et mère honoreras), 1986

Article published in the magazine Théâtre Public, January/February 1986¹².

« Pour ce qui les concerne, ils ne savent pas lire les programmes des ordinateurs et des intelligences artificielles. » [As far as they are concerned, they do not know how to read computer and artificial intelligences programs.]

« les robots et les intelligences artificielles ne peuvent être programmés que pour un type spécifique de comportement. » [robots and artificial intelligences can only be programmed for a specific type of behavior.]

« La couche « économique » des esclaves (les robots). La couche « politique » des artisans (des intelligences artificielles). La couche philosophique des rois (tous les hommes). » [The "economic" layer of slaves (robots). The "political" layer of craftsmen (artificial intelligences). The philosophical layer of kings (all men).]

¹² See <https://flusserfrance.eur-artec.com/2019-programme-tes-pere-et-mere-honoreras-multitudes/>

Déclin de la littérature, 1986

Conference in Strasbourg on 29 September 1986¹³.

« Nous disposons d'instruments plus efficaces que ne l'est l'alphabet pour penser anti-magiquement : par exemple les intelligences artificielles. » [We have more effective instruments than the alphabet to think anti-magically: for example, artificial intelligences.]

Pour une philosophie de la photographie, 1987

Conference in Naples on 17 December 1987¹⁴.

« Ces images que je vous propose sont des photographies d'un monde analysé et calculé, et elles sont des modèles pour la manipulation du monde objectif : pour la computation de matière "artificielle", d'organismes "artificiels", d'intelligences "artificielles", d'identités "artificielles", de cultures « artificielles ». » [These images that I propose to you are photographs of an analyzed and calculated world, and they are models for the manipulation of the objective world: for the computation of "artificial" matter, of "artificial" organisms, of "artificial" intelligences, of "artificial" identities, of "artificial" cultures.]

« nous imaginons plutôt un réseau de relations intersubjectives où les nœuds sont occupés par des hommes, par des intelligences artificielles, ou sont vides. » [rather, we imagine a network of intersubjective relationships where the nodes are occupied by humans, by artificial intelligences, or are empty.]

Die Schrift. Hat Schreiben Zukunft?, 1987

Book published in German in 1987. Analysis based upon the English translation¹⁵. 23 occurrences.

« I mean grammar machines, artificial intelligences that take care of this order on their own. »

« And artificial intelligences will surely become more intelligent in the future. »

« the entire history of the West can be seen as a series of variations on this theme: from the copying of manuscripts to print to automated memories and artificial intelligences. »

¹³ See <https://flusserfrance.eur-artec.com/declin-de-la-litterature/>

¹⁴ See <https://flusserfrance.eur-artec.com/1987-pour-une-philosophie-de-la-photographie/>

¹⁵ *Does Writing have a future?*, trans. Nancy Ann Roth, University of Minnesota Press, 2011.

« The world of numbers has become more primitive because it is artificial, rather than human intelligences that are doing the counting. These intelligences are stupider but far faster. »

« Artificial intelligences add with a speed that approaches that of light. »

« this utopia where numbers migrate from Platonic heaven into artificial intelligences to serve our powers of visualization »

« Artificial intelligences are too stupid (perhaps only for the time being) to be able to decode letters. The new computer codes are in fact extraordinarily simple (as simple as artificial intelligences), but it is not simple to use them. »

« A programmed literature would take all texts back to instructions so as to then be computed by artificial intelligences. »

« Even artificial intelligences will learn to speak. »

« On one hand, there will be artificial intelligences that speak, presenting a continuous program of new poems in keeping with their programs. »

« If reading symptoms is the only right way to read at all, and all interpretive, evaluative reading is seen to be primitive, gallinaceous, reading in general can be turned over to artificial intelligences. »

« To this new reader (and to artificial intelligences), there is nothing out there or in here that means anything at all: there is nothing behind it. »

« The ordering of ideas is a mechanical process, attributable in any case to the order of writing, and can be left to artificial intelligences. »

« A book is, from one point of view, an intermediate stage on the way from the forest into the land of artificial intelligences. »

« But the book is also a piece of artificial intelligence, for it is an artificial support for memory consisting of bits (letters) of computed information. The book may be seen as what one must go through to get to artificial intelligences (even if this passage took a few millennia). »

« These three movements, to which a book's spine seduces us, can't be done with trees or artificial intelligences. »

« word processors, which are evidently geared toward replacement by higher-function artificial intelligences that no longer use any paper »

« A script is a hybrid: half of it is still a text for a drama to be staged, and so in the lineage of Sophocles, the other half is already the programming of apparatuses and as such an ancestor of programs calculated automatically by artificial intelligences. »

« One has only to recite the words atomic power station, thermonuclear armaments, artificial intelligence, automation, and electronic information revolution. »

« One advantage of artificial intelligences is that they have no difficulty forgetting. »

« To produce the information, the reader has various methods of access available, which are suggested to him by the artificial intelligence (methods currently called “menus”), but he can also apply his own criteria. »

Krise der Linearität, 1988

Lecture on 20 March 1988 at the Kunstmuseum Bern¹⁶.

« Diese sechs "Fotos" sind Abbildungen von Kalkulationen und Modelle für Manipulation. Sie gestalten das Herstellen künstlicher Gegenstände, künstlicher Materie, künstlicher Lebewesen, künstlicher Intelligenzen, künstlicher Identitäten, künstlicher Kulturen. Sie sind Beispiele für die neue Einbildungskraft, über die wir gegenwärtig verfügen. » [These six "photographs" are images of calculations and models for manipulation. They permit the manufacture of artificial objects, artificial matter, artificial living beings, artificial intelligences, artificial identities, artificial cultures. They are examples of a new power of imagination that we presently have available to us.]

« Soziale Wirklichkeit ist dann die Relation, aus welcher Mensch und Gesellschaft abstrakte Extrapolationen sind, und die Knoten des sozialen Netzes können ebenso gut von künstlichen Intelligenzen wie von Menschen besetzt sein, oder aber leer stehen. » [Social reality is the relation from which human and society are abstract extrapolations, and the knots of the social network might as well be manned by artificial intelligences as by humans, or even stay empty.]

« Diese Bilder werden auf praktisch ewig in einem Gedächtnis gelagert, können aber durch Kabel oder andere Medien weitergesandt werden, um von anderen (Menschen oder künstlichen Intelligenzen) umgestaltet und derart verändert wieder zurückgesandt zu werden. » [These images will for all practical considerations stay loaded into a memory forever, but can also be transported through cables or other media, to be refashioned by others (humans or artificial intelligences) and thus altered, they may be sent back.]

Le corps et la photo, 1988

Conference of 22 July 1988 in Toulon¹⁷.

« Des câbles en matière nerveuse relieront ces cerveaux et des intelligences artificielles, elles aussi en nerfs. » [Cables made of nerve matter will connect these brains and artificial intelligences, which are also in nerves.]

¹⁶ Published by G.J. Lischka, Bern, Benteli, 1992 in German; English translation by Adelheid Mers, published in *Boot Print* 1:1 (2006), pp 19-21 (Crisis of Linearity)

¹⁷ See <https://flusserfrance.eur-artec.com/1988-le-corps-et-la-photo/>

Die Stadt als Wellental in der Bilderflut, 1988

Text written in 1988, published in 1990 in Nachgeschichten¹⁸.

« Sie verfügen nicht nur über die nötige Kompetenz, sondern auch über theoretische "informatische" Kenntnis und über Apparate, etwa reversible Minitels und künstliche Intelligenzen. » [They demand not only the necessary competence but also theoretic "informatic" knowledge and devices, as with the reversible Minitels and artificial intelligence.]

Für eine Philosophie der Fotografie, 1989

These words are not in the original 1983 edition, but only in the short addition made to the German text in 1989.

« Alle Apparate (und nicht erst Computer) sind Rechenmaschinen und in diesem Sinne "künstliche Intelligenzen“, auch schon die Kamera, obwohl sich ihre Erfinder nicht Rechenschaft davon ablegen konnten.» [All devices (and not only computers) are calculating machines and in this sense "artificial intelligences", including the camera, even if its inventors could not have realized it.]

Problems with Moles' concept of freedom, 1989

Contribution to the Mélanges offerts à Abraham Moles, unpublished.

"Now it is obvious that Moles' intellectuals are committed to this second level of creation, since, in theory, artificial intelligences may produce the first level."

Paradigmenwechsel, 1991

Text of Vilém Flusser's last lecture at the Goethe-Institut in Prague on November 25, 1991¹⁹.

« Aus dieser Sicht besteht die Arbeit aus zwei Phasen: aus der weichen, in welcher menschliche und künstliche Intelligenzen Formen, oft aus numerischen Kalkulationen, entwerfen; und aus der harten, in welcher diese Formen mechanisch, oft automatisch auf Rohstoff aufgedrückt werden. » [From this point of view, work consists of two phases: a soft phase in which human and artificial

¹⁸ English translation by Phil Gochenour, *Critical Inquiry* 31:2 (Winter 2005), pp 320-328 (The City as Wave-Trough in the Image-Flood)

¹⁹ Published in German in Andreas Steffens, ed., *Nach der Postmoderne: Ein Zeitmischungs-Buch mit philosophischen Texten zur Gegenwart* (Düsseldorf and Bensheim: Bollmann, 1992); English translation by Elizabeth Wilson and Andreas Ströhl, published in *Yale Journal of Criticism* 6(2).

intelligence design forms, often from numeric calculations, and a hard one in which these forms are mechanically, often automatically, stamped upon raw material.]

Des chiffres : vers une nouvelle imagination

Typescript undated²⁰

« La raison d'une telle primitivisation de l'univers des chiffres s'explique : ce ne sont plus des intelligences humaines qui font les comptes, mais ce sont des intelligences artificielles. Les intelligences artificielles sont plus primitives que la nôtre, mais elles sont beaucoup plus rapides. » [The reason for such a primitivization of the universe of numbers can be explained: it is no longer human intelligences that do the counting, but artificial intelligences. Artificial intelligences are more primitive than ours, but they are much faster.]

²⁰ See <https://flusserfrance.eur-artec.com/des-chiffres-vers-une-nouvelle-imagination/>