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Number and Things:
Foucauldian Contributions to the Work of Ian Hacking

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Abstract:
Ian Hacking has repeatedly pointed out the influence that the work of Michel Foucault had early in his work, an influence that came mainly through his reading of Foucault's *Les Mots et les Choses* (1966). In this sense, it is reasonable to trace the Foucauldian lineage in many of the notions Hacking proposes for "*how we found out how to find out*" (Hacking 2010, April 21, 3), and, more particularly, in the latter's assessment of how to work in the human sciences is carried forth. However, I argue that Foucault exerted an even more fundamental influence that underlies the totality of Hacking's work: namely, having stimulated Hacking's interest in analyzing the historical conditions of possibility of the emergence of scientific objects and concepts. To show this, in this article, I first focus on two works by Hacking—*The Emergence of Probability* (1975) and *Why Does Language Matter to Philosophy*? (1975a)—in which he adopts an archeological perspective which, I argue, clearly adumbrates Foucault's influence. I then turn to *The Taming of Chance* (1990), *Rewriting the Soul* (1995) and *Mad Travelers* (1998), where I contend that, added to the archeological contributions, it is possible to identify traces of Foucault's genealogical period.

Keywords: Influence of Michel Foucault in the thinking of Ian Hacking; archeology; genealogy; human sciences; styles of scientific reasoning; historical conditions of possibility for the emergence of scientific concepts and objects.

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Early Texts: Preeminence of the Archeological Influence

In the preface to *Les Mots et les Choses* (1966) (*The Order of Things*, 2005), Foucault presents the text as an archeology rather than as a 'historical' text in the traditional understanding of the concept. That is, Foucault understands his approach as a history of the historical conditions of possibility of knowledge which depend on the experience of an order that is

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> […] anterior to words, perceptions, and gestures, which are then taken to be more or less exact, more or less happy […] more solid, more archaic, less dubious, always more 'true' than the theories that attempt to give those expressions explicit form, exhaustive application, or philosophical foundation. (Foucault 2005, xxiii; 1966, 12)

According to Foucault, every mode of thought involves implicit rules that materially restrict the range of thought, and that do not define the existence of reality nor the canonical use of a vocabulary. Rather, these rules define the 'order of things'. Discovering these rules allows one to see that an apparently arbitrary constraint actually has meaning within the scheme defined by such rules. The analysis of what cannot be controlled by individuals that live and think within a determinate epoch is key for understanding the constraints within which these individuals think. Archeology does not deal with textual analyses or with specific matters regarding, e.g., the meaning of particular words or the logical and rhetorical connection between determinate utterances. Instead, archeology positions itself behind the manifest level of a specific linguistic use.

The Order of Things is not the only work by Foucault that illustrates this methodology. In the same way in which this work asks about the acts that make possible the emergence of the object named "abstract humanity," *Histoire de la Folie* (1961) (*History of Madness*, 2006) and *Naissance de la Clinique* (1963) (*The Birth of the Clinic*, 2003) ask about the what makes possible the emergence the objects named "madness" and "illness", respectively. Beyond the different perspectives which, in the first case, ask about the constitution of forms of enunciation—the human sciences—in the second about an object—madness—and in the third about the constitution of a subject-gaze—the doctor and the clinic—the three texts find common ground in their intentions, and constitute a single project (Morey 1983, 33).

Similarly, in *The Emergence of Probability* (1975) Hacking wonders about the historical conditions of possibility that gave rise to the science of probability:

> We should not ask, why did people fail to study these objects? We should ask instead, how did these objects of thought come in to being?
> All the conjectural explanations I have described try to locate something lacking in pre-Pascalian times. No one denies that arithmetic and nascent capitalism were lacking, nor that one or the other may be essential to the development of probability theory, once probability is a possible object of thought. We should, however, try to find out how probability became possible at all. (Hacking 1975, 9)

The text's central claim affirms that many of the philosophical conceptions of probability were formed following the nature of conceptions from the Renaissance, which immediately preceded a mutation that took place in the field around 1660. This reference has to do, on the one hand, with how the space of possibility is structured so that the concept of 'probability' can emerge, here understood as our current concept of a 'dual probability'. This is something that Hacking addresses in the first chapters of the book. On the other hand, the reference has to do with affirmations such as the ones made by Foucault in the opening pages of *The Order of Things*, where he contends that "[…] it is rather an inquiry whose aim is to rediscover on what basis knowledge and theory became possible; within what space of order knowledge was constituted [...]" (Foucault 2005, xxiii; 1966, 12).

According to Castro (1995, 91), the intention behind Foucault's texts is 1) to show that the different fields of knowledge studied are isomorphic between them and they depend on the same historical conditions of possibility, and 2) to demonstrate that neither philology, political economy, nor biology existed before the mutation that took place in Western thought toward the end of the 18th century. Relatedly, in *The Emergence of Probability*

Hacking aims to 1) show that there is a space for possible theories of probability, and 2) to demonstrate that the field of probability is a product of the transformation of a certain conceptual structures that differ substantially from the field itself.

Even if he never explicitly states it as such, when Hacking explains the methodology he uses in the aforementioned book to achieve these objectives, it is clear that he is following Foucault's archeological method. Indeed, Hacking practically paraphrases the characteristics of such a method when he asks the reader to imagine that there is a space of possible theories of probability, which has been stable since 1660 and until today. This space is the result of a radical transformation of preceding conceptions. He also proposes that an understanding of our space and its preconditions might free us from a cycle of theories of probability which has kept us tied for a long time. But Hacking's analysis is neither interested in authors nor possible predictions. It does not focus on the irregularities that can be found in the prehistory of a concept, but rather concentrates on its commonalities (1975, 16-17).

In the paragraph above, one can identify several of the characteristics of the Foucauldian archeological method. Not only do Hacking and Foucault share the fundamental aim of studying the historical conditions that make possible the emergence of a determinate knowledge, of a concept, or of an object. They also share the idea that, in the case of probability, this space is derived from a radical transformation, following the notion of a 'mutation' or a 'discontinuity' in thinking—a fundamental category of the history and method of Foucault's archeology. 'Discontinuity' is part of discursive functioning. It designates the set of breaks, dispersions, and interruptions that take place inside a determinate episteme. Nevertheless, these breaks are not total, because practices and theories are never independent of what took place before them. The emphasis on discontinuity is a strategy that serves the aims of archeology, which deals with changes that take place when moving from one discursive formation to another—changes that take place, however, on a *background* of significant continuities. Archeology does not differentiate itself from the traditional history of ideas because it ignores change or continuity, but because it takes discontinuities as seriously as continuities, instead of trying to reduce the former to a series of gradual changes that contribute to a final illumination. In *The Emergence of Probability*, Hacking, for his part, refers to a radical mutation that took place rapidly parting from preceding conceptions from the Renaissance, and which resulted in the emergence of probability: "The preconditions for probability will consist in something that is not probability but which was, through something like a mutation, transformed into probability" (Hacking 1975, 9).

The undermining of this type of continuity has been a necessary part of this new way of making history of ideas, in which the privileged role of the human subject is questioned—a presupposition that was part of the traditional approach. Contrary to the latter, the former turns away from the subject and toward the conditions that define the discursive space in which speaking subjects exist. This encompasses a fundamental difference between the archeology and the traditional history of ideas, and which translates into different attitudes toward tradition and innovation. Even while Foucault does not rule out speaking of how philosophers, scientists, or other thinkers develop and transmit key concepts and theories to their successors, he considers that the viewpoints that center on the subject can lend themselves to distortions.

Foucault is not looking for the expressions of individuality or of society—the creative entity behind the works—but rather defines the discursive practices that pass through them. He is not interested in what humans have thought, wanted, attempted or wished to have spoken, but on what is written, that is, on the exteriority of discourse (Foucault 1969, 182-183). The objective of reading is not to discover the authors underlying intentions, but the deep structures of language itself, to go beyond individual consciousness and reveal the

unconscious episteme that defines and makes knowledge possible. That is why archeology does not construct the meaning of statements in terms of the intentions of the speaker, but contends that such meaning is to be found in the role that the statement plays within the discursive system. He emphasizes that the state upon which history is represented is established independently of our thoughts and actions. His project offers an internal analysis of thinking without granting the thinker a privileged position, as well as an analysis of the written word that does not center on the role of the writer.

Moving in the same direction as Foucault, Hacking contends: "Our study is not of great men but rather of autonomous concept" (Hacking 1975, 56). Probability has a life of its own, it is autonomous, it exists in discourse, and not in the mind of the speakers. Hacking is not interested in the authors but in the statements that they left behind. What matters, that is, is not who wrote what, but what was said. Hacking worries about how and when can a same idea flourish in different places, in the commonalities, in how a family of ideas emerges permanently within discourse. This is why he tends to overlook anticipations, and people that can be presented as precursors of a modern way of thinking.

According to Foucault, archeology is not interested in foreshadowing ideas, but in the regularity of statements, in looking for the common structures within the texts and practices of an epoch that lie deeper than the level of signification. Hacking speaks to this when he affirms: "Whether motivated by God, or by gaming, or by commerce, or by the law, the same kind of idea emerged simultaneously in many minds" (Hacking 1975, 103).

It is within this framework that, in *The Order of Things,* Foucault analyzes the periods that he names 'Renaissance', 'Classical Epoch', and 'Modernity', and tries to show how in each of these periods the disciplines that act as counterparts to the actual human sciences can be understood in terms of a unique episteme that is common to all of them. "In any given culture and at any given moment, there is always only one episteme that defines the conditions of possibility of all knowledge, whether expressed in a theory or silently invested in a practice" (Foucault 2005, 183; 1966, 179). In this way, it is possible to define the classical episteme in relation to the articulated system of a genesis, a taxonomy, and a mathesis, in the same way, that "[…] then one sees that knowledge of nature, and reflection or practices concerning money, were controlled during the Renaissance by one and the same configuration of the episteme." (Foucault 2005, 187; 1966, 183).

'Life', 'work', 'language', are crucial concepts of knowledge that have no contact between them but that archeology aims to relate and articulate, asking for the similitudes between these three domains and whether these could have been affected by the same type of transformation. The heterogeneity of discourses vanishes in the face of a more basic homogeneity that reveals the compatibilities and coherences of one epoch, as well as the mutations and incompatibilities between different ones. According to the hypothesis that orients *The Order of Things*, "[…] in every culture, between the use of what one might call the ordering codes and reflections upon order itself, there is the pure experience of order and of its modes of being" (Foucault 2005, xxiii; 1966, 12-13). In line with this, Foucault attempts to find that which has made knowledges and theories possible—the ordering of space upon which knowledge has been constituted—and to discover upon which historical a priori and which elements of positivity have ideas, sciences, and rationalities been constituted. He tries to adumbrate the episteme in which knowledges burry their positivity and manifest a history of conditions of possibility.

The Order of Things can be read as an archeology of the modes of being of language. It is from this historical analysis that Foucault will define what he understands as 'discourse'

and 'discursive practices'.[2] In this work, Foucault distinguishes four moments: Language as commentary (The Renaissance), language as discourse (Classical Period, 17th and 18th centuries), the fragmentation of language (Modernity, 19th and 20th centuries), and the reappearance of language (the death of mankind). The episteme of the Renaissance presents itself as ordering the world in terms of relations of similitude, and in it signs appear as constituted through their similarity with what they signify. Language itself becomes a part of the world, a subsystem of similitudes: it participates in the great distribution of similitudes and signatures. Knowledge, for its part, is understood as nothing more than a way of relating one of the forms of language with another, as a restitution of the great and uniform valley of words and things. It is giving birth, on top of all the marks, to the second discourse of commentary: interpretation.

In the passage from the episteme of the Renaissance to the Classical episteme the living being disappears from language. The deep belonging of language and world is undone, and writing comes to the fore. Words and things, that is, are torn apart. In this case, discourse has as its task to say what is the case, but it will not be more than what it says. Just as the episteme of the Renaissance was dominated by similitude, thus, the episteme of the Classical period is dominated by representation. From this period onwards, the sign is the representativity of representation to the extent that this is representable. The solidity of language as a thing inscribed in the world dissolves into the functioning of representation. The art of language is a way of making a sign, of signifying at once a thing and making signs available around it. An art of naming and, at the same time, of capturing the name, of locking it and safekeeping it, of giving to it other names which are its differed presence. Foucault studies meticulously the particular domains of the knowledge of this period: grammar in general, natural history, and the analysis of wealth. In the case of grammar, the goal is to establish a taxonomy of each language, a system of identities and differences that defines its particular mode of representation and provides the base for the possibility of discourse in each one of them. Any grammar can be comprehended in terms of four key aspects of the representative function of language: attribution, articulation, designation, and derivation. These four functions can be organized as the apices of a quadrangle in whose center, where the two diagonals intersect, one finds the element around which the theory of language of the Classical period is organized: the name.

With the decline of representation and the resulting fragmentation of knowledge, between the end of the 18th century and the beginning of the 19th, discourse stops playing the organizing role that it had for Classical knowledge, and language loses the central position that it had occupied in the period's episteme. Things retract on themselves outside of an ordered representation. Languages with their own history appear, as does life with its organization and autonomy, and labor with its own capacity for production. In the space left by discourse, man makes its appearance. Language becomes just another object of language among others, even while this does not mean that it will not have a special place for modern thought. This is because language continues to be the medium through which any knowledge must be expressed.

This Foucauldian periodization partially coincides with the one performed by Hacking in another of his early 'archeological' works, *Why Does Language Matter to Philosophy?*

2. To the extent that his work sees itself redirected toward the study of dispositifs and practices, rather than toward epistemes, it situates discursive practices in the framework of practices in general—something that includes non-discursive practices. The central role is no longer occupied by the being of language but by its use and its practice in the context of other practices that are non-linguistic. That is to say, the theme of the being of language is substituted in posterior works by 'what is done' with language, in the perlocutionary sense of language as a medium that leads to concerted action.

(1975a), in which we can clearly see a historical dimension in the way Hacking analyzes language, an interest—usually foreign to analytic philosophers such as Hacking—for contextuality, which are fruit of his lectures of Foucault. Even while Hacking is interested in the present situation of language, he considers necessary to provide a historical perspective that allows him to understand the actuality. In this way, he presents his analysis of the sequential changes in Western philosophical practices concerning the relationship between cognitive representations and the world in three stages: 1) the heyday of ideas (17th century), 2) the heyday of meaning (early 20th century), and 3) the heyday of sentences (starting halfway through the 20th century).

The heyday of ideas makes reference to the period in which mental language takes precedence over public language. The ideas of reality are the result of the actions of the ego's experience and, at the same time, the cause of experience. There is no knowledge of externality that is not mediated by the ideas that are inside oneself. It is the cartesian ego that fixes the framework. The ego is capable of contemplating what is inside man and of taking into consideration what is outside. According to Hacking, during this heyday, there is no theory of meaning as we understand it today. There is no preoccupation with meaning, to use Fregean terms. The representatives of this heyday worked in something structurally similar to the current problems, even while the place now given to what is public was occupied by something private. Particularly in the analysis of this period, there is a clear influence of the way Foucault deals with grammar in general and with the Port Royal philosophers in *The Order of Things*. The problem of grammar in general—for Hacking as much as for Foucault—has to do with the "articulation" and it is in this sense that the former contends: "The problem of general grammar is to explain how articulated language effects the representation of a non-articulated part of the world" (Hacking 1975a, 87). That is to say that the central problem of the metaphysics of the epoch has to do with the relation between ideas, words, and things; with the way in which representation really functions by means of words when these are presented in an articulate sequence, while things in the world are not.

During the heyday of meaning, the second period pointed out by Hacking, there is a need for meaningful sentences to be supported by existing meanings, which are the effective bearers of belief and knowledge. There is, thus, something below the level of what is said: what one *wants* to say. Meanings make public discourse possible. Following Frege, Hacking affirms that a theory of meaning is a theory of the possibility of public discourse.

The last period, the heyday of sentences, starts with the failure of the verificationist process and the frequent doubts about the precision of meaning. In spite of their differences, in this period, Hacking associates Quine with Feyerabend, considering that both object to the same elements of the positivist methodology and carry forth a similar positivistic movement by taking distance from meanings and converging in sentences. Sentences have replaced ideas. Knowledge has become sentential.[3]

This text by Hacking reminds us of other works by Foucault, such as *The Birth of the Clinic*. In the analysis of the heyday of ideas, for example, Hacking practically reproduces the ideas of the French philosopher when referring to the idea of perception as described by Descartes and Malebranche—for whom seeing with the eyes is perceiving with the mind—and to the understanding same idea during the end of the 18th century—when objects become opaque and resist the physical light, instead of giving way to the mental light (Hacking 1975a, 32-33) (Foucault 2003, xiii; 1963, ix-x).

Even while this work by Hacking is conceived in terms of philosophical analysis, it is not an analysis of concepts taken abstractly and atemporally, but of *situated* concepts, that is,

3. Hacking returns to this topic in his book *Representing and Intervening* (1983, 181).

concepts considered within the statements in which they appear and, in a broader sense, considered in the context of the institutions, authorities, and languages from which they are expressed (Hacking 1990a, 68). The reference to *situated* concepts is constant in Hacking's work. Concepts are situated words (1984, 35). Words that can express different concepts through changes, revolutions, breaks, mutations or epistemological cuts such as the ones that take place within bodies of knowledge. Hence the importance of knowledge and of understanding their prehistory and the way they are used, in order to avoid conceptual misunderstandings. To investigate the principles that make them useful or useless or, eventually, problematic. Because of this, it is important to comprehend, for example, the prehistory of probability:

> I guess [...] that conceptual incoherence which creates philosophical perplexity is a historical incoherence between prior conditions that made a concept possible, and the concept made possible by those prior conditions. Many of the fundamental problems about probability, chance and determinism may be of this sort. (Hacking 1981a, 184)

An adequate analysis of concepts demands giving account of their origin, trajectory and of their previous uses, because whoever does not comprehend the history of their own organization of ideas is condemned to miscomprehend how these are used (Hacking 1999a, 8-9).

Later Texts: Archeology and the Incursion into Genealogy

As I have pointed out, in the works by Hacking that followed those two analyzed above, besides the archeological influence, it is possible to find traces of Foucault's 'genealogical' method. This is the case, for example, in *The Taming of Chance* (1990), a text in which Hacking retakes the idea that concepts have memory and are situated, and applies it to study the erosion of determinism and the emergence of chance. In *The Emergence of Probability*, Hacking's objective was to assess the *situated* and historical conditions of possibility for the emergence of probability. In *The Taming of Chance*, he does the same with the current conceptions of chance, determinism, information and control—studying their formation and the way the conditions of their construction limit the present way of thinking. This type of analysis is what Hacking (1990a, 70) understands as a philosophical analysis, and he affirms that he knows of only one philosophical model that can be used for this type of investigation: the work on Foucault. Under the model of history of the present, one can manage to understand the specific details about the origin and transformation of concepts such as chance, normality, criminality, dementia, or perversion.

Furthermore, both books provide a historical illustration of one of the crucial concepts proposed by Hacking: the notion of a 'style of scientific reasoning', coined to answer and generalize theoretical issues that emerged from the study of these examples. In the text from 1990, Hacking attempts to show how, from the statistical style, it is possible to derive new concepts (such as population), new techniques (such as taking representative samples), new objects, new laws, new authorities, and so forth. Even while the idea can be found in earlier works, the explicit notion of style of scientific reasoning (which he later called 'style of scientific thinking & doing' (Hacking 2010 April 21, 3)) first appears in his 1992 articles, and is there characterized as "a new analytical tool that can be used by historians and philosophers for different purposes" (Hacking 1992, 1). His interest lies in doing a genealogy of scientific reason, in the manner of "*how we found out how to find out*" (Hacking 2010 April 21, 3).

The notion of 'style', tantamount to other meta-concepts such as that of the 'paradigm' by Thomas Kuhn, the 'style of thinking' by Ludwik Fleck, 'programs of investigation' by Imre Lakatos, among others, has two clear antecedents: the idea of a 'style of scientific thinking' developed by the Australian historian Alistair Crombie (1994); and the idea of a 'discursive formation', from Foucault. In this sense, it can be said that, in the same way, that Foucault characterizes discursive formations as systems of anonymous and autonomous thought, that are not constituted by one person's or school's beliefs, style is an impersonal and durable social unit, it is the intellectual background or availability of a particular way of seeing and acting.

The notion of style brings with it a series of novelties: objects, statements, possibilities, types of classification and explanation, characteristics of which we can also find precedents in the Foucauldian notion of discursive formation. The discursive formation also produces the objects of which it speaks of. The regime of existence of objects of a discourse, according to Foucault, is created by avoiding every anthropological subjection, respecting the degree of discursive analysis; referring them to the set of rules that allows for their formation as objects of discourse. But the discursive formation also determines which statements can be said. Statements are propositions considered from the perspective of their conditions of existence, and not from the logical or grammatical point of view. A statement is the modality of existence of a set of signs that enables making reference to subjects and objects and to relate to other formulations. Nevertheless, it should be said that Hacking takes a step beyond Foucault in that he attempts to underline that each style, besides proposing statements that cannot be pronounced before the existence of the style itself, establishes if these statements can be candidates for having a truth value; it determines the adequate truth conditions for the domain in which it can be applied; and it has its own stabilizing techniques. In contrast, according to Foucault, archeologists do not occupy themselves with whether statements are true or false. Furthermore, Foucault describes a logical space that is open, and in which a certain discourse takes place. And while Hacking is also interested in those spaces in which a certain discourse is possible, he also focuses on the style which establishes whether those enunciations are candidates to be evaluated as true or false.

Hacking's use of the metaphor of 'crystallization' (Hacking 2009) with respect to the styles of reasoning is inspired by the breaks in the systems of thought exposed by Foucault in *The Order of Things.* This can be seen when considering that, according to Hacking, styles allow to comprehend that, to understand scientific reasoning, it is more important to consider the breaks than to focus on the long histories of the preceding styles. In spite of this, Hacking departs from the Foucauldian proposal and instead holds on to a Braudelian conception of style: While Foucault's episteme is born and dies, in two moments of transformation, style is evolutionary and can even persist eternally. What is more, styles can be abandoned without being substituted by other styles, in contrast to the epistemes, that must necessarily be replaced.

It is important to note that the style of scientific reasoning is not identified nor is exclusive of a particular science or scientific community, but cuts through them and can be shared by several of these. But contrary to discursive formations, sciences do not emerge from the previous form. Likewise, style is not proper to a determinate epoch, as are the Foucauldian epistemes and discursive formations.

Another Foucauldian idea in Hacking's work is that of 'positivity', perhaps one of Hacking's most frequent references when pointing toward his debt to Foucault. Archeological history allows to establish what Foucault calls a positivity, a space in which it is possible to establish, e.g., whether Buffon and Linnaeus "were talking about 'the same thing', by placing themselves at 'the same level' or at 'the same distance', by deploying 'the same conceptual field', by opposing one another on 'the same field of battle'" (Foucault

1972a, 126; 1969, 166). In the same way, Hacking's style of scientific reasoning produces the possibility that, for example, the concept of probability is thinkable, but also that certain kinds or objects emerge, as is illustrated by the analysis of statistical style performed in *The Taming of Chance*.

In the first pages of this book, Hacking outlines his philosophical project: to apprehend the conditions that made possible the current organization of concepts in two domains which are, first, that of physical indeterminism, and second, that of statistical information, developed with the goal of having social control.

> [...] I claim that enumeration requires categorization, and that defining new classes of people for the purposes of statistics has consequences for the ways in which we conceive of others and think of our own possibilities and potentialities. (Hacking 1990, 5-6)

One of the objectives of the book is to show how the gathering of numbers and the growth of statistical analysis led some philosophers of the 19th century to abandon a mechanisist view of the world and to adopt another one based on chance, insisting on the influence of statistics over human sciences. Statistics have helped in the formation of laws about society and the character of social facts and have engendered concepts and classifications in such sciences. As Foucault contends, statistics can be viewed as mere providers of information, but they can also be seen as part of a technology of power of the modern State, a perspective that is much more interesting. It is from them that something akin to a power over life starts to develop (Foucault 1980, 226).

In this regard, Foucault's proposal that starting in the 17th century, a new form of power, called biopolitics, emerged is well known. This form of power differs from anatomo-politics, which focuses on the body *qua* machine, since it focuses instead on the body-species (Foucault 1978, 139; 1976, 183). The body-species pole refers to the way in which, starting in the 17th century, there was an attempt to rationalize the problems posed to the State by phenomena proper to populations in matters of health, hygiene, birthrates, life expectancy, or race, to name a few. In this sense it is not difficult to see that statistics of populations and their deviations constitute an integral part of the State, insofar as many of the categories through which persons and their behaviors can be thought are themselves created out of the collection of data. Surveys and other similar bureaucratic devices create infinite ways to count and classify people, as well as new ways of structuring social classes.

Hacking addresses this issue in his 1990 book from the perspective of a philosopher and, because of this, his biggest interest lies in indeterminism and the 'taming' of chance. Chapter after chapter he shows how a sustained and firm erosion of metaphysical determinism takes place, and he analyses a series of events that mark that Hacking calls the style of statistical reasoning, within which one can find Laplace's theory of probability, De Moivre's doctrine of chances, the theory of error, the avalanche of big numbers, Quetelet's objectivization of the meaning of a population, Durkheim's *Suicide*, among others. Hacking concludes that there was practically no domain of human research that was not touched by events such as the aforementioned ones.

However, nothing is more anonymous than the bureaucracy of statistics, in the same way in which nothing is more anonymous than power, according to Foucault. Populations are classified, reordered, and administrated by principles, each of which is presented "innocently" by some bureaucrat. Tactics take shape progressively without anyone knowing exactly what they mean. Finally, one obtains a complex game of supports and different mechanisms of power:

> Let us not, therefore, ask why certain people want to dominate, what they seek, what is their overall strategy. Let us ask, instead, how things work at the level of on-going subjugation, at the level of those continuous and uninterrupted processes which subject our bodies, govern our gestures, dictate our behaviors, etc. In other words, rather than ask ourselves how the sovereign appears to us in his lofty isolation, we should try to discover how it is that subjects are gradually, progressively, really and materially constituted through a multiplicity of organisms, forces, energies, materials, desires, thoughts, etc. We should try to grasp subjection in its material instance as a constitution of subjects. (Hacking 1981, 82) (Foucault 1980, 97)

The Taming of Chance (1990, 3) introduces us in this way to a notion that, according to Hacking, is central to the analysis of human sciences: the idea of 'making up people'. Statistics determine classifications among which people must think of themselves and of the actions which they are allowed to perform. It is through this approximation to the theme of power and control—arguably more suggested than analyzed in depth as a mechanism—that I consider this text to be influenced by Foucault's genealogical period, which he devotes to the analysis of the forms in which power is exercised.

Works such as *History of Madness, The Order of Things,* and *L'Archéologie du Savoir* (1969) (*The Archaeology of Knowledge*, 1972a) showed the inadequacy of totalizing categories to carry forth historical work, because the formation of knowledge requires taking into consideration, along discursive practices, non-discursive ones, as well as paying attention to the entwinement between both of these types of practice. In the archeological method, discourse is analyzed in terms of the conditions in which statements have a defined truth value and, because of this, are susceptible of being enunciated. Those conditions, which reside in the knowledge of an epoch, are far, according to Hacking, of the material conditions of the production of statements (Hacking 1981, 79). It is not that language does not matter to Foucault, but the issue of power expanded the field of interest and noted that it was necessary to introduce an analysis that was capable of explaining how do the discursive and non-discursive practices, as well as statements and institutions, act and interact between them. There is no discourse without power. Power has therefore a positive epistemic role, since it does not only constrain or eliminate knowledge, but also produces it. The step from archeology to genealogy can be considered, therefore, an expansion of the field of research that permits the inclusion of the study of non-discursive practices, and the analysis of knowledge in terms of strategies and tactics of power.

Even while Hacking does not—in this or any other text—analyze power as Foucault does, I consider that what the latter points out regarding power and control can be perfectly used in the making of people and their classifications (Martínez 2021, 117-134). Statistics are no mere factual report, but create new kinds of people and, consequently, new modes of being and behaving. A new scientific classification can make a new kind of people appear, be conceived, and experienced ad a way of being a person. Given a label, there exists a concrete kind of people to be labeled or, in other words, there is a kind of people that ends up being reified (Hacking 1999, 27). The phenomenon of making up people owes much to the idea of the constitution of subjects to which Foucault refers: "[the] subjects are gradually, progressively, really and materially constituted through a multiplicity of organisms, forces, energies, materials, desires, thoughts, etc. (Foucault 1980, 97) (Hacking 1981, 82). Take the example of multiple personality, analyzed by Hacking. In 1955, he contends, multiple personality was not a way of being a person, and people did not experiment themselves in this way nor did they interact as such with friends, family, and so forth. However, in 1985 multiple personality became a way of experiencing oneself, and living in society (Hacking, 2007, 299).

The interesting point here is that in the field of human action, when new modes of description appear, new possibilities for action simultaneously arise. The possible forms of being for people appear and disappear. Human actions are actions under descriptions. Courses of action that are chosen by people and their ways of being depend on the available descriptions. If the description does not exist, neither can intentional actions. The making up of people refers to the space of possibilities for personality. Descriptions, that is, do not only affect what an individual is; they also affect their projects, the type of person they want to be, their present, past and future.

According to Hacking, even if we cannot speak of 'making up people' as a general theory, two common vectors can be named: 1) the labeling, by a community of experts, that creates a reality that certain people make their own; and 2) the autonomous behavior of the labeled person, that impels to create a reality that the expert must confront. The histories of the kind of people are different than natural kinds because the former are formed and shaped in the interaction with individuals and by altering them as well as the types of behavior to which they are applied.

Hacking is interested in knowing how this idea of making up people affects the true idea of what an individual is. Frequently, the creation of a kind provides the space in which certain beings are adjusted in it and, in a sense, where they can *be*, enabling in this way the making up people. It is not the case that a concept is formed, after which regularities or laws about the objects that fall into the category are discovered. The process, instead, is interactive. The items are grouped because it is believed that a classification helps comprehension, explanation, judgment and prediction of the characteristics of the classified items. Interactivity refers to a concept that is applied to classifications, to kinds, and to the kinds that can influence what is being classified.[4] The postulation of classification and its application to persons produces effects in the classified individuals, which react to the description that is made of them, thereby modifying their behavior and producing a change in the existing classification, so that it adapts to the new characteristics of its members. The new classification and theorization induce changes in the self-conception and the behavior of the classified persons. These changes, for their part, demand revisions of the classification and the theories, of the connections and causal expectations. This feedback process, or 'looping effect' of human kinds, makes the phenomena studied by the human sciences unstable, in contrast to the stability found in natural phenomena. Knowledge and classification are intimately linked here. The invention of classification for persons—and its application—produces multiple effects, affects the way one thinks, deals, and controls the individuals being classified. It affects how these see themselves and has to do strongly with evaluation, i.e. with the creation of values.

Hacking's reflections on the classification of people are, as he himself admits, a form of nominalism. They are what he calls a 'dynamic nominalism' which he situates in the line of the Foucauldian historical nominalism. While Hacking does not make reference to any specific passage to exemplify Foucault's nominalism, he is clear when pointing out what he means by this: "Foucault propounds an extreme nominalism: nothing, not even the ways I can describe myself, is either this or that but history made it so" (Hacking 1981, 83). Foucault starts from history, from which he takes samples that detail his discourse and, from this, he infers an empirical anthropology. Ontologically, there is nothing but variations, singularities, events such as speech acts, written or spoken acts, particular persons, objects in which history plays an essential role.

4. In his last works Hacking (2007, 293, fn. 21) denies that one can speak of interactive kinds, but claims that one can speak of interaction.

As a dynamic nominalist, Hacking (1999a, 2) is interested in how the practices of denomination interact with the things that they name. Naming has real effects in people, and the changes in them have real effects in posterior classifications. According to Hacking (2007, 295), one could see Foucault as a defender of dynamic nominalism. This is clear, for example, in Foucault's understanding of homosexuality as a specific way of being that exists only from a determinate historical and social moment. In this case, Foucault wishes to show how the subject is constituted through a certain number of practices. It is the concretion of singularities (Foucault 2000, 290; 1984a, 1537). The subject is shaped in each epoch through the dispositive and the discourses of the moment, through the reactions of their individual freedom and its eventual aestheticization. It is not enough to say that the subject is constituted within a symbolic system, since it is not only in the game of symbols that they are constituted, but in real, historically analyzable practices. Hacking, for his part, characterizes dynamic nominalism as a nominalism in action, where history plays an essential role in the constitution of objects (such as persons and their behaviors). Our domains of possibility and our own being are, in a sense, composed by the names and what is related to them (institutions that surround the subject matter; both specialized and popular knowledge; the experts and professionals that produce such knowledge, judge its validity and use it in their practices, that work in the aforementioned institutions, and so forth).

How does dynamic nominalism affect the concept of 'individual person'? The creation of a new classification, or the modification of criteria that allow applying a previous classification, can have effects on the classified individuals who accept or reject the attributes that characterize the new type. In other words, the creation of new kinds gives rise to new choices or enables new forms of existence. The objects of the human sciences, that is, have what Hacking calls a 'historical ontology'.

In 1999 Hacking proposed this notion of historical ontology, which he relates to "[…] the ways in which the possibilities for choice, and for being, arise in history" (Hacking 1999a, 23). This ontology deals with objects classifications, ideas, persons, kinds of people and institutions that emerge throughout history in relation to certain possibilities: "[…] objects or their effects which do not exist in any recognizable form until they are objects of scientific study" (Hacking 1999a, 11). Influenced by Foucault's thinking, this notion is linked to the three axes referred to by the French philosopher: knowledge, power, and ethics. The historical ontology of ourselves has to answer to an open series of questions: how have we been constituted as objects of our own knowledge?; how have we been constituted as subjects that exercise or are victims of power relations?; how have we been constituted as moral subjects of our actions (Foucault 1984, 48-49)?

Hacking follows Foucault's path when thinking of the constitution of subjects not in universalizable terms, but as a process that takes place in a certain time and space, in local and historically specific forms, and utilizing materials that are organized in a historically determinate way. Contrary to Kant, both Foucault and Hacking consider that

> […] the task is not that of fixing an ontologically primitive, definitively 'real' stratum of historical reality, but in tracing the mobile systems of relationships and syntheses which provide the conditions of possibility for the formation of certain orders and levels of objects and of forms of knowledge of such objects: the uncovering of what Foucault terms a 'historical *a priori*'. (Foucault 1980, 236)

Their method does not lead to an ontological pursuit of a determination in the last instance, but rather to an analysis of the multiplicity of political, social, institutional, technical and theoretical conditions of possibility, and to a reconstruction of a heterogeneous system of relations and effects whose contingent interlocking builds what Foucault calls the

'historical a priori'. Foucault studies those characteristics of human beings that are usually considered as static, but which, through a historical approach, are revealed as malleable. Similarly, Hacking's ontology does not deal with being in general terms or with grand abstractions, but with particular trajectories of being. It refers to the space of historical and situated possibilities that surround a person and enable the formation of his character, and that create the potential of individual experience. It cannot be otherwise, insofar as he repeatedly highlights that the formation of persons does not take place in general terms, but happens through particular and specific processes. Furthermore, in a claim that he defines as quasi-existentialist, Hacking affirms that there is no completely fixed human nature to be discussed.

Guided by this interest in making up people, and by his preoccupation with the way in which kinds of people emerge and how knowledge systems interact with the persons known under these kinds, in *Rewriting the Soul. Multiple Personality and the Sciences of Memory* (1995), Hacking analyzes the case of multiple personality. In this text, Hacking goes back to the archeological strategy of his previous works,[5] but adds to the influence of *The Order of Things* a clear reference to *The Archaeology of Knowledge*. Added to this is an explicit relation with Foucault's genealogy based on the latter's work with the poles of anatomo-politics and biopolitics. Hacking's objective is to analyze the historical conditions of possibility for the emergence of the sciences of memory, of the new meaning of the concept of 'trauma', and of the emergence of the ideas of multiple personality and child abuse both as concepts and as objects of knowledge.

Hacking follows Foucault's idea about the existence of acute mutations in the thought systems that result in a redistribution of ideas and that establish what later will be conceived as unavoidable, unquestionable, and necessary. This allows him to explore what was thought and said regarding memory in the second half of the 19th century and what is thought and said in the present. To do so, he studies how and why trauma and memory appear to be unavoidable by observing what happens with memory and multiple personality in France between 1874 and 1886, the period when the structure of the modern sciences of memory makes its appearance and strengthens itself. The occurrence, during these two decades, of important changes in ideas in the field convinced Hacking that this period was a radically formative moment vis-à-vis the idea of 'memory'. His interest lies in answering the question—suggested by Foucault's historicized Kantianism—of how this configuration of ideas emerges.

Hacking shows that what made possible many of the developments in the trajectory of multiple personality is closely related to crucial aspects of the field that studies memory, a field that emerged during the second half of the 19th century with new kinds of true statements, new kinds of facts, new objects of knowledge, and so forth. The new sciences of memory, positive and empirical, emerged in order to secularize the domain of the soul, a domain from which science had been excluded until that day. Based on the model of the anatomo-politics and biopolitics devised by Foucault, Hacking proposes a third pole—'memoro-politics'—from which knowledge can be triangulated:

> What is missing is pretty obvious. It is the mind, the psyche, the soul. Foucault spoke of 'two poles of development linked together by a whole cluster of relations' [...] What I call memoro-politics is a third extreme point from which (to continue the metaphor of mapping and surveing) we can triangulate recent knowledge. (Hacking 1995, 215)

5. "As a research strategy I have always been much taken by what Michel Foucault named archaeology" (Hacking 1995, 4).

Memoro-politics is, first and foremost, a politics of secrecy, of the forgotten event that, when is brought to light, can be memorized within a narrative of pain. The background of memoro-politics is pathological forgetting (1995, 214).

The set of the main notions that Hacking proposes in order to analyze the human sciences is completed with the idea of an 'ecological niche', which he defines in *Mad Travelers. Reflections on the Reality of Transient Mental Illnesses* (1998) as the space of possibilities for the emergence of certain diseases. Hacking studies the surge of transient mental illnesses,[6] and of a new kind of people—the *fugueur*—through the analysis of the case of Jean-Albert Dadas (1860-1907, who was the first *fugueur*). The medical reports of Albert highlight a small epidemy of compulsive travelers whose epicenter, in the 19th century, was in Bordeaux, but which soon extended to Paris, and then to the whole of France, Italy, and ultimately to Germany and Russia. Hacking's objective with this work is "[...] to provide a framework in which to understand the very possibility of transient mental illnesses" (Hacking 1998, 1), and in so doing, to give an account of how Albert and his doctor established the possibility of using an 'escape' (a '*fugue*') as a diagnostic. Hacking's goal, that is, is to account for the formation of a space of possibility for the emergence of this illness, a space of possibility that also allows thinking of a whole group of present diseases such as anorexia, hyperactivity, or attention deficit disorder. Within this framework, the most important contribution of the text is the metaphor of the 'ecological niche', inspired in Foucault's idea of a discursive formation but which goes beyond it insofar as the niche is not only a discourse but also includes what people do, how they live, and the material reality which they inhabit. Niches are formed through different types of vectors that point in various directions and of which Hacking highlights four: 1) The medical vector—every illness is fitted into a diagnostic scheme, a taxonomy of diseases. 2) The cultural polarity—the polarity between good and bad. This second vector accounts for how sickness is situated between two extremes of contemporary culture, one of them virtuous and another one vicious and tending toward criminality. What counts as a virtue and what as a vice is also a social characteristic, since virtues are not fixed in time. 3) Observability—disorder must be visible as such, as suffering, as something from which to escape from. 4) Liberation—the disease, in spite of the pain it produces, also promotes a certain liberation that is unavailable in other realms of the culture in which it thrives. When these vectors are challenged or deviated niches are destroyed and transient mental disorders disappear, because there is no stable site for their emergence and manifestation.

Final Considerations

The objective of this article has been to provide a brief overview of the influence of Foucault's work on crucial aspects of the work and thought of Hacking. This overview makes it possible to show that, besides the influence in Hacking's methodology and in a series of concepts put forth by him, Foucault also exerted a more extensive and fundamental influence in Hacking's research, an influence that is related to the Canadian philosopher's general interest in the analysis of historical conditions of possibility for the emergence of scientific concepts and objects. This interest, stimulated by his reading of Foucault's work, is perceived throughout all of Hacking's work, and can even be seen to function as its guiding thread (Martínez 2021). Thus, the article shows, through the analysis of some representative texts, Hacking's interest in analyzing what historical conditions make possible the emergence of, e.g., probability,

6. Hacking defines transient mental illnesses as those illnesses that appear in certain times and places in order to later disappear.

kinds of people, multiple personality, child abuse, sciences of memory, and transient mental illnesses. Moreover, these conditions of possibility can be located in line with Kant's and Foucault's investigations. In Hacking's work, however, even if they hold a historical character (as is also the case in Foucault's work), the conditions attend more to the singularity of each history than to the regularity of an epoch. The history of scientific concepts and objects provided by Hacking is the history of specific trajectories, even when their emergence takes place within a determinate context or style of reasoning. In this vein, his analysis is not restricted to the limits of an epoch but takes an interest in what he calls the prehistory of concepts and objects.

Regarding methodology, Hacking acknowledges, in general terms, the imprint left by Foucault's archeology upon his work, most crucially in his early texts (Martínez 2016), to the extent that he even affirms that *The Emergence of Probability* could have been named *The Order of Things, the footnote* (2005, 4). Nevertheless, the use of such a methodology is not restricted to this period, but can also be seen in later works. It is important to note, in this regard, that in those works one can also find traces of Foucault's genealogical period, as it can be observed, for example, when revisiting the emphasis on statistics and biopolitics of *The Taming of Chance,* or the use of the idea of the poles of anatomo-politics and biopolitics of *Rewriting the Soul*. Notwithstanding, the influx of genealogy is peculiar in Hacking's case, since he does not work explicitly nor critically with one of the fundamental elements of genealogy: namely, power. This does not mean that Hacking denies the relation between power and knowledge established by Foucault. On the contrary, Hacking sustains that Foucault's work are useful "[...] to grasp the interrelations of power and knowledge that literally constitute us as humans beings" (Hacking 1984, 50). Moreover, I am convinced that even if Hacking decides not to deal with the issue of power, this is a subject that has not only influenced his assessments, but it is possible to see how power and resistance play an essential role in his proposals regarding making up people and the looping effect between classifications and the persons classified (Martínez 2021, 117-134).

Foucault's imprint has also been exposed in many of the notions proposed by Hacking, especially in relation to his research on the styles of scientific reasoning and the field of the human sciences. In this respect, it is important to point out that even while Hacking appropriates certain ideas by Foucault, these are adapted to fit Hacking's own interests. Hacking himself has repeatedly affirmed that he takes Foucault's ideas, but does not copy his vocabulary He aims to give those ideas his personal stamp. Hacking has been one of the main figures responsible for the diffusion of Foucault's ideas within anglophone philosophy of science and analytic philosophy. In the spring of 1974, Hacking gave a series of talks on Foucault's works and, as he himself tells, one of his colleagues would have said to a visitor: "If you wonder why the bookshops have copies of Foucault in their front windows, it is all Hacking's fault" (Hacking 2005, 3). But Hacking has not only been spreading Foucault's work. He also recognizes how much did he himself learn when reading Foucault and when using some of his ideas. As I understand it, in some respects Hacking can even be said to complete Foucault's thought, as is the case with the notions of the looping effect, which complements some of the aspects of Foucault's proposal, insofar as it explains one of the particular mechanisms (the interaction between classification and classified) through which certain changes happen—changes that the French philosopher only studies in general terms. However, in other respects, Hacking himself notes that he did not go as far as Foucault, as is the case when he acknowledges that he never intended to commit politically or to achieve social changes, as Foucault did.

One of the stated—and achieved—goals of Hacking has been to build a bridge between analytic and continental philosophy without losing the explicative power of neither of them. He has also shown that analytic philosophy is not at odds with a historical sensibility,

and that the two can actually converge. This achievement, without a doubt, has been mostly the result of the influence that Foucault had on Hacking's way of thinking and his analytical training. As Hacking has said—in words that, I believe, better describe Hacking himself than the French philosopher—Foucault "[...] had an original analytical mind with a fascination for facts" (Hacking 1981, 73).

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