Figures of Chance II
Chance in Theory and Practice

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Introduction

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A chance event happens, intransitively. The poetic force of this emergence is well known, as is its illusory character. The first volume of the present work was devoted to the historical evolution of this fascinating aberration—which finds expression in all Indo-European languages—as it appears in literary and artistic representations from the Renaissance onwards. The second volume delves into its consequences, at the intersection of the creative practices that use it and the fields of knowledge that attempt to define it.

We know that the accidental event cannot really be self-caused, even if the English language can use the term *chance* to designate both what happens—the way in which *chance events* fall out—and the determiner of such happenings (which occur *by* chance). In French, the correspondence is even closer between the cause (*le hasard*) and its result (*un hasard*). The dictionaries that are tasked with elucidating the confusions inherent in ordinary usage struggle to tell us exactly how this illusion operates. For the Oxford English Dictionary, chance is the "absence of design or assignable cause, fortuity; often itself *spoken of as* the cause or determiner of events, which *appear to happen* without the intervention of law, ordinary causation, or providence" (our emphasis). For Merriam-Webster, it is "the *assumed* impersonal purposeless determiner of unaccountable happenings", while the American Heritage Dictionary of the English Language also has recourse to the notion of assumption: "A force *assumed* to cause events that cannot be foreseen or controlled" (our emphasis). Chance thus appears at once as a mere manner of speaking, a matter of appearances, and a (dubious) conjecture about the workings of the world. The same ambiguity is found in the dictionaries of other European languages, which hesitate about the first impression produced by chance—whether as an excess or a lack of meaning—and consequently about the way this impression is later rectified by thought. They agree, however, in rationally setting what chance really is against the mystery of an event that seems all the more meaningful because we cannot see its cause. That is, chance is really the absence of such a cause.

The notion of chance as "assumed determiner" or "force assumed to cause events" contains a further ambiguity: something *assumed* may be taken for granted or imagined to exist, or it may be an appearance deliberately taken on or feigned—although in this case, the events that appear significant mask no purposeful pretence but are "unaccountable happenings" that cannot be assigned to an agent.

In French, the Petit Robert dictionary gives a more explicit name to this absence of cause or purpose: chance or *hasard* is the "*fictive* cause" (*cause fictive*) of what happens without an apparent reason. This puts chance in its place, designating its proper space as that of the imaginary, beyond the dialectic of appearance and reality. Understanding as fiction the ephemeral and illogical coincidence of the accidental event with its own cause means recognizing the importance of the process of representation engaged when such an event arises, caught at the intersection of several independent causal chains (Cournot 1851), a suspension of meaning, questioning of certainties, the proposal of a new image of the world, and a reconstitution on this new basis of a rationality that had been undermined. In order for a space to open up for this questioning, the shock produced by the appearance of the isolated fact must be extended in the form of an exploration that takes seriously the insignificant enigma it poses and indeed constructs it as such an enigma. We therefore wager that the event that comes out of nowhere isn't there for no reason; it is worth a story and as such gives rise to a playful practice, a ritual, a narrative, or a show in which its appearance and disappearance are recounted, staged, figured, and performed. Discourses of knowledge thus give chance its full significance when they characterize it as a fiction. Far from reducing it to a deceptive illusion or a provisional state of ignorance, this characterization allows us to understand chance as an apparatus through which art conducts an essential investigation into what counts as eventful for us. Describing, representing, or playing with chance is to grasp what, in the normal course of life's events, occurs in the fictional mode of the "as if". A coincidence always happens *as if* by chance: fictional representation thus appears as the most apt place for exploring this unbinding of the elements of reality, this unpredictable derailment of the course of things that allows a higher meaning to emerge.

This explains the close link that exists between the material devices or apparatuses for producing chance (dice, jacks, cards, computers) and literature as an apparatus (*dispositif*) in the broader sense given to the term by Giorgio Agamben, following Foucault: that of a "formation [...] that at a given historical moment has as its major function the response to an urgency" and thus has a "dominant strategic function" (Foucault, quoted in Agamben 2009, 2).

Just like the technical objects that we use to generate the random phenomena deployed in different contexts (divination, games, scientific

experiments, social or artistic needs), literature and fictional forms more generally (series, cinema, games) interpose a social, technological, and symbolic construction between our experience of the world and the meaning we draw from it. In the case of chance, this structuring effect is essential: fictions bring it to light by making manifest the unbinding of events and by constructing our confrontation with this mystery as an adventure. Stories take on the main forms of paradoxical disjunction which characterize our relationship to time—the unexpected, the simultaneous in the form of coincidence, the inexplicable or the *déjà vu*—in order to configure them as a meaningful experience of reality. In the twentieth century, this experience ceases to be linear: as we know, the complex narrative forms that emerged in the 1920s aimed to explore all the ways in which chance (dis)organizes a world that is now articulated by a new physics, in which space is irreducibly linked to time.

Literature, like all apparatuses, produces effects that are bound up with those of scholarly discourses and helps to restructure them into new fields of knowledge. Within this recomposition, chance—in the form of the second principle of thermodynamics, for example—played a central role in the twentieth century. This is particularly evident in the use that cybernetics made of the notion of entropy, when it contributed to the emergence of interdisciplinary theories of complexity starting in the 1960s and 1970s. As early as the 1950s, the intersection between the respective applications of the notion of noise in information theory and in physics (Brillouin 1949) laid the foundations for cybernetics (Wiener 1948), which set out to establish equivalences between the teleological behaviour of living beings and that of machines capable of self-regulation through feedback loops. In the 1980s and 1990s, Yuri Lotman's application of mathematical complexity (revealed at the start of the century by Kolmogorov's equations) to semiotics and the theory of art opened the way to extending systems theory to the analysis of cultures as complex systems, governed by phenomena specific to such systems: emergence, feedback loops, self-organization (Stengers & Prigogine 1979; Walsh & Stepney 2018; Grishakova & Poulaki 2019). In the 1990s, this intuition similarly governed applications to literary theory of elements drawn from physics and the mechanisms of chaos, notably in the work of Yves Abrioux (1994, 2010) or N. Katherine Hayles (1990). In parallel, other promoters of this "non-concept" that is chance, such as Jonathan Pollock, have sought to rehabilitate Louis Althusser's Epicurean aleatory materialism to understand the place of artistic practices in accurately apprehending the role chance plays in the becoming of things: "Instead of thinking of contingency as a modality or exception of necessity, we must think of necessity as the becoming-necessary of the encounter between contingents," asserted Althusser in his last posthumous texts (Althusser 1982, 568; Pollock 2012). Starting from the idea that "matter

is no more inert (*in-ars*) than the author is all-powerful", Pollock also proposes to "reflect on aesthetic creation outside the categories of spiritual intentionality and material inertia" (Pollock 2012, 6).

Whatever the conception of reality—more or less deterministic, materialistic, fatalistic or providential—that motivates our interest in chance, it is clear that studying the shadowy side of our representations of the world, rather than their better-lit areas, allows us to uncover what holds the world's elements together for us. Above all, this study shows that the meaning we give to the fiction of chance depends fundamentally on the role we generally attribute to art in the organization of our representations of reality. Do tales of coincidences, encounters, and strokes of fortune help explain the world, reestablishing the weakened link between causality and meaning; or do they, on the contrary, call into question the very existence of a necessity at work in the world? The vocation attributed to fictional representations of chance depends on ontological, epistemological, and ethical choices that are inextricably linked. Thus, Erich Köhler bases his seminal study on chance in the European novel from the sixteenth to the end of the twentieth century on a comprehensive Marxist vision of the relationships between art and reality. Since fiction is fundamentally a matter of "bringing together dispersed possibilities", he argues that literature works like a seismograph (Köhler 1973). Its successive forms register the material activity of chance in the world, from the medieval period when Providence framed and motivated its manifestations to the moment when its complete withdrawal left the modern world in the grip of an incomprehensible chaos—a chaos to which surrealism, in turn, would give meaning in the form of objective chance. Similarly, studies on representations of risk in English fiction of the age of the Industrial Revolution see their evolution as a direct expression of the historical emergence of capitalism (Tucker 2000; Patey 2010; Molesworth 2010).

It is possible, however, as Isabelle Tournier has done using the example of Balzac (Tournier 1988, 57), to consider that other factors come into play alongside the seismographic vocation of literature in the way artistic representations and practices model chance. These factors include an author's explicit discourse on chance, the aesthetic constraints linked to a particular literary genre, the specificities of a given language, or the precise technical requirements of a formal pursuit or ludic practice. More radically—and this is the choice we have made here—we can also show that the modelling of chance by artistic, narrative, or ludic devices plays a profound role in the construction of our ways of knowing the world, insofar as it informs our experience of contingency. In Chapter 1 of this volume, which focuses on the role played by temporality in representations of chance specific to the novel, Mark Currie thus shows that the passage from contingency to necessity that marks our comprehension of the world's workings is itself a

fundamentally narrative operation, in which our expectation of what has not yet happened is coupled with the conviction that everything that can be narrated has potentially *already* taken place, whether we know it or not. Similarly, Sophie Vlacos returns to the elimination of chance that should theoretically accompany Paul Ricœur's account of the signifying configuration of time, in order to emphasize that contingency as a form of the involuntary is indissociable for Ricœur from our experience of narratives, in history as in literature. Characters in stories, like us, "act and suffer in *circumstances* that they have not produced" (Ricœur 1984, Vol. 1, 55). Our permanent confrontation with the brutality of random events—which Vlacos also identifies in Ricœur's profound sensitivity to the tragic side of history, for instance in the form of the Nazi firing squad that interrupted the writing of Marc Bloch's *The Historian's Craft* (p. 39–40)—is essential for our understanding of the relationship of narrative and *pathos* in Ricœur's work.

Furthermore, if we take chance as our point of departure for considering the way in which fictional experience shapes our apprehension of reality, we come to discern the importance of the reciprocal disconnection of coexisting elements, and the flexibility of the interwoven causal chains that link them, both in the reading of fiction and in the physical environment of the world itself. Contrary to Leibniz, "everything in the universe does *not* 'conspire' with everything else" (p. 48). Hence, against a vision of narrativity as an artificial, dramatizing densification of reality, Elie During proposes understanding the difficult notion of the simultaneous coexistence of events in the physical universe on the basis of the ease with which we admit, in the temporal unfolding of a reading experience, that plots and characters can pursue the course of their existence and mutually influence each other in the background of a story without our having them constantly in front of us. The first chapter ("Chance, causality, temporality") starts from the principle that the psychological, sensorial, and temporal experience of chance we gain through literary narratives gives substance to the abstract or counterintuitive mental representations we may form of the way it works in the universe. The second, by approaching the narrative treatment of chance from the perspective of complexity theories, places narrative and the world in a relationship of direct isomorphism. For John Pier, who follows Isabelle Stengers and Ilya Prigogine on this point, narrative itself is a complex system characterized by mechanisms of self-organization, emergence, and feedback loops that act on the operation of a semantic ensemble as they do on machines and living beings, according to principles that Marina Grishakova explains in detail. Tracing the different stages in Henri Atlan's, Yuri Lotman's and Michel Serres' promotion of a theory of art as "capable of transforming noise into information", she recalls that Lotman defines entropy "as a proportion between the amount

of information a (semiotic) language is able to convey […] and the flexibility of this language, that is, its ability to convey the same information in multiple different ways" (see p. 69). Grishakova thus shows how poetic art can be understood as part of a general theory of systems, which allows us to account for its specific dynamics of creativity, discovery, and intuition. Maria Poulaki then applies this theory to the particular management of contingency found in complex cinematic narratives of the 1990s ("mind-game" films).

At the end of this second chapter, Demian Battaglia returns to the precise workings of the analogy that enables us to compare the behaviour of a cultural system such as narrative to that of nature. He proposes to distinguish between different values of the idea of entropy that are used in narrative analyses inspired by complexity theory. He thus opposes chaotic entropy—a reference point for Richard Walsh's study of narratives in which the uncertainty of predictions about the series of events increases over time—to the synergetic entropy considered by Pier, Grishakova and Poulaki when they highlight the production of meaning and the effects of organization that result from changes in information brought about in the minds of readers/viewers as they progressively understand stories. Finally, it is an algorithmic type of entropy, involved in the distinction between random and organized complexity, that is at play in studies that show how a sequence, including a narrative one, can be more or less subject to summarizing and modelling. In each case, then, the use of these notions brings to light a different aspect of the dynamic set formed by the narrative, its reception, and the world it deals with; but if we consider that the main characteristic of complexity lies "at an *informational* (rather than structural or dynamic) level" (p. 107), they do actually help elucidate how the whole system works.

This reflection on the exact degree of metaphor involved in linking the workings of entropy in nature and in narrative is essential, more generally, to monitoring the effects produced by the use in the humanities of notions borrowed from contemporary quantum physics and mechanics. It is also essential for clarifying the role played by art, and more specifically by narrative and fictional practices, in our reflection on chance. Rather than contributing to the imposition of an artificial order on the course of things, our narrative skills seem, above all, to confront us with the limits of our understanding of these happenings. Richard Walsh, starting from a study of a short story by Ambrose Bierce, shows that literary narratives play a role in our understanding of our ability to anticipate a series of events that we know depend on an infinite number of factors whose interaction is in itself unpredictable. Whereas a tenacious critique attacks narrative as a structure of illusion prone to generating false inferences and artificial rationalizations, Walsh shows, on the contrary, that our narrative skills

lucidly model our inability to embrace the immeasurable complexity of the network of circumstances that contribute to a sequence of events. In this way, the incompleteness that characterizes our perception of the real becomes visible as well as liveable—just as our perception of the paradoxes of simultaneity in the physical universe is built on our fictional experience of the essential disconnectedness that allows the elements of the narrative to play with each other (see also During, Chapter 1 section 3).

This is also what emerges from Divya Dwivedi's examination of the gap that separates contemporary scientific and philosophical approaches to chance, which she conducts in order to define the conditions for a legitimate, productive, and undoubtedly indispensable use of the proposals about contingency put forward today in physics, biology, or the environmental sciences ("Chapter 3. Chance in philosophy and science: Beyond ontologies and theologies"). Reviewing the conclusions drawn over the last 20 years by the proponents of a new realism (or an old metaphysics), based on the idea that quantum physics has brought to light the existence of an absolute ontological contingency of the universe and its laws, Bitbol points out that the randomness of quantum phenomena is in itself neither subjective nor objective, but fundamentally correlational. Quantum physics does not describe a pre-existing state of affairs, it is "a way of predicting phenomena whose conditions of occurrence hinge on future choices" (p. 137). The crucial nature of these phenomena is emphasized in the rest of the chapter. Maël Montevil reflects on the conclusions we can draw from the fact that chance, in biology, modifies the space of possibilities itself insofar as it shapes biological organizations and ecosystems. He underlines the importance of this fact for the Anthropocene: the disruption of biological organizations structured by natural history is leading to a collapse of biological possibilities. Similarly, Zeynep Direk, rereading Derrida in light of these new challenges, points out that philosophical reflection on chance has now become inseparable from the question of our collective responsibility for shaping the future of a universe that is now dependent on us, and therefore on our discourses.

From this point of view, the second volume of *Figures of Chance* provides elements of a response to Jacques Bouveresse's criticism of the indeterminist philosophies that emerged in the late 1980s, mentioned in the general introduction (*Figures of Chance I*, p. 1–11). By replacing the reign of the Gods with the reign of Chance, according to Bouveresse, these philosophies aimed to exchange the traditional system "determinism–immanent natural law–classical individualism" for another triad: "indeterminism–merely statistical regularity–collectivism (Bouveresse 1993, 55). According to this view, our capacity for action and individual invention of the possible is simply replaced with an inevitable collective and statistical fabrication of the probable. This question has become essential in the context of

the Anthropocene, when the individual and social exercise of our liberty now involves not only the future of our species but also that of the planet itself, as Bruno Latour and many others have been telling us for 30 years. The precise role that literature plays in the continual, necessary restoration of this space of possibility is decisive, as Bouveresse himself has shown with regard to Musil. Far from seeing literary writing as a way of escaping reality, Musil proposed, on the contrary, to "appeal to the artist who exists in every man", precisely because "artist" here means more or less the same thing as "man of possibilities" (Bouveresse 1993, 292).

This is where we find the clearest point of entry for literary thinking about the role of chance in the elaboration of our choices, insofar as they determine individual behaviour. Literature and more broadly fictional practices have always functioned as a medium for reflecting on the potential, unexpected, or paradoxical consequences of our practical decisions, and at the same time for testing our reactions and judgements in the face of these consequences.

With Barbara Carnevali, Anthony Mangeon and Matthias Roick, Enrica Zanin thus takes up the study of the role of literary representations in ethical questions, from the specific angle offered by the notion of moral luck proposed by Bernard Williams (1981) and Thomas Nagel ([1976] 1979). How can we judge the ethical value of an action whose consequences cannot be entirely foreseen and controlled by its agent—and are, perhaps, fundamentally indeterminable? In Chapter 4, "Doing the right thing: moral luck and ethical challenges", Zanin draws on Hans-Georg Gadamer's analogy between moral deliberation and textual interpretation in order to show that the moral nature of luck or misfortune is not only felt, but more essentially expressed by the literary experience (Gadamer [1960] 1975, 274–289). For Aristotle, as Jonathan Pollock reminds us (Pollock 2012, 7) chance concerns above all the practical aspect of our existence,[1] which is precisely what literature can teach us about. It's also this practical or pragmatic aspect of fictional knowledge, as opposed to the theoretical knowledge sought by science and philosophy—with the exception of moral philosophy—which is involved in the theory of art that underlies embodied cognitive approaches to literature. The use of aleatory procedures and ludic practices in artistic composition—drawing of lots, collages, cut-ups, interactive and combinatorial composition, musical and dramatic improvisation—is thus central to the questions raised by Karin Kukkonen, Ros Ballaster, Henry Keazor, Juliane Vogel, and Michael Wheeler in Chapter 5, "Creativity and contingency. Provoking chance across the arts," which deals with the role of chance in creativity envisaged as a cognitive phenomenon. For example, Wheeler shows that the use of random elements in a creative process gives rise to "cognitive niche construction" (Clark 2008)—the phenomenon in which external structures are built to facilitate

our control and thus our comprehension of our environment—but can also have the effect of deliberately hindering this apprehension of the world in order to produce the desired disruptive effect. The study of the use of chance in techniques of artistic composition, whether oriented toward the analysis of the artistic gesture or toward the effect produced by the work, thus helps challenge the widespread notion that cognitive processes—and, by extension, their study by the cognitive sciences—are solely devoted to problem-solving. Identifying the aesthetic dimension of random processes, including from the point of view of a theory of mind, is therefore in itself a critical gesture.

Olivier Caïra aims to extend this critical gesture to the analysis of ludic chance, starting by pointing out a discrepancy between the profusion of varied, nuanced analyses of the representation of chance in literature, the visual arts and cinema, and the much more monolithic vision of chance in games that appears in those same studies. In Chapter 6, "Chance in games", Caira revisits the opposition introduced by Roger Caillois between the *agon* of games of skill and the *alea* uniformly assigned to games of chance, in which the player simply surrenders to a random draw over which he has no control. He restores complexity and specificity to the decisions, material manipulations, intellectual stakes, and emotions characteristic of playful practices, not only in relation to games of opposition or skill but also to artistic uses of chance: in fact, "the die that springs from the cup obeys neither the artist nor the viewer". Chapter 6 thus starts with the hypothesis that "this phenomenon of deliberate relinquishment of control has no equivalent in mimetic art, because the latter represents chance without offering a first-hand experience of it" (p. 324).[2] By distinguishing between different forms of chance mobilized in particular by tabletop games and the pleasure that they give, and by analysing the alternation between control and letting go involved in these practices, Caïra thus aims to shed light on the aesthetic effects specific to ludic chance, distinguishing them from those produced by mimetic representations of the world.

The dialectic of chance and necessity is also reassessed in the concluding chapter of this volume, dedicated to the essential tension between the motivated and the arbitrary, or between the determined and the random, that has marked the history of linguistic theories since Saussure (Chapter 7, "Chance and language"). Valentina Bisconti explains that while the arbitrary, the random, and the contingent are generally at the heart of synchronic descriptions of languages, whereas necessity and determination historically accompany reflections on their diachronic evolution, this balance appears to be shifting in recent theories of language. By exploring the meaning of this polarization, which serves as a framework for most linguistic discourses, and by confronting it with contemporary theories of speech acts, the chapter shows that the sciences of language are adapting, as we have seen other

scholarly discourses do, to the increasing complexity of the relationship between chance and necessity by constantly producing new tools for rationalizing this relationship. As early as 1958, for instance, Roman Jakobson noted that "structural linguistics and quantum mechanics gain in morphic determinism what they lose in temporal determinism" (Jakobson [1958] 1962, 527) as Bisconti reminds us (p. 349). Raffaele Simone also proposes an important re-evaluation of the elements of necessity and motivation that can intervene in language structures that are considered arbitrary, while the figure of the speaker emerges at the end of the chapter as central to the constant redefinition of this balance between randomness and necessity. The latter appears less as the result of an opposition between the agency of individuals and the inertia of the system, and more as a permanent exchange between two dynamics of creation, the singular and the collective. When Francesco La Mantia demonstrates the contributions of epilinguistics—that space of "*silent*, *lacunary*, *anonymous* and *non-linear*" linguistic activity (p. 367)—to the understanding of speech acts, we see that in the case of linguistic expression, as in that of fictional representations and artistic practices, the place of chance is always reinvented at the precise point where the individual is linked to the collective. While on the one hand "there is no place for individual choice in the work of [the] speaking masses", on the other hand, states Francesco La Mantia, thanks to "a rich repertoire of possibilities (or 'sayables'), the speaker can both react to their own words and adjust to the words of others" (p. 265). The morphogenetic activity of the speaker thus participates fully, in the same way as that of the player, the artist or the reader, in a "*poiesis* of meaning", and this genesis thus appears as the direct product of playful, compositional, or hermeneutic "epilinguistic chaos" (p. 368).

The essays in this second volume of *Figures of Chance* set out to define and better understand the undeniable contributions of artistic, linguistic, fictional, and ludic representations and practices to the theorization of chance without necessarily proposing either a critique or an epistemological promotion of this contribution.[3] It will be clear by now that this effort implies a renewal of the dialogue between literary theory, science, and philosophy in this area. This is all the more necessary since, as Mark Currie pointed out recently (Currie 2018), new theorizations of contingency by Catherine Malabou, Slavoj Žižek, Quentin Meillassoux and, to a certain extent, Alain Badiou no longer place structures of language, writing and the construction of meaning at the centre of philosophical study, thus depriving literary criticism and the philosophy of literature of this shared terrain that had long been theirs, particularly in so-called French theory, in the investigation of common objects. For their part, discourses of scientific knowledge, from quantum physics to cell biology and cybernetics, have had to devote as much energy to monitoring misuse by the humanities of their latest advances as to deepening the contribution of these advances to

our understanding of our relationship with the random and the unpredictable. Yet this dialogue is more necessary than ever if we are to formulate an answer to the double question posed by this book—why do we love chance, and what role does this attraction play in our apprehension of the world?—at a time when the aesthetic nature of this relationship with the world might become the only thing that still distinguishes the human mind from artificial intelligence.

Notes

1 Pollock explains that his book title *Pratiques du hasard (Practices of Chance)* "takes at face value one of Aristotle's declarations in the second book of the *Physics*: 'chance and what happens by chance concerns only that to which we can attribute good luck and, in general way, practical activity'" (Pollock 2012, 7).
2 As a counterpoint to this last argument, see the analyses of Vol. 1, Chapter 5.
3 At the end of Chapters 1, 2, 4, and 6, counterpoints to the main argument are presented in reflections shared with us by Demian Battaglia (Aix-Marseille-CNRS, systems neuroscience), Philippe Carrard (U. Vermont, history), Christian Walter (chair of Ethics and Finance, Collège mondial, FMSH Paris) and Sophie Chevalier (UPJV, anthropology of economic practicess). Their perspective on these analyses was particularly valuable. We would like to thank the many specialists in mathematics, physics, biology, artificial intelligence, information science and social science who contributed to our discussions during the development of this project between 2020 and 2023. Our gratitude goes in particular to Patrick Boucheron, Jean-Paul Delahaye, Nicolas Gauvrit, Ani Guerdjikova, Elise Janvresse, Elsa Kammerer, Sandra Laugier, Jean-Marc Lévy-Leblond, Sylvie Méléard, Frédéric Paccaut, Nicholas Paige, Brian Richardson and Robert Stockhammer for their enlightening remarks.

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