

L'avenir comme complexité et autotranscendence

Application à la perspective
d'une guerre nucléaire

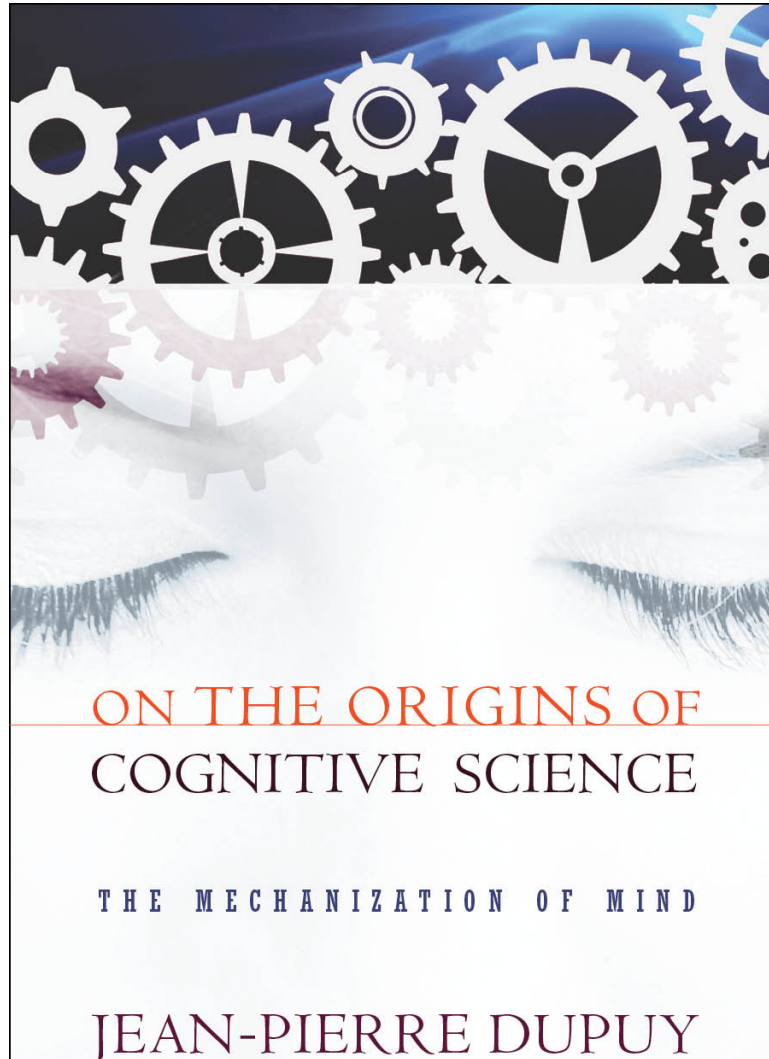
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Groupe Émergence

11 avril 2022

L'avenir comme complexité
et autotranscendence

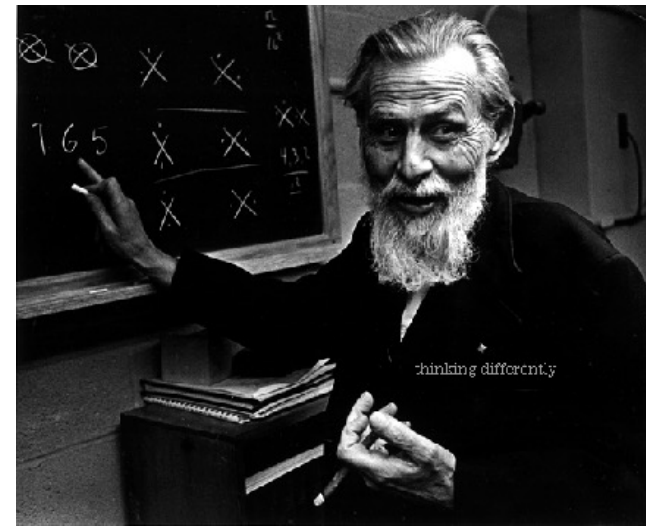
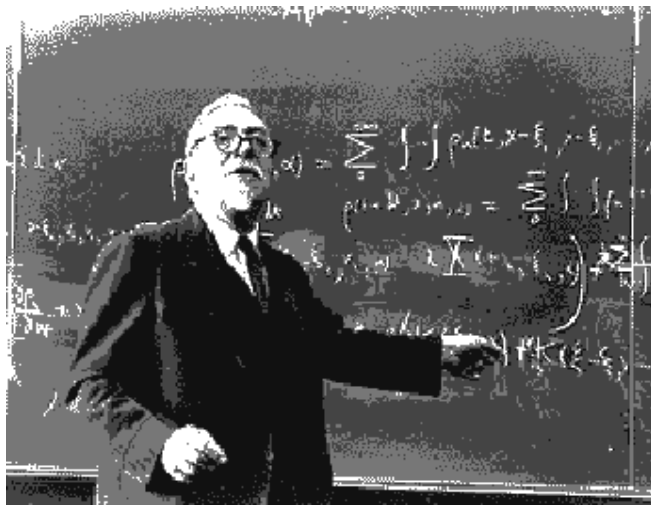


Cybernetics as the Study of Teleological Mechanisms



John von Neumann

Norbert Wiener



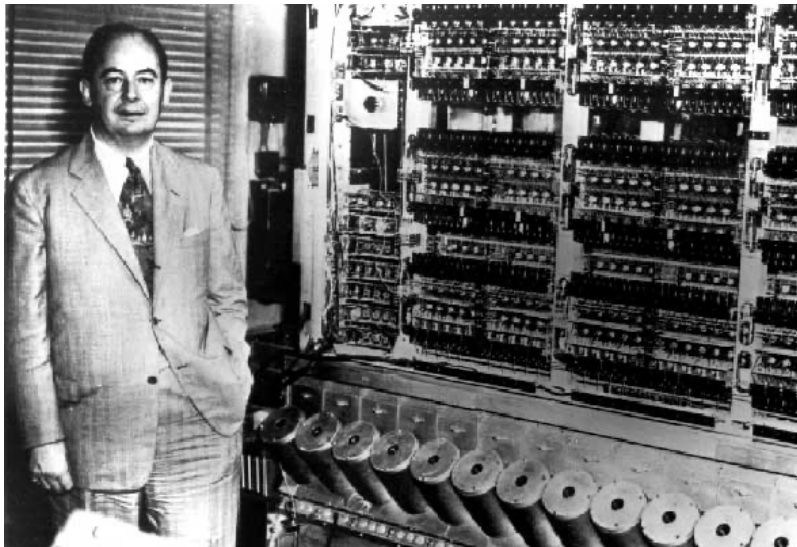
Warren McCulloch

Macy Conferences

1946 - 1953

as the birthplace of
cybernetics

John von Neumann [1903 - 1957], founder of Automata Theory



- Hixon Symposium, CalTech, 1948
- **Conjecture on Complexity:** Complexity is a magnitude of a thermodynamical type.
- Below a certain threshold it is degenerative, meaning that the degree of organization of the system under consideration can only decrease;
- but above this threshold an increase in complexity becomes possible. This threshold of complexity is also the point at which **the structure of an object becomes simpler than the description of its properties.**

Automata Theory (1948)

- A complex machine (i.e. an **automaton**) is capable of bringing about something more complex than itself: its own behavior.
- Soon, JvN prophesied, the builder of automata will find himself as helpless before his creation as we feel ourselves to be in the presence of complex natural phenomena.
- The engineer of the future will not be the one who devises and designs a **structure** capable of fulfilling a **function** that has been assigned to him. The engineer of the future will be the one who knows he is successful when he is **surprised by his own creations**.
- **Complex means self-transcendent.**



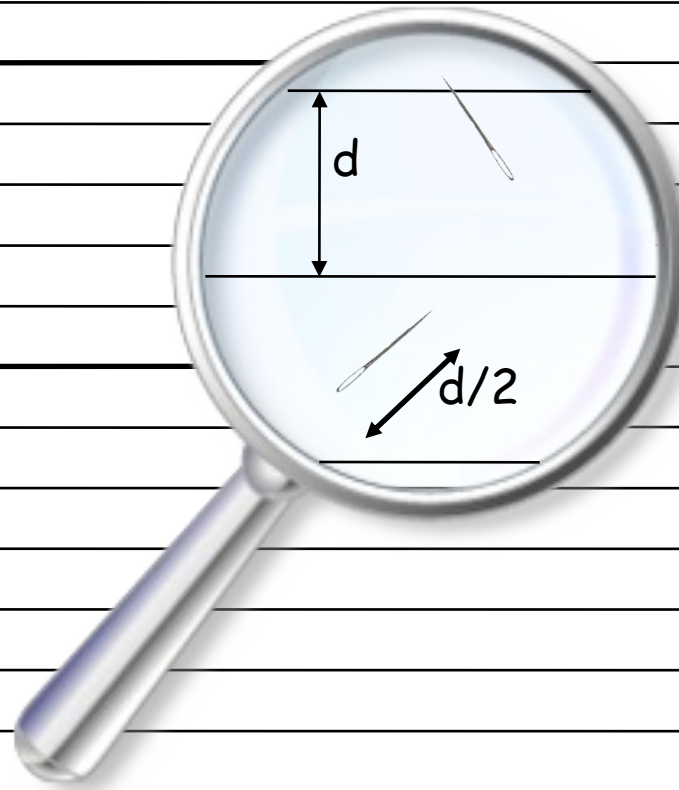
The Future as Self-Transcendence

Chance and Necessity

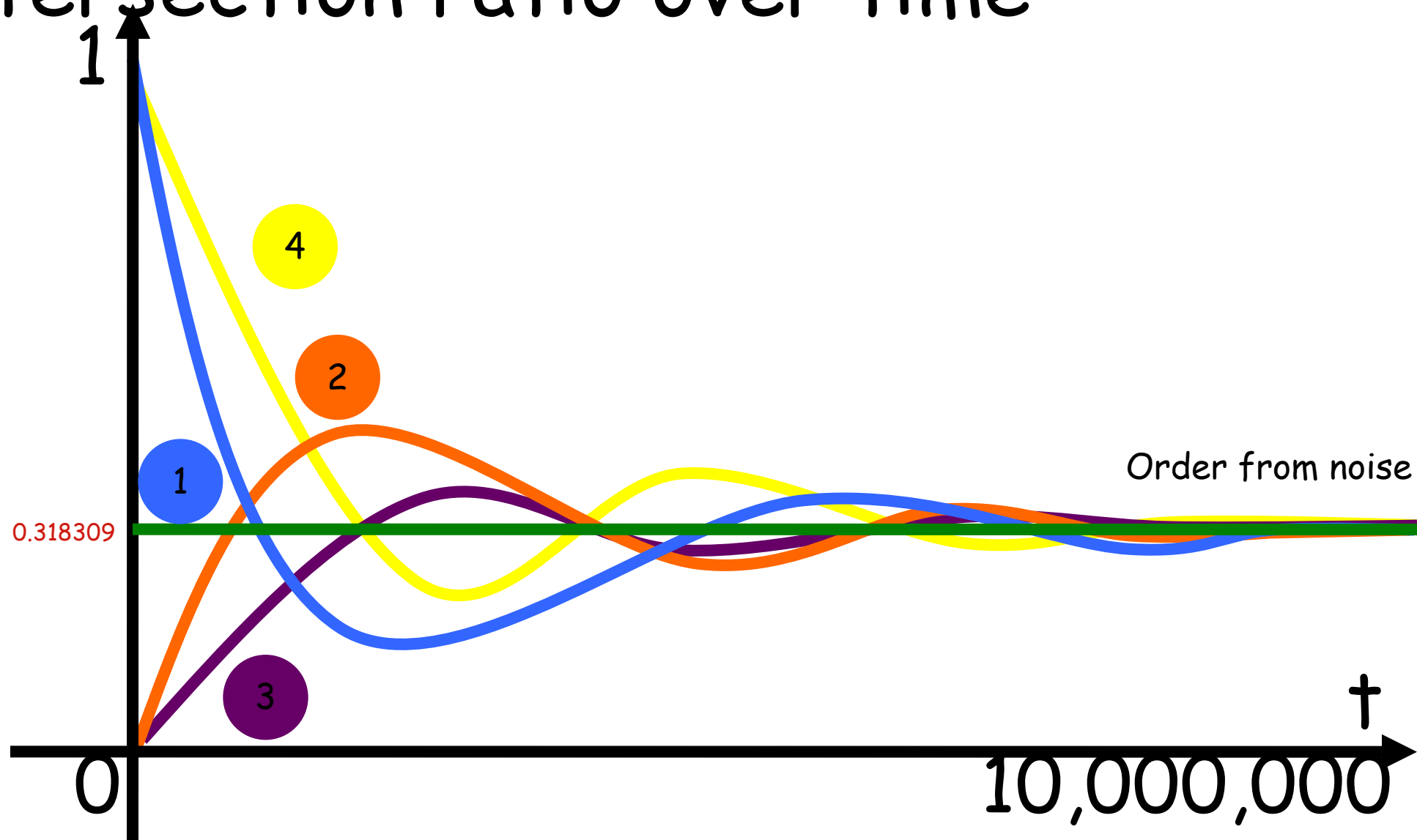
Two principles of evolution

A) Order from noise

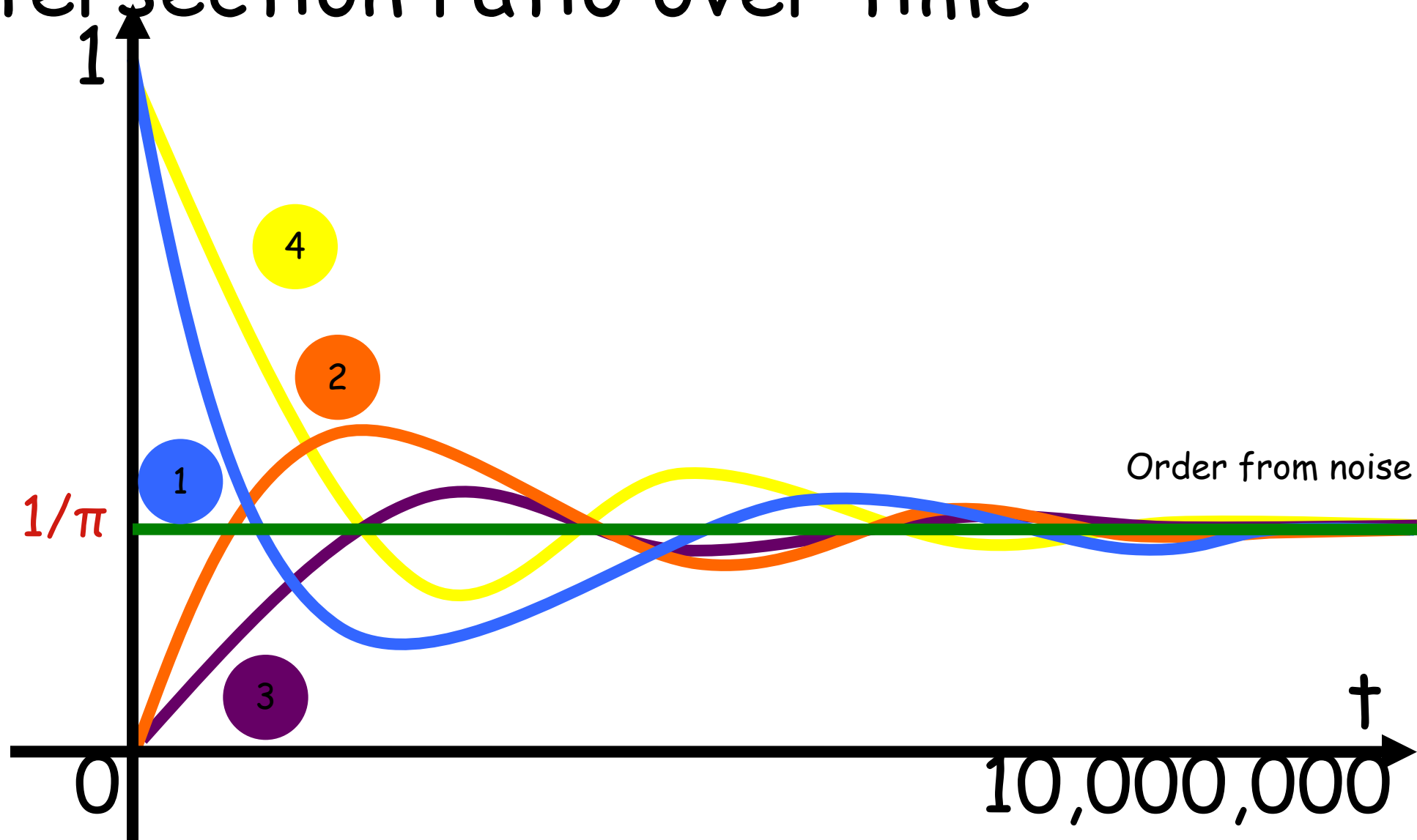
Buffon's needle



Buffon's needle: intersection ratio over time



Buffon's needle: intersection ratio over time

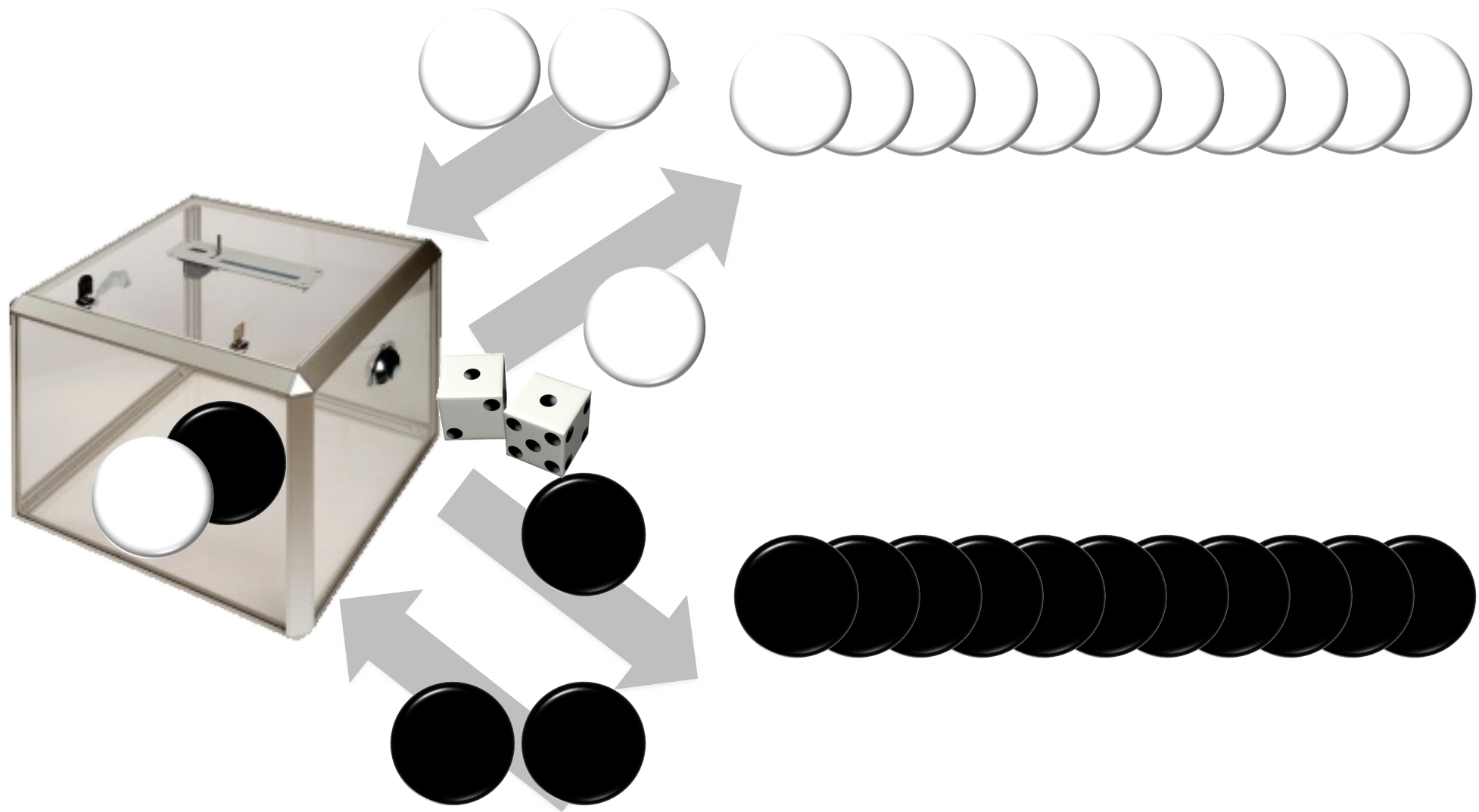


B) Complexity from Noise

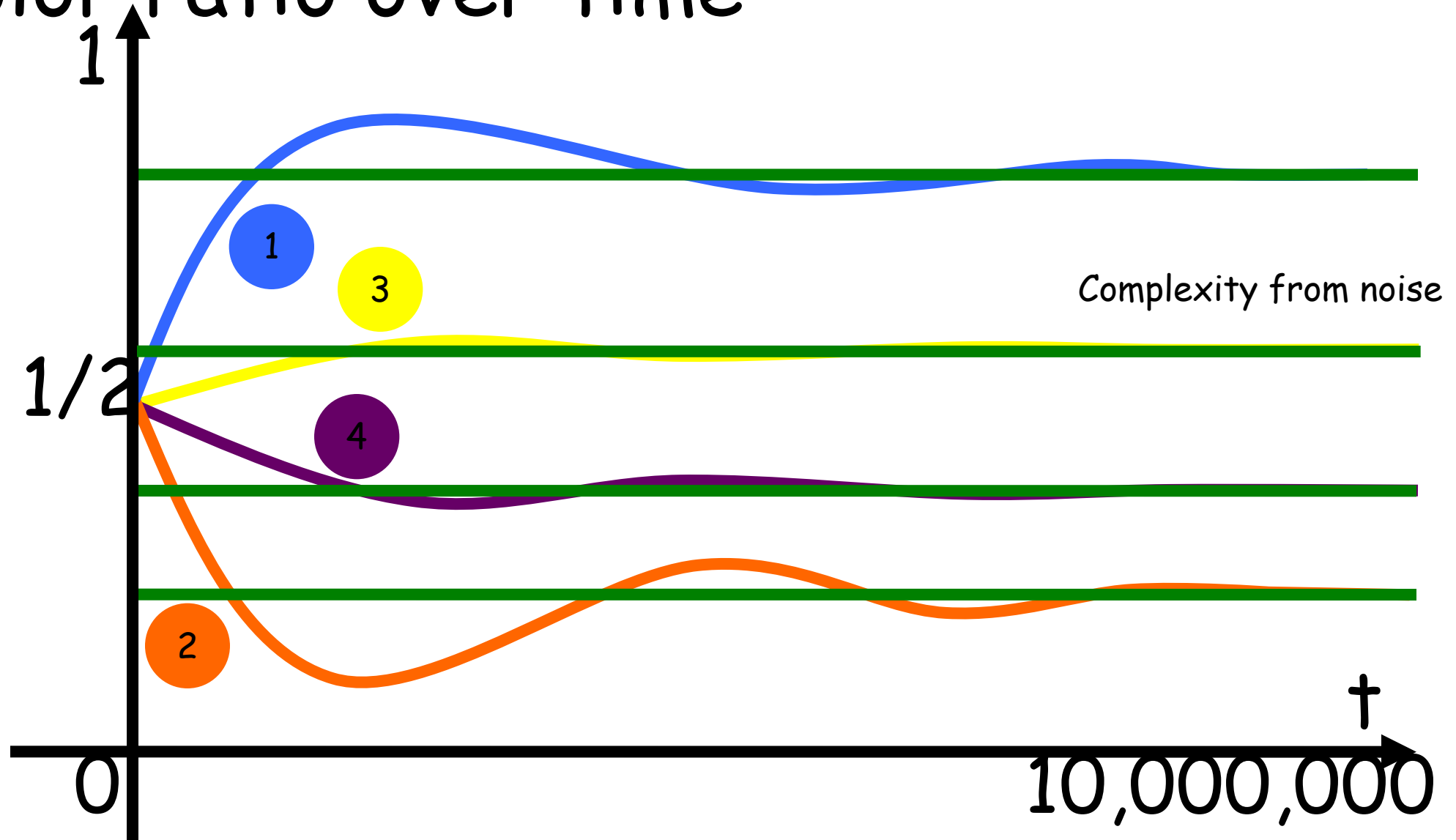
*A Case of Teleological
Mechanism*

*as dynamic apparently
guided by its end*

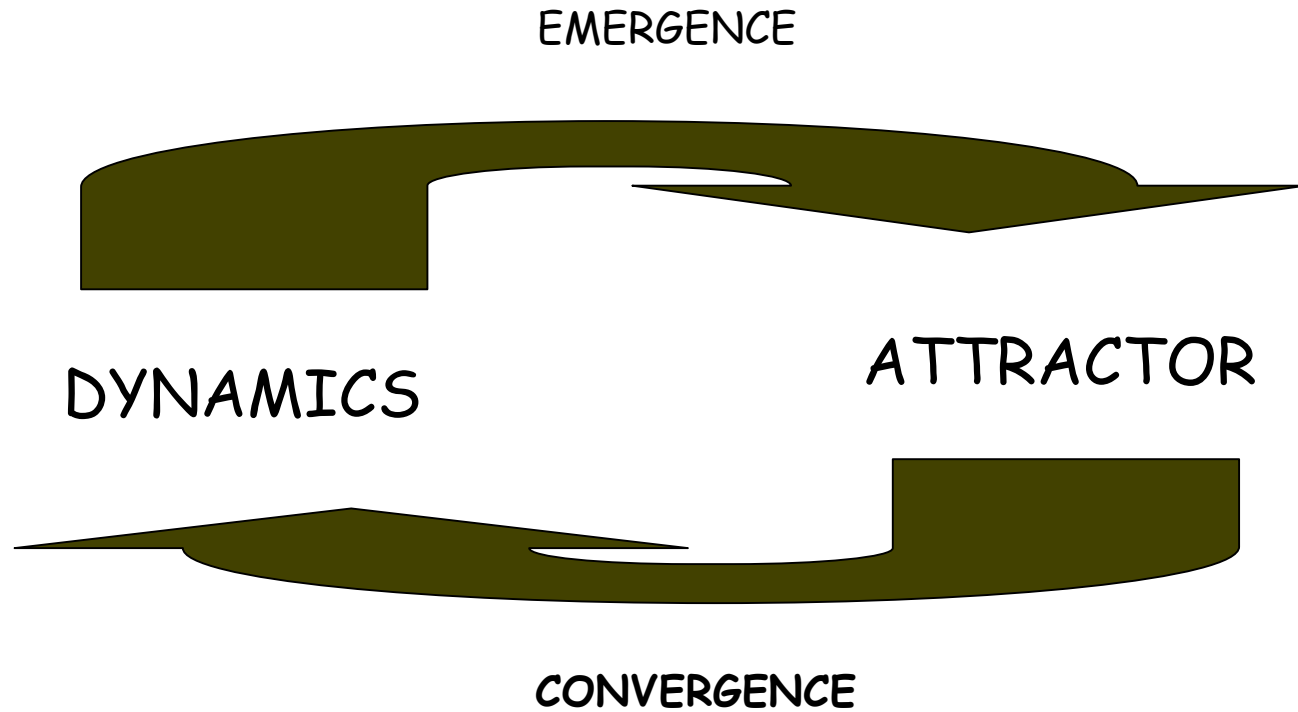
Polya's urn



Polya's urn: color ratio over time



Complexity from noise



The dynamics converges towards an attractor that is generated by itself. The evolution is said to be *path-dependent*.

Complex, Self-organized Systems

Complex systems, made up of many elements interacting in nonlinear ways, possess remarkable properties—so-called emergent properties—that justify their description in terms that one should have thought had been forever banished from science in the wake of the Galilean-Newtonian revolution.

Thus it is said of these systems that they are endowed with “autonomy,” that they are “self-organizing,” that their paths “tend” toward “attractors,” that they are “path-dependent,” that they have “intentionality” and “directionality”—as if their paths were guided by an end that gives meaning and direction to them even though it has not yet been reached; as if, to borrow Aristotelian categories, purely efficient causes were capable of producing effects that mimic the effects of a final cause.

Variation on the two absent-minded professors case



Letting oneself be pulled up by the future





Baron Münchhausen

Bootstrap

Complexity (Cybernetics)

Self-transcendence (Economics / Hayek)

Self-externalization /
Entäusserung (Hegel)

Alienation / *Entfremdung* (Marx)

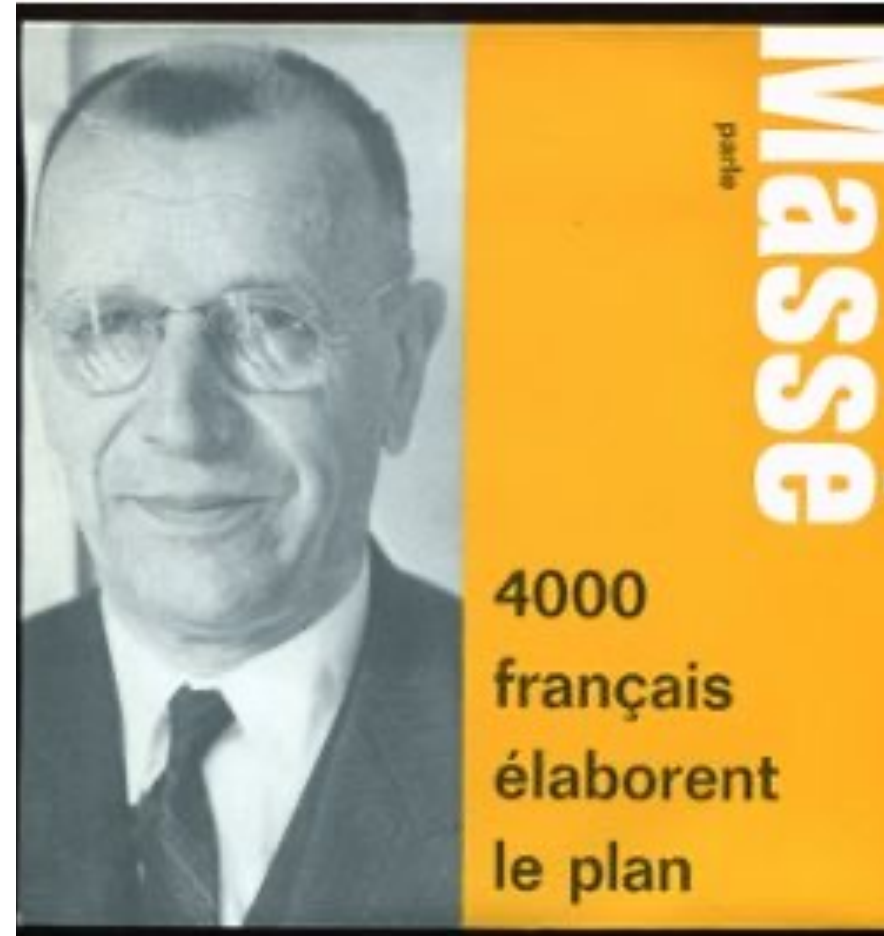
Transcendence within Immanence
(Husserl)

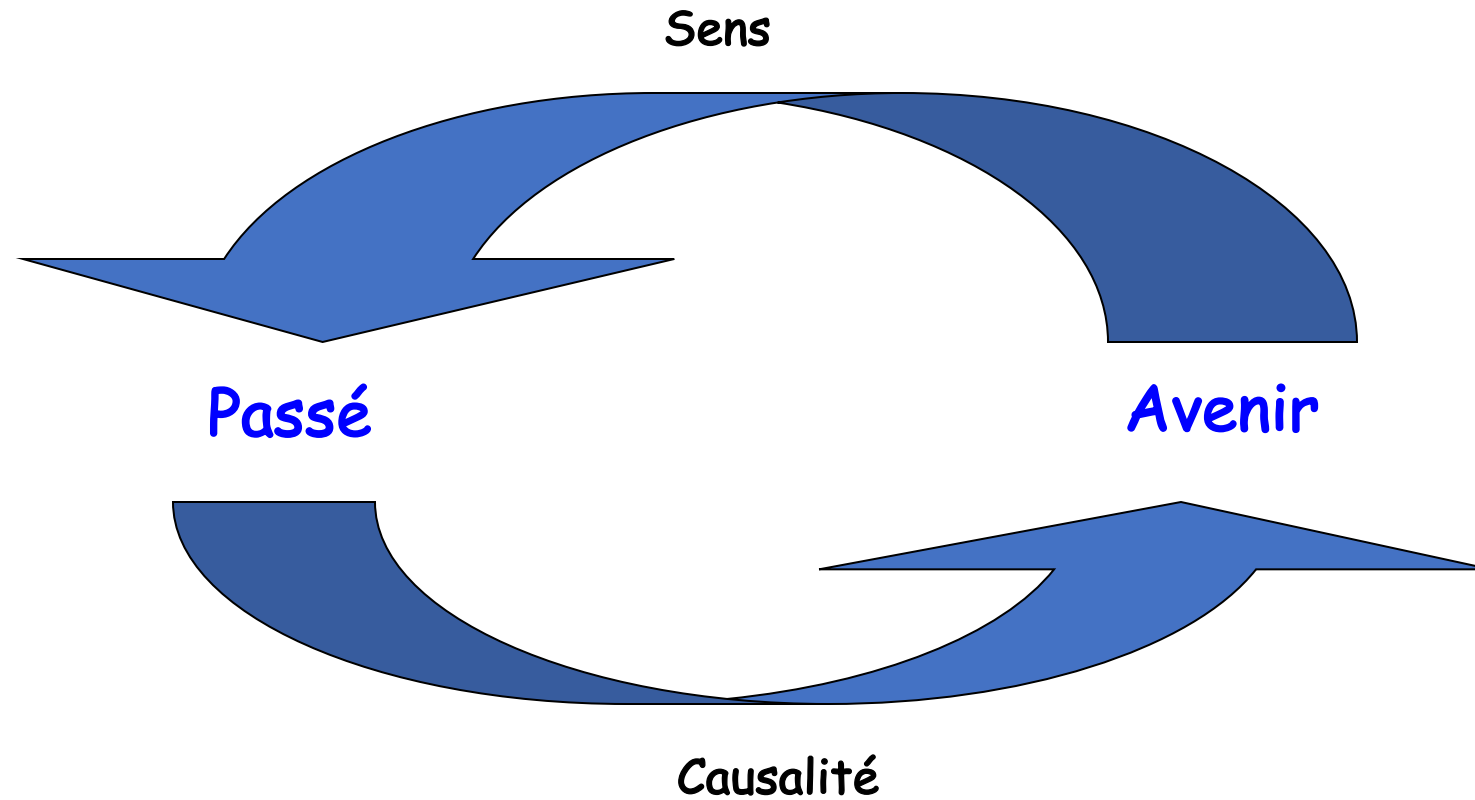
Bootstrapping (from German
literature to vernacular American
English)

Pulling oneself up by one's bootstraps

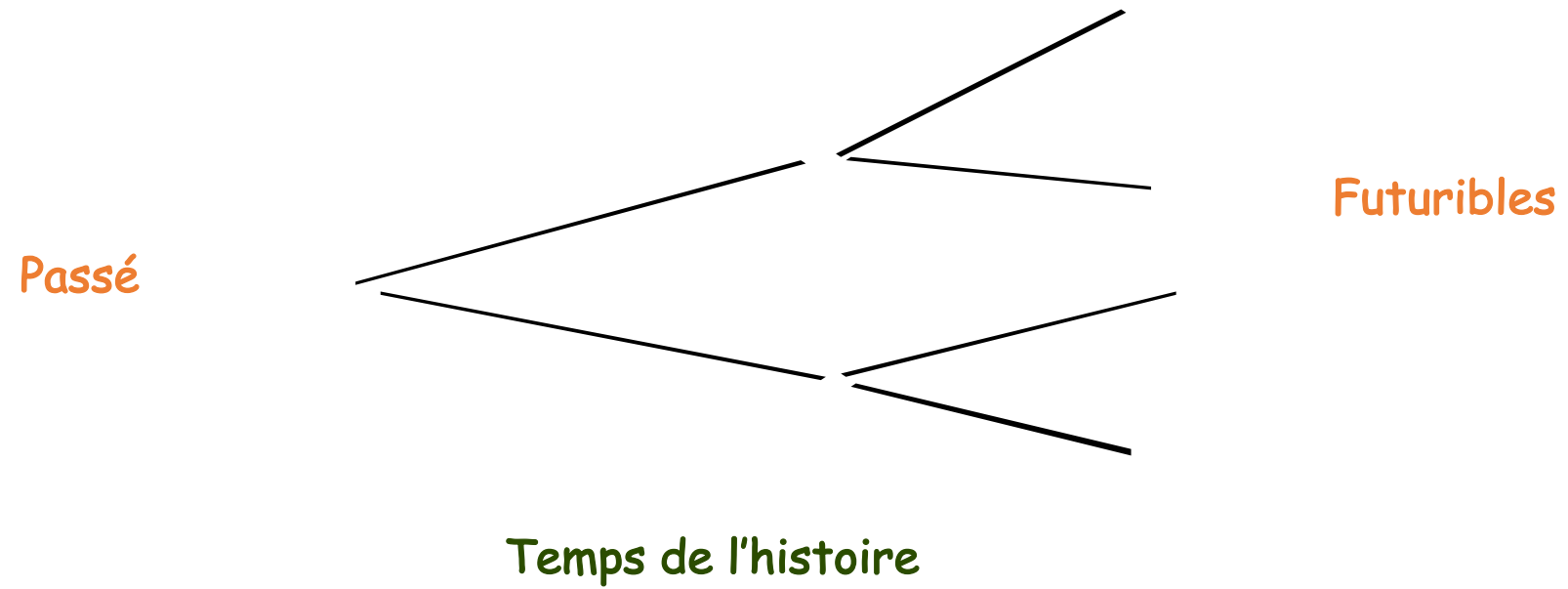
"Il s'agit d'obtenir par la concertation et l'étude une image de l'avenir suffisamment optimiste pour être souhaitable et suffisamment crédible pour déclencher les actions qui engendreront sa propre réalisation."

Pierre Massé, 1963.





Temps du projet
Condition de bouclage



Le passé est fixe.
L'avenir est ouvert.



"El tiempo es un jardín de
senderos que se bifurcan."

Jorge Luis Borges

**"Le temps est un jardin
aux sentiers qui
bifurquent."**

Diodorus [Kronos]
Master Argument
Megarian School
[4th century BCE]

1. Every true proposition about the past is necessary. [The past is fixed.]
2. The impossible does not logically follow from the possible.
3. There is a possible which neither is presently true nor will be so. [The future is open.]

1, 2, 3 are incompatible.

Jules Vuillemin

1920 – 2001

Nécessité ou contingence.

*L'aporie de Diodore et les systèmes
philosophiques*

1984



Logics of Metaphysics

Diodorus Kronos (Megarian School; IVth Century BCE)

Negation of Axiom 3: Nothing is possible which is not true and never will be.

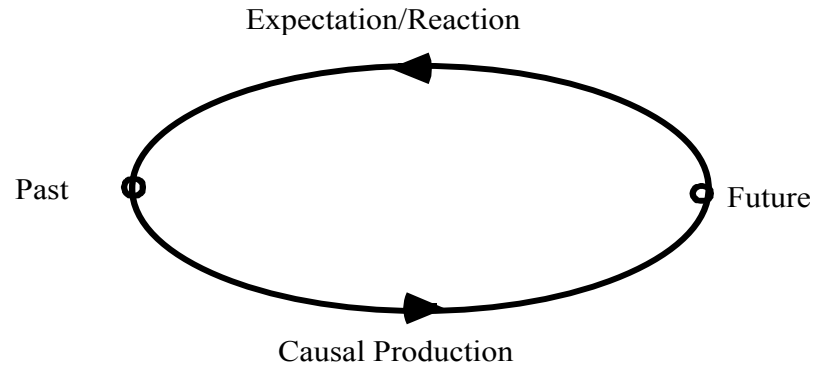
<--> All possibles occur.

If an event occurs in the future, it occurs necessarily. It couldn't not occur. But this necessity is retroactive.

Consequence: ***prevention is useless***. If it succeeds, the event that one wants to prevent doesn't occur, it is therefore impossible, and the action of prevention turns out to be superfluous.

Aristotle, critic of the Megarian School (IVth Century BCE)

Future contingents (i.e. propositions about a future free action) are neither true nor false.



Projected Time

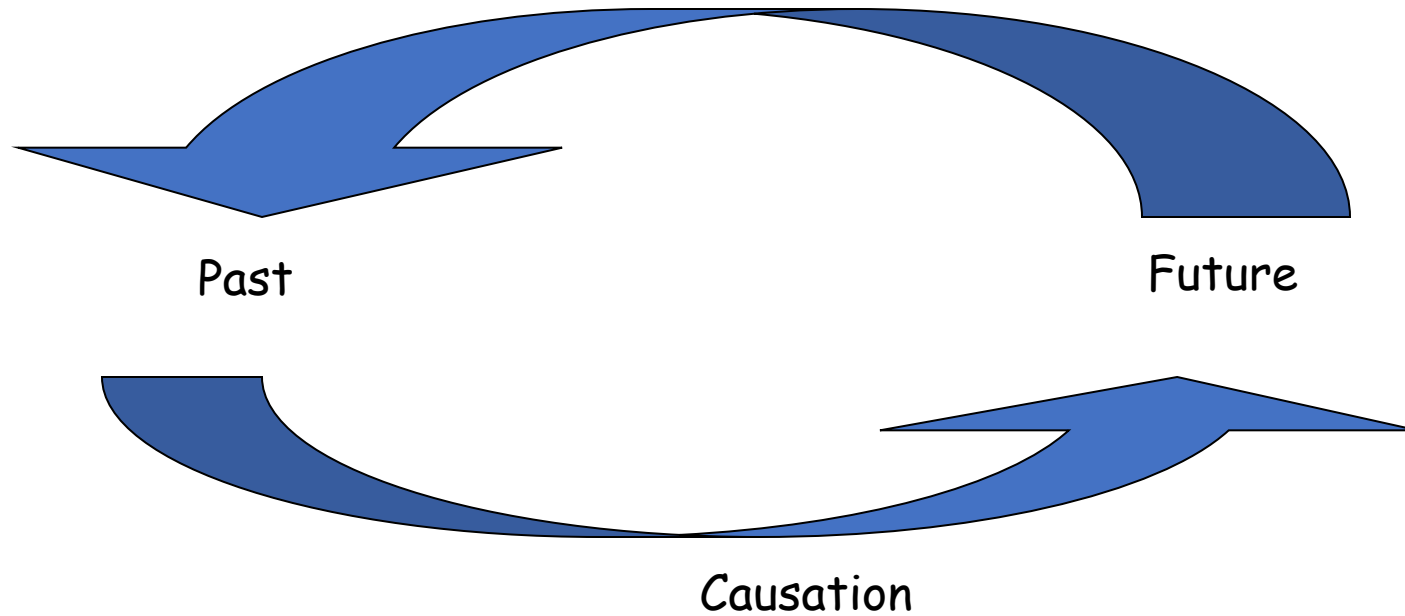
The future is fixed.

The past is open.

The past and the future must come together in a closed loop: the future is the *fixed point* of the loop.

Every possible occurs, either in the present or in the future ==>
That which does not occur is impossible (Negation of Axiom 3)

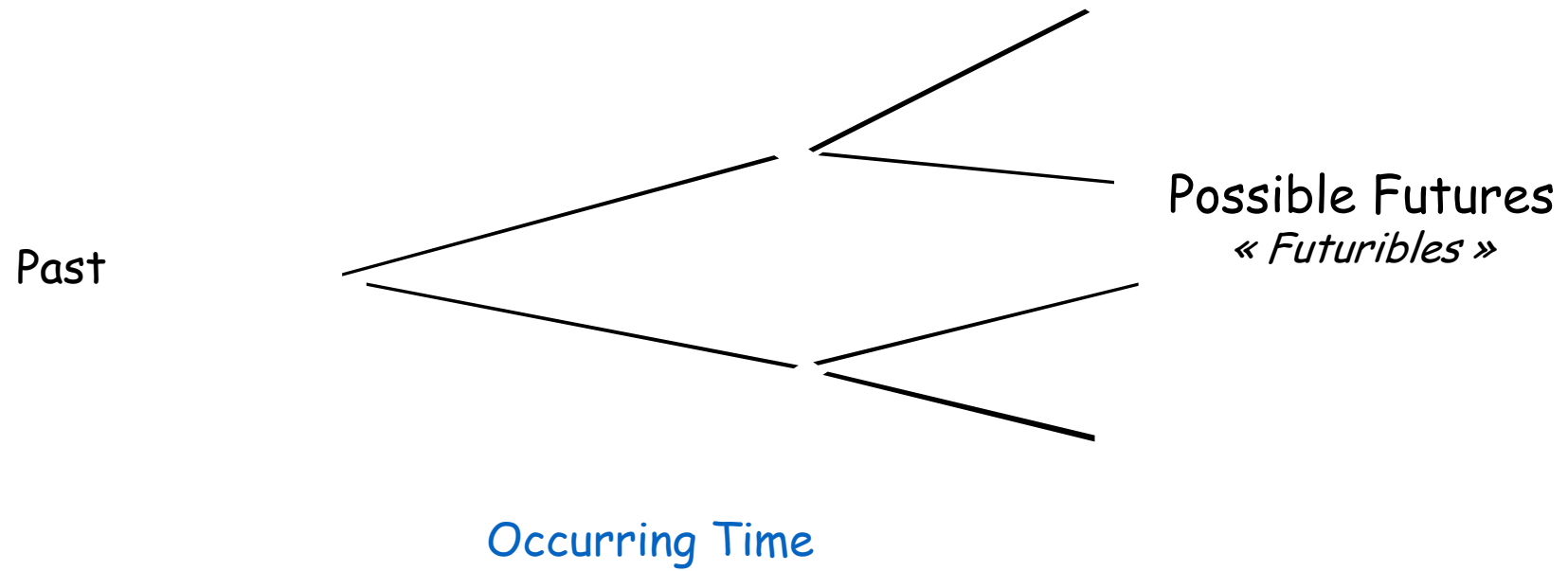
Meaning



Projected time

The meaning of the past depends on the future. It is always "in suspense".

[Jean-Paul Sartre, *Being and Nothingness*]



The past is fixed.

The future is open.

There exist possibles that will never occur (Axiom 3)

Temps du projet

Que se passe-t-il
si ça ne boucle pas?

“The prophecy of doom is made to avert its coming, and it would be the height of injustice later to deride the ‘alarmists’ because ‘it did not turn out so bad after all’ —to have been wrong may be their merit.”

Hans Jonas, *The Imperative of Responsibility*, 1985

The Jonas Paradox

In order to be a « **good** » prophet - the one whose speech makes it so that the catastrophe doesn't occur - the doomsayer must be a « **false** » prophet - the one who prophesies a future that will not occur, precisely because he prophesies it.



The Case of Self-Canceling Prophecies

The Case of Self-Canceling Prophecies



"And the big fish vomited out Jonah upon the dry land." [Jonah 2:10]

The Zadig [and Voltaire] Paradox

When Zadig sees his travel companion the hermit murder the nephew of their hostess of the previous night, he is aghast.

What, he cries in outrage, could you find no other way to thank our hostess for her generosity than to commit this terrible crime?

To this, the hermit, who is none other than the angel Jesrad, the mock spokesperson of Leibniz's system, replies that if that young man had lived, he would have killed his aunt a year later and, a year after that, he would have murdered Zadig himself.

How do you know that? asks Zadig.

"It is written."

ZADIG
OU
LA DESTINÉE.
HISTOIRE ORIENTALE.

M. DCC. XL. VIII.

Minority Report: From Philip K. Dick to Steven Spielberg

The Future Can Be Seen. Murder Can be Prevented. The Guilty Punished Before the Crime is Committed. The System is Perfect. It's Never Wrong. Until It Comes After You.



Minority Report

Steven Spielberg, 2002

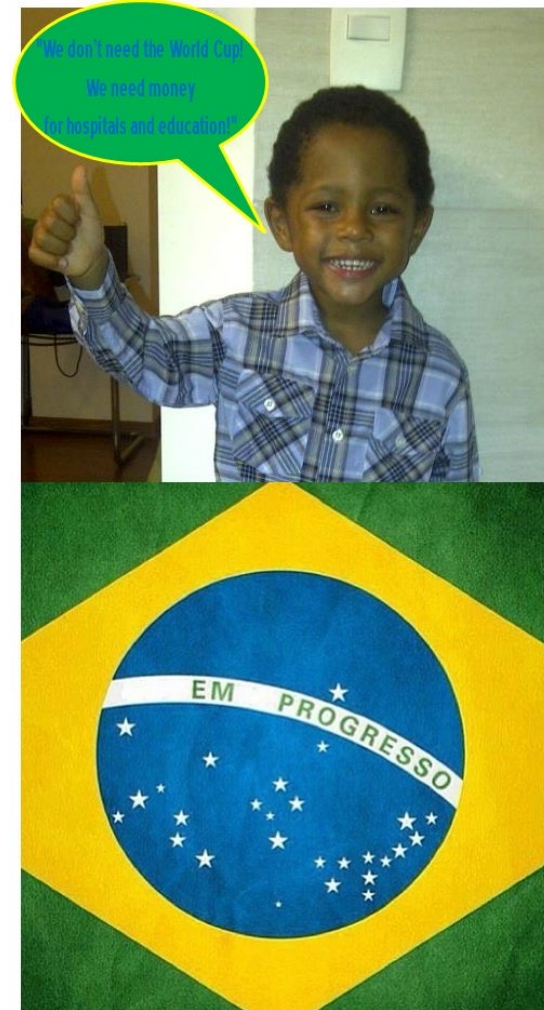
- Witwer: Let's not kid ourselves, we are arresting individuals who've broken no law.
- Jad: But they will.
- Fletcher: The commission of the crime itself is *absolute metaphysics*. The Precogs see the future. And they're never wrong.
- Witwer: *But it's not the future if you stop it. Isn't that a fundamental paradox?*
- Anderton (alias Tom Cruise): *Yes, it is.*



The Case For Predictive Police [*PredPol*]

Changing the Past

Obaminho do Brasil



João Gabriel
de Toledo Dupuy
Salles

São Paulo,
February 20th,
2020



AF 447 the day after May 31st, 2009



AF 447 Rio de Janeiro -
Paris
May 31, 2009

June 1st, 2009



"Se tivesse resolvido de adiar minha viagem por um dia, o crash não tivesse acontecido nesse dia."

"If I had decided to delay my trip by one day,
the crash would not have happened on that day."

Béatrice de Toledo Dupuy

*Counterfactual Power
Over the Past* [Alvin
Plantinga]

Choosing one's destiny = choosing that which, in the past,
determines one's fate

Indicative conditionals vs Counterfactual conditionals

"If Shakespeare did not write *Troilus and Cressida*, someone else did"

is obviously true.

"Had Shakespeare not written *Troilus and Cressida*, someone else would have"

is probably wrong.

"Cleopatra's nose, had it been shorter, the whole face of the world
would have been changed."

Pascal, *Pensées*, 1660



Intervalle 1

Les covidosceptiques et le sophisme de l'an 2000

Jean-Pierre Dupuy a tenu pendant la pandémie un « journal de pensée » d'un genre spécial : il réagit moins aux événements que nous avons tous vécus depuis le mois de mars 2020 qu'à la manière dont ces événements ont été analysés, discutés. Il le fait à la lumière de sa contribution majeure à la pensée de la catastrophe développée dans un livre fameux et souvent mal compris, *Pour un catastrophisme éclairé. Quand l'impossible est certain* (Seuil, 2002 ; 2004).

Voici un livre de combat mû par la colère. La colère de voir des intellectuels relativiser la gravité de la pandémie en cours, s'engager dans une critique virulente de sociétés et de gouvernants qu'ils jugent obsédés par la « protection de la vie », au point de sacrifier l'avenir du monde, de l'économie et des libertés publiques. Avec rigueur et détermination, Jean-Pierre Dupuy leur répond et met au jour les erreurs logiques – et scientifiques – qui sous-tendent ces raisonnements, et propose par là même une réflexion passionnante et passionnée sur la mort et la vie au temps de la pandémie.

Philosophe de formation scientifique, Jean-Pierre Dupuy a longtemps été professeur à l'École polytechnique et il est aujourd'hui professeur à l'université Stanford (Californie). Il est l'auteur d'une quarantaine d'ouvrages traduits en une quinzaine de langues, dont *Petite Métaphysique des tsunamis* (Seuil, 2005) ; *La Marque du sacré* (Flammarion, « Champs », 2010 ; prix Roger-Caillois de l'essai), *L'Avenir de l'économie* (Flammarion, 2012) et *La guerre qui ne peut pas avoir lieu* (Desclée de Brouwer, 2018).



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Jean-Pierre Dupuy
la catastrophe ou la vie

Seuil

la catastrophe ou la vie

pensées par temps
de pandémie

Jean-Pierre
Dupuy

Seuil

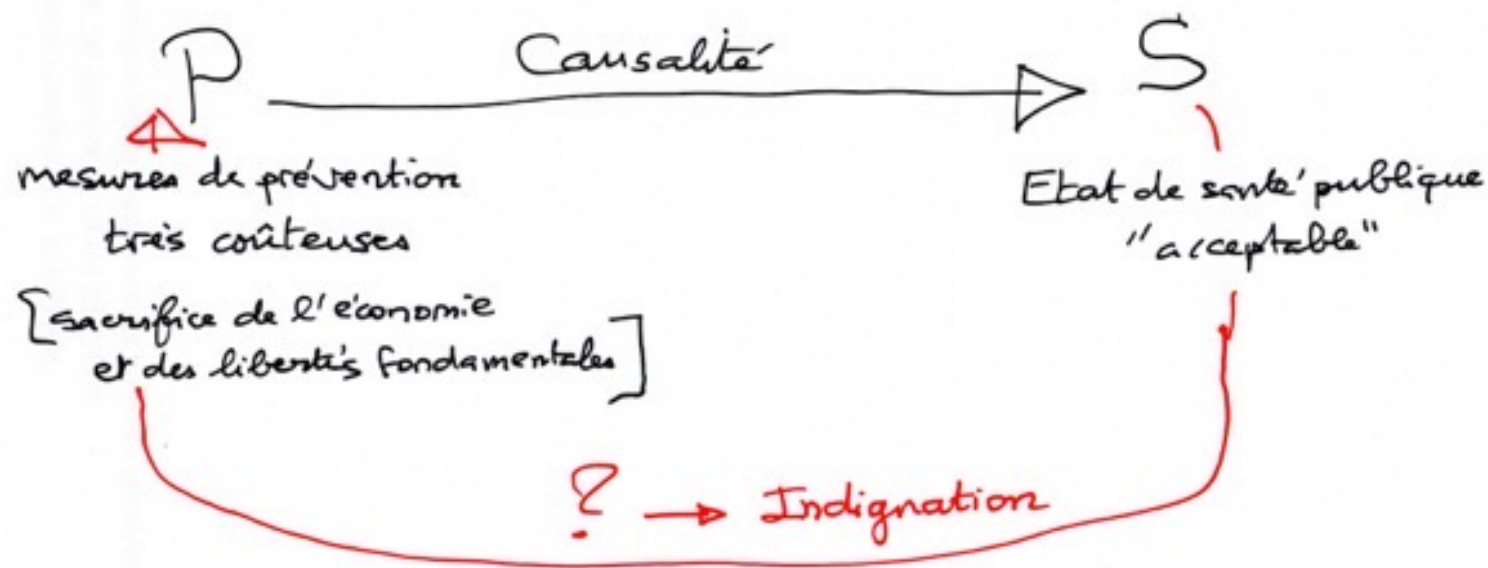


La double plainte des covidosceptiques

- « On » nous a menti sur la gravité du fléau.
- Sur la base de ce mensonge, « on » a sacrifié l'économie et « on » a restreint des libertés fondamentales pour asseoir encore mieux le pouvoir des médecins et des autorités sanitaires – le fameux « biopouvoir » dont parlait Michel Foucault.

Le sophisme de l'an 2000

Sophisme de l'an 2000
Graphique de causalité



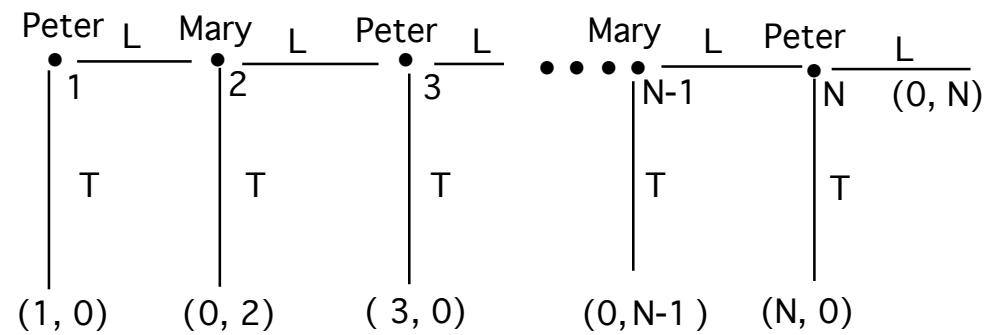
$$P \longrightarrow \Delta S$$



Cette prétendue épidémie est un énorme canular inventé par les démocrates pour faire chuter Trump et l'économie. Les chiffres mentent. D'ailleurs, lorsqu'on les examine de près, on réalise qu'ils ne sont pas si inquiétants. Que fait le Dr Fauci à la Maison-Blanche ? C'est lui qui crée la panique pour mieux asseoir son pouvoir. Il instille la peur. Mais c'est la liberté que nous exigeons, non la peur. La mort fait partie de la vie et Jésus est notre vaccin. Nous sommes un pays de liberté (*the Land of the Free*). On ne nous imposera ni port du masque, ni distances de précaution, ni confinement . Si vous voulez le communisme, allez en Chine. Nos droits fondamentaux garantis par la Constitution sont sacrés et pourtant ils sont violés. Le travail est l'instrument de la liberté et il n'y en a plus.

Intervalle 2

Le paradoxe de la *Backward Induction*



Backward Induction Paradox

Considérations sur la guerre nucléaire

Jean-Pierre Dupuy
**LA GUERRE QUI NE PEUT
PAS AVOIR LIEU**



**Le réveil du tigre
nucléaire**

DESCLÉE DE BROUWER

Le risque nucléaire et la philosophie américaine

David K. Lewis

Robert Stalnaker

Alvin Plantinga

Donald Davidson

Gregory Kavka

Jean Hampton

David Gauthier

Michael Bratman

Etc.

POINTS

Jean-Pierre
Dupuy

Pour un
catastrophisme
éclairé

Quand l'impossible est certain



ESSAIS

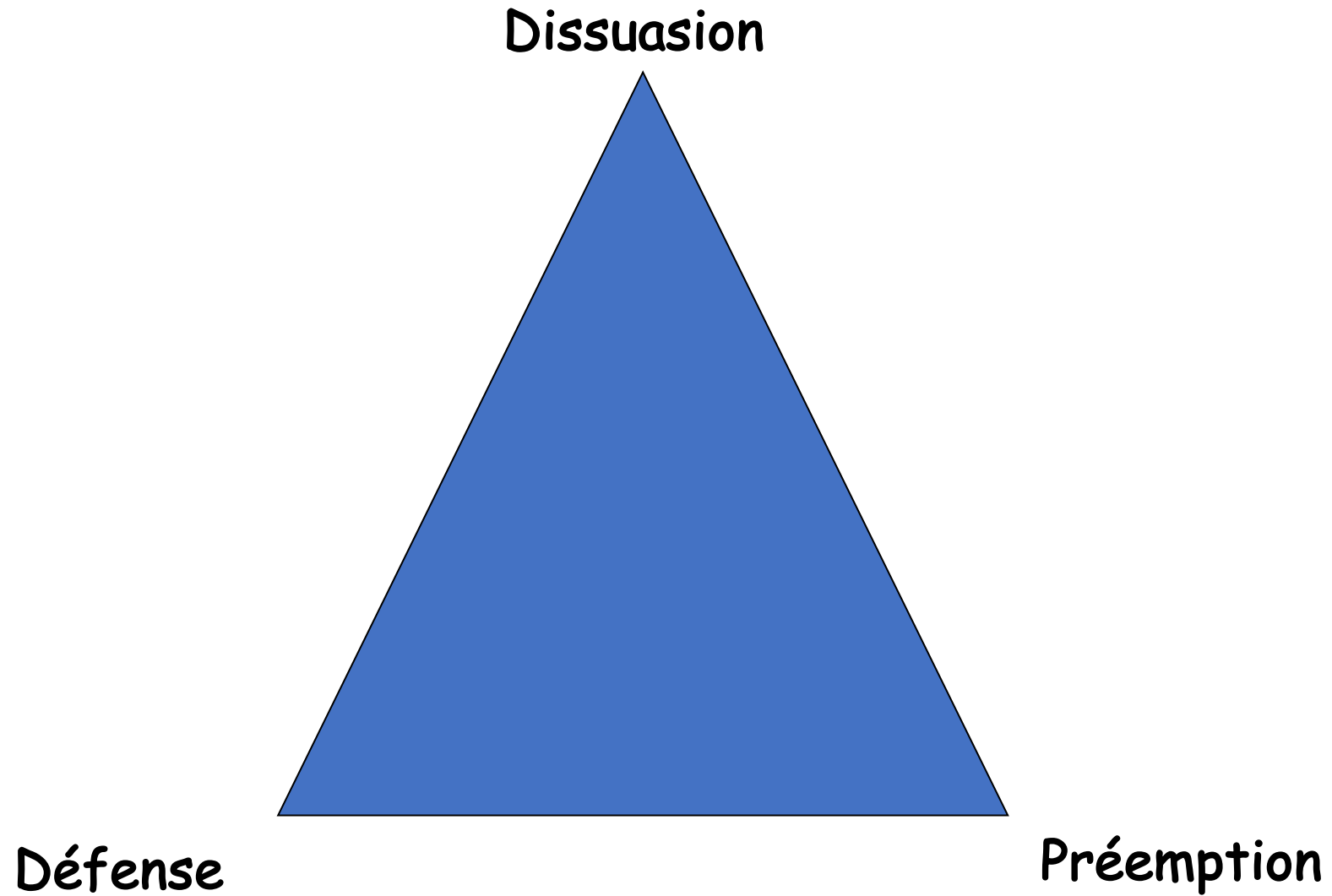
Métaphysique
du temps du projet



"La simple possession
de l'arme nucléaire est
perverse et immorale."

Pape François, Hiroshima,
24 novembre 2019

Les emplois de la force nucléaire



Dissuasion

- 1) Menace (/Promesse): riposte incommensurable si une ligne (non dite) est franchie -ce qui présuppose une capacité de seconde frappe -, pouvant déclencher une escalade vers l'extrême, c'est-à-dire la destruction mutuelle assurée.

MAD – *Mutually Assured Destruction*

- 2) On ne se défend pas. Traité ABM (Anti-Ballistic Missile), Moscou, 26 mai 1972, Nixon_Brejnev.
- 3) « *Launch on Warning* » au lieu de « *Riding Out* ».

Relinquishing Defense

Anti-Ballistic Missile (ABM) Treaty



Richard Nixon and Leonid Brezhnev, Moscow, 1972

Défense



« On a jusqu'ici dissuadé nos adversaires de nous agresser en leur promettant des représailles offensives.

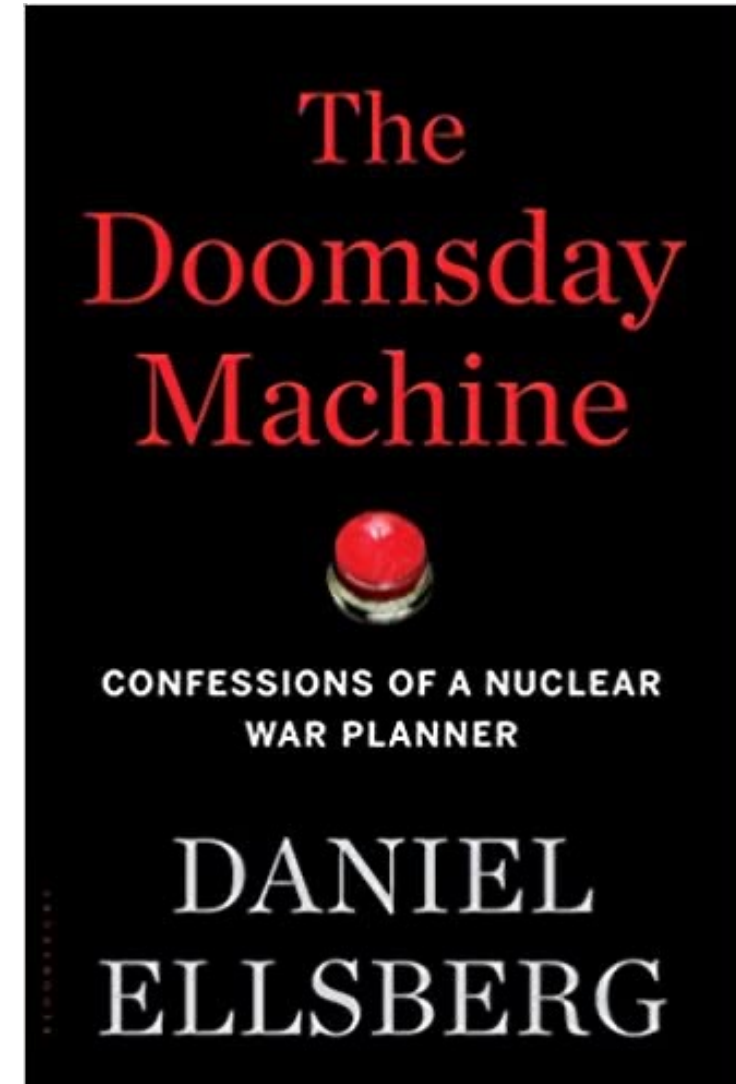
Ne vaudrait-il pas mieux sauver des vies plutôt que les venger? »

Ronald Reagan, discours à la nation américaine, 23 mars 1983

→ Strategic Defense Initiative (« Star Wars »)

Préemption

- L'objectif de la politique nucléaire américaine n'a jamais été prioritairement de garantir que les USA n'attaqueraient pas en premier, mais au contraire de rendre crédible qu'ils étaient prêts à attaquer en premier.
- « *Striking Second First* » → Représailles par anticipation.
- John Bolton et la Corée du Nord.
- Lien avec le « *Launch on Warning* ».



Rationalité et éthique de la dissuasion nucléaire

1. Rationalité

Quel est le but?

- 1) Éviter la guerre nucléaire.
- 2) Dissuader l'autre d'attaquer en premier.

La dissuasion a-t-elle « marché »?

Argument stupide: *Post hoc, ergo propter hoc*

Deux arguments a priori qui concluent l'un et l'autre que la dissuasion ne peut pas marcher:

Non-crédibilité de la menace dissuasive;

Auto-invalidation d'une dissuasion réussie.

Non-crédibilité de la menace dissuasive

“US nuclear strategy relies on a central concept: deterrence in the form of mutual assured destruction. The logic is that the United States will not attack the United States, the thinking is that the United States would retaliate with overwhelming force because they know the United States would retaliate with overwhelming force. This is essentially invalid in the nuclear weapons.”

The concept of deterrence is flawed. Both sides are rational actors who ultimately desire survival. The all-encompassing problem is that this concept is not valid. In the age of surprise attacks and nuclear weapons, it is clear that this first assumption is demonstrably false. It was to cast aside recent phenomena, through human history, that emotion, not rationality, has been the primary motive for action, irrespective of self-preservation.”

Peter Hatemi et al., “Revenge is a dish best served cold. US deterrence depends on it”, *Bulletin of the Atomic Scientists*, 12 octobre 2020.

La rationalité/efficacité de la dissuasion nucléaire repose sur l'hypothèse de l'irrationalité des acteurs.

La menace dissuasive n'est crédible et la dissuasion rationnelle que si on a de fortes raisons de supposer que l'autre est irrationnel: il n'hésitera pas à lancer l'escalade.

The Deterrent Threat Is Not Credible



"Come what may, I will never agree **to make a motion** that would lead to France's annihilation [...] Her landscapes, her houses, her trees, her waters and ponds and rivers, and the loyalty of her people's beliefs, though they may be hidden at the time — it is they who I wish to give the ultimate chance to one day rejuvenate French culture."

Valéry Giscard d'Estaing,
Le pouvoir et la vie,
Vol. II, "L'affrontement",
Paris, 1991

Auto-invalidaiton d'une dissuasion réussie

- En général, un système dissuasif ne marche que s'il ne marche pas à 100%: importance de l'effet de démonstration.
- En matière nucléaire, le premier échec est l'échec de trop.

It is possible to maintain that nuclear deterrence is rational but the price to pay is to make it appear as a moral abomination

Fate and the Tiger

Nuclear war is like a tiger
who will devour us necessarily

Existential Deterrence

Getting Rid of Intentions, Abandoning Strategy

The kind of rationality at work here is not a calculating rationality, but rather the kind of rationality in which the agent contemplates the abyss and simply decides never to get too close to the edge.

David Lewis: *"You don't tangle with tigers - it's that simple."*

Ramsey: "[Nuclear weapons] may be used either against strategic forces or against centers of population. [...] That means that *apart from intention, their capacity to deter cannot be removed from them.* [...] No matter how often we declare, and quite sincerely declare, that our targets are an enemy's forces, *he can never be quite certain that in the fury or the fog of war his cities may not be destroyed.*"

Bernard Brodie: "We do not need to threaten that we will use [nuclear weapons] in case of attack. We do not need to threaten anything. *Their being there is quite enough.*"

How Existential Deterrence works (1)

“You don’t tangle with tigers – it’s that simple.”

David K. Lewis



- a) It is in the interest of both parties that they be deterred.
- b) Neither party has the capacity to deter the other.
- c) A 3rd party is required: provided by the self-externalization of their violence.

How Existential Deterrence works (2)

"It is a curious paradox of our time that one of the foremost factors making deterrence really work and work well is the lurking fear that in some massive confrontation crisis it may fail. Under these circumstances one does not tempt fate."

Bernard Brodie, 1973

Peut-on sauver la rationalité de la dissuasion nucléaire?

- Oui, mais à condition de raisonner dans le temps du projet et d'introduire un élément d'indétermination.
- *"It is a curious paradox of our time that one of the foremost factors making deterrence really work and work well is the lurking fear that in some massive confrontation crisis **it may fail**. Under these circumstances one does not tempt **fate**."*

Bernard Brodie, 1973

A Way Out? Feigning Irrationality

President Nixon's *Madman Theory*.

=> Nixon to Robert Haldeman (1970): "I call it the Madman Theory, Bob. I want the North Vietnamese to believe I've reached the point where I might do *anything* to stop the war. We'll just slip the word to them that, 'for God sake, you know Nixon is obsessed about Communism. We can't restrain him when he's angry - and he has his hand on the nuclear button' - and Ho Chi Minh himself will be in Paris in two days begging for peace . ."

Un avenir à la fois
nécessaire et indéterminé?

Où le hasard et la nécessité se confondent?

It is because there is a probability e that the deterrence will not work that it works with a probability $1 - e$.

Randomness in Occurring Time

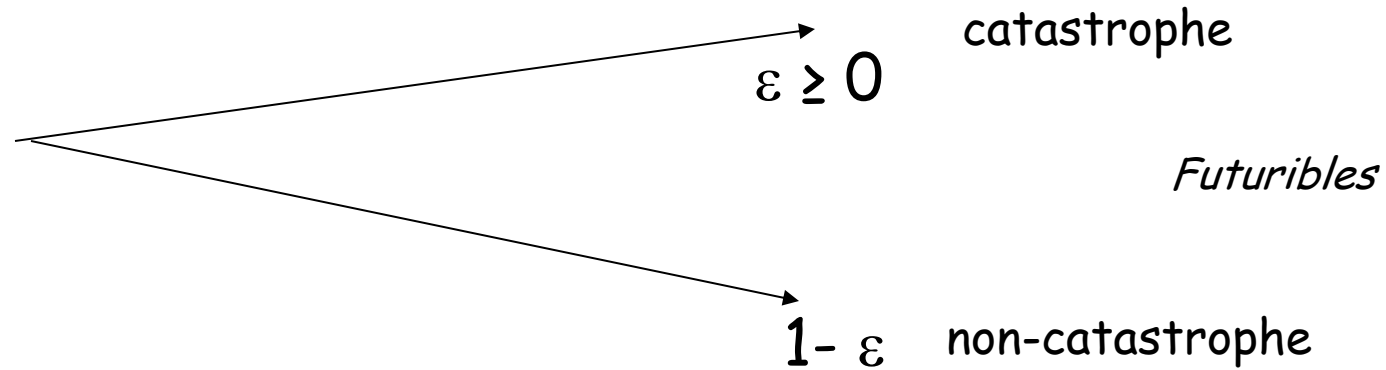


Illustration: President Nixon's "Madman Theory"

"It is because there is a probability e that the deterrence will not work that it works with a probability $1 - e$ "

is analytically true: it is a tautology.

Indeterminacy (*Unbestimmtheit*) in Projected Time

$$\begin{array}{l} \text{-----} \quad \varepsilon > 0 \\ \text{-----} \quad 1 - \varepsilon \end{array} \quad \textit{Superposition}$$

"It is because there is a probability e that the deterrence will not work that it works with a probability $1 - e$ " is no longer a tautology. It is *not true* for $e = 0$.

The fact that the deterrence will not work with a strictly positive probability e is what allows for the inscription of the catastrophe in the future, and it is this inscription that makes the deterrence effective, with a margin of error e .

Conclusion on the rationality and ethics of nuclear deterrence:

Rationality of ND presupposes Existential Deterrence and Projected time/
Nuclear War is *present* in the future. Killing one billion innocents at an indeterminate moment is the price to pay for making ND rational. It is an ethical abomination: *quod erat demonstrandum*.

Karl Jaspers, *The Origin and Goal of History*, 1953

"Anyone who regards an impending war as *certain* is helping on its occurrence, precisely through his certainty. Anyone who regards peace as *certain* grows carefree and unintentionally impels us into war. **Only he who sees the peril and does not for one instant forget it**, is able to behave in a rational fashion and to do what is possible to exercise it."



FORTUNA



Fortuna Primigenia, Praeneste

"L'avenir est inévitable,
mais il peut ne pas se produire."



"El porvenir es inevitable,
pero puede no acontecer."

Jorge Luis Borges,
La Creación y P. H. Goss

Concept de *Unbestimmtheit*, ou d'indétermination

Dans un avenir nécessaire, il n'y a pas de probabilités, qui supposent des disjonctions. Mais il peut y avoir des **superpositions**, qui supposent des conjonctions.

Sur le « Grand rouleau » de l'avenir, on trouve **à la fois** la guerre nucléaire et son absence, la « paix nucléaire ».

Werner
Heisenberg
et le principe
d'indétermination



Rationalité et éthique de la dissuasion nucléaire

2. Éthique

Éthique, version courte

La guerre nucléaire est bien notre destin. L'indéterminé, c'est le délai (*die Frist*). Nous sommes en sursis. Avoir l'arme atomique, c'est se plier à ce destin. Le milliard de morts n'est pas une *possibilité* pour demain. L'avenir catastrophique est *actuel*.



Günther Anders



Éthique, version longue

Ethics of Nuclear Deterrence

The Problem of Immoral Threats

- p = "kill 1 million of innocent people."

(1) *It is right to intend to p*

Consequentialist argument

(2) *It is wrong to p*

Deontological tenet

(3) *If it is wrong to x, then it is wrong to intend to x, for all x*

Uncontroversial, albeit non-consequentialist, tenet of moral theory

Ethical Way Out?

- The intention to retaliate is merely *conditional*.
- ==> The moral paradox does not disappear.
- However, the intention to retaliate is not conditional in the ordinary sense of the word. Our nuclear arsenal is not there to liquidate 60 millions of innocent lives, it is there to make it so that the conditions that would lead us to liquidate 60 millions of innocent lives will **never** obtain.
- ==> The intention to retaliate is *self-stultifying* [Gregory Kavka].
- ==> "So, you will **never** press the button?" The ethical problem is solved at the cost of the inefficiency of nuclear deterrence.

Ethics of Nuclear Deterrence

The Problem of Immoral Threats

- p = "kill 1 million of innocent people."

(1) *It is right to intend to p*

Consequentialist argument

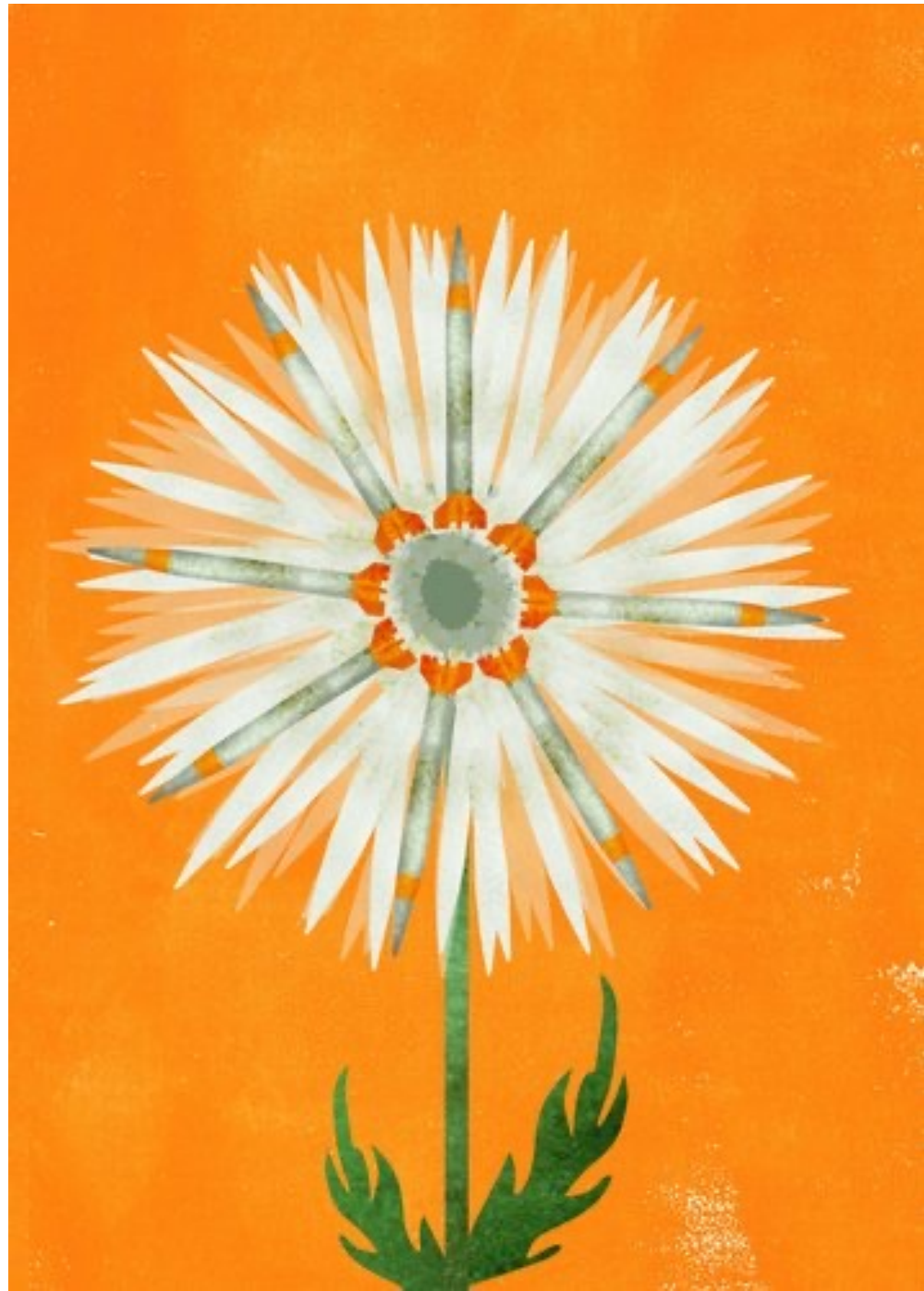
(2) *It is wrong to p*

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Uncontroversial, albeit non-consequentialist, tenet of moral theory

(1) présuppose que la dissuasion est efficace, ce qui implique que l'on est dans le temps du projet. Mais alors, la coalescence du présent et de l'avenir ne passe plus par les intentions. Elle est assurée par l'actualité de l'avenir. Il ne reste que (2).



- Конечно, потенциал объединенной организации НАТО и России не сопоставим. Мы понимаем, но мы также и понимаем, что Россия – одна из ведущих ядерных держав, а по некоторым компонентам по современности даже многих опережает. Победителей не будет, и вы окажетесь втянутыми в этот конфликт помимо своей воли. Вы даже не успеете и глазом моргнуть, когда будете исполнять пункт пятый Римского договора.

- « Bien sûr, les potentiels de l'organisation conjointe de l'OTAN et de la Russie ne sont pas comparables. Nous le comprenons, mais nous comprenons également que la Russie est l'une des principales puissances nucléaires, et en termes de modernité de certains composants, elle est même en avance sur beaucoup d'autres. **Il n'y aura pas de vainqueurs, et vous vous retrouverez entraînés dans ce conflit contre votre volonté.** Vous n'aurez même pas le temps de cligner des yeux lorsque vous allez mettre en œuvre l'article cinq du traité de Rome. »

- "Même si, bien-sûr, le potentiel de l'Oran réuni et la Russie ne sont pas comparables, nous comprenons que la Russie est une puissance nucléaire qui dépasse les capacités de la plupart des autres pays. Vous serez entraînés dans un conflit malgré votre volonté. Vous n'aurez même pas le temps de réagir."



Playing with fire

- Our salvation depends on **our playing constantly with fire**.
 - *Not too close* lest we should perish in it [Existential Deterrence];
 - *Not too far* lest we should forget about the danger [Jonah Paradox].
- Exactly the same structure as primitive societies' relationship to the Sacred:
 - Not too close [**Danger**];
 - Not too far [**Protection**].
- The dialectic between Fate and Accident permits just that:
 - Our **Fate** is Doom [= not too far];
 - However, Fate requires **Accident**'s helping hand [= not too close].

Errol Morris: "Didn't nuclear deterrence protect us against nuclear holocaust?"



We lucked out !

Robert McNamara

In Errol Morris' *The Fog of War*, 2003