

INSTITUT D'ÉTUDES  
AVANCÉES DE PARIS



# The Brains that pull the Triggers

## 2nd Paris conference on Syndrome E

Monday, 9 and Tuesday, 10 May 2016

---

Organized by **Itzhak Fried** (UCLA - Paris IAS), **Alain Berthoz** (Collège de France), and **Gretty Mirdal**, director of the Paris IAS.



---

Hôtel de Lauzun  
17 quai d'Anjou 75004 Paris  
+ 33 (0)1 56 81 00 52  
information@paris-iaa.fr  
www.paris-iaa.fr  
@IEAdeParis

## Presentation

---

The transformation of groups of previously nonviolent individuals into repetitive killers of defenseless members of society has been a recurring phenomenon throughout history. This apparent transition of large numbers of seemingly normal, “ordinary” individuals, to perpetrators of extreme atrocities is one of the most striking variants of human behavior, but often appear incomprehensible to victims and bystanders and in retrospect even to the perpetrators themselves and to society in general.

This transition is characterized by a set of symptoms and signs for which a common syndrome has been proposed, Syndrome E (Fried, *The Lancet*, 1997). The purpose of such designation is not to medicalize this form of human behavior, but to provide a framework for future discussion and multidisciplinary discourse and for potential insights that might lead to early detection and prevention. Individuals expressing the syndrome show obsessive ideation, compulsive repetition, rapid desensitization to violence, diminished affective reactivity,

hyper arousal, group contagion, and failure to adapt to changes in stimulus- reinforcement associations. A pathophysiological model — “cognitive fracture” — was hypothesized, where hyper-aroused medial prefrontal cortices tonically inhibit the amygdala and are no longer regulated by visceral and somatic homeostatic controls ordinarily supplied by subcortical systems. Thus, the syndrome is a product of neocortical development rather than the manifestation of a disinhibited primitive brain. The acts performed by the perpetrators are not haphazard acts of violence performed at the “heat of battle”, but repetitive automatized acts performed with affective flatness and desensitization, which have an uncanny need for mechanization and repetition that dehumanize both victims and perpetrators. Notable manifestation of this syndrome can be found throughout history, yet its relevance is still ever present, as seen in recent massive killings carried out by various groups nowadays and in the voluntary participations of previously nonviolent individuals, including young men and women from Europe and elsewhere in these

acts. The readily available almost instantaneous visual depiction of these grim phenomena by media offers an opportunity to raise societal interest and ferment systematic inquiry and potential action. Furthermore, rapid developments in cognitive and social neuroscience, along with a growing interest of society in exploring the human brain, as demonstrated recently by large initiatives by US and European governments, offer better opportunity to understand the biological roots of Syndrome E. The final common pathway of the syndrome is a single individual, a single brain, which pulls the trigger.

The Brains that Pull the Triggers, a special conference under the auspices of the Paris Institute for Advanced Study, will take place for the second year at the magnificent Hotel de Lauzun in Paris and will bring together scientists and scholars from the human, social and brain sciences. The central focus of the conference is not the victims of atrocities but the perpetrators. We hope this year to have a more extensive coverage of neuroscience aspects, as well as a more clear link to roots in psychiatry and to the use of appropriate terminology from the

social sciences. The aim is to increase our understanding of the perpetrator's mind, and thus inevitably to the brain mechanisms which pull the triggers and make this most extreme and disastrous of human behavior possible. The hope is that such understanding will be useful and aid society in addressing this problem.

---

**09h00** Introduction

**Gretty Mirdal** (IEA Paris), **Alain**

**Berthoz** (Collège de France)

*Introduction and welcome*

**09h15 Itzhak Fried** (UCLA / IEA

Paris / Tel-Aviv University)

*The Brains That Pull the Triggers: "An Ordinary Guy with a Kalashnikov"*

---

## Session 1: Empathy and Dehumanization

---

**10:15 Emile Bruneau** (MIT)

*Intergroup empathy and dehumanizations: consequences, neural basis, intervention*

**10:45 Coffee break**

**11:00 Jean Decety** (University of

Chicago and University of Cape Town)

*Empathy and Morality*

**11:30 Alain Berthoz** (Collège de France)

*The question of multiple identities*

**12:00 Discussion**

**12:45 Lunch break**

---

## Session 2: Pathology: One of us or one unlike us?

---

**14:15 Åsne Seierstad** (Norway)

*Brevik: "One of us" behind the trigger*

**14:45 David Cohen** (UPMC)

*The road to mass killing: a pathological process?*

**15:15 Richard Rechtman** (EHESS)

*Questioning the predictive value of syndrome E*

**15:45 Coffee Break**

**16:00 Thomas Boraud** (Université de Bordeaux)

*Syndrome E: pathological process or inheritance of evolution?*

**16:30 Discussion**

**18:00 Cocktail**

---

## Session 3: Valuation and violence

---

**09:00 Ray J. Dolan** (University College London)  
*Representing value for self and others*

**09:30 Mathias Pessiglione** (ICM)  
*What's wrong with the valuation system in a terrorist brain?*

**10:00 Etienne Koechlin** (ENS Paris)  
*Rules and Values*

**10:30 Discussion**

**11:15 Coffee Break**

---

## Session 4: Clinical Correlations and Parallels

---

**11:45 Michel Botbol** (Université de Bretagne Occidentale)  
*What the clinical approaches of difficult adolescents can teach us about E syndrome*

**12:15 Lionel Naccache** (ICM)  
*Is our society subject to "epileptic seizures"? An analogy between communication within the brain microcosm and communication within the societal macrocosm*

---

**12:45 Lunch break**

**14:00 Trevor W. Robbins**  
(Cambridge)  
*The Neuropsychopharmacology of Syndrome E*

**14:30 Discussion**

---

## Session 5: Responsibility and Intervention

---

**15:15 Patrick Haggard** (University College London / IEA Paris)  
*Why I didn't do it... can other people reduce individual responsibility for action?*

**15:45 Ken Paller** (Northwestern University)  
*Changing hearts and minds - A perspective from memory research*

**16:15 Xabier Agirre Aranburu**  
(International Criminal Court)  
*Obedience, Responsibility, Punishment*

**16:45 Discussion**

**17:30 Itzhak Fried** (UCLA / IEA Paris / Tel-Aviv University)  
*Concluding Remarks*

# Abstracts

---

**Itzhak Fried** (UCLA / IEA Paris / Tel-Aviv University)

*The Brains That Pull the Triggers: "An Ordinary Guy with a Kalashnikov"*

« *We came face to face but he didn't shoot. What did he look like? An ordinary guy with a Kalashnikov* » (witness account, Le Bataclan, November 2015).

« *He was like a random guy holding a Kalashnikov. That's all.* » (Julien Pearce, radio reporter, Paris, November 2015).

The transformation of groups of previously nonviolent individuals into repetitive killers of defenseless members of society has been a recurring phenomenon throughout history and continuing at the present era. This apparent transition of seemingly normal, "ordinary" individuals, to perpetrators of extreme atrocities is one of the most striking variants of human behavior, but often appear incomprehensible to victims and bystanders and in retrospect even to the perpetrators themselves and to society in general. This transition is characterized by a set of symptoms and signs for which a common syndrome has been proposed, Syndrome E, as well as a pathophysiological model (Fried, Lancet, 1997). A summary of last year conference and a survey of the syndrome manifestation in the current era will be presented.

The above witness accounts coming face to face with the perpetrators in 2015 Paris, highlight our central questions. Who are these "random" guys? Why and how do "ordinary guys" become mass murderers?

As we ponder these questions, I will present the main challenges for this second Paris conference on "The Brains that Pull the Triggers". Several sets of questions will be highlighted:

1. What can neuroscience tell us about the mechanisms that may underlie the transformation of seemingly normal individuals to mass murderers?
2. Can we find partial or parallel manifestations of the syndrome in psychopathology or sociopathology? Does a categorical diagnosis such as DSM have value – descriptive, predictive, preventive- or are alternative approaches feasible?
3. What are the mechanisms of group contagion and propagation in the present era?
4. Is scientifically-based intervention feasible?

---

## Session 1: Empathy and Dehumanization

---

**Emile Bruneau** (MIT)

*Intergroup empathy and dehumanizations: consequences, neural basis, intervention*

Humans have in place a range of psychological inhibitors that prevent us from harming others. Therefore, committing an act of political violence may require not only active motivation to harm, but also the removal of prohibitions against doing so. In this talk I will present evidence for two complementary cognitive processes that may be directly implicated in this psychological tug of war: empathy and dehumanization. I will present behavioral and neural evidence highlighting the relevance of these processes in a range of contexts — U.S.-Iranian tensions, the ‘refugee crisis’ in Europe and the Israeli-Palestinian conflict — and preliminary data on promising interventions that may help subdue the psychological forces that drive us towards conflict.

---

**Jean Decety** (University of Chicago and University of Cape Town)

*Empathy and Morality*

Drawing on both empirical research and theory, I will propose that empathy plays an important function in motivating caring for others and inhibiting aggression. However, the role of empathy in shaping people’s understanding of why harming others is wrong is more limited

than we think. The reason is that our sensitivity to others’ well-being has been selected in the context of parental care and group living, and the proximate neurobiological mechanisms are remarkably conserved across million years of evolution. One corollary of this neuro-evolutionary model is that empathy produces social preferences that can conflict with morality. This claim is supported by a wealth of empirical findings from social neuroscience documenting a complex and equivocal relation between empathy, morality and justice. We are indeed both capable of great empathy and generosity for some members of our own species, and indifferent or callous toward the suffering of others. Empathy alone is powerless in the face of rationalization and denial. But reason, untempered by empathy, is just as likely to lead to tyranny and genocide as it is to lead to good judgment. It is our ability to generalize and to direct our empathy through the use of reason that is our saving grace. Without that, it is easy to create a holocaust, a crusade, or a jihad.

---

**Alain Berthoz** (Collège de France)

*The question of multiple identities*

Among the possible brain mechanisms involved in the Syndrom E there is the question of the sharing of emotions or social values. This question is related to the neural basis of empathy and its potential suppression in these behaviours. I will briefly discuss my views and results concerning the brain mechanisms which distinguish sympathy and empathy. I will also discuss the potential relationship of these neural basis with the question of multiple identities and denial of human identity of the other.

---

## Session 2: Pathology: One of us or one unlike us?

---

**Åsne Seierstad** (Norway)

*Breivik: "One of us" behind the trigger*

I will present a case study of the life of Anders Behring Breivik, who on July 22nd 2011 placed a bomb outside the office of Norway's Prime Minister, killing 8, before he drove to the island of Utøya where the Labour Party Youth had gathered, and shot 69 teenagers dead.

What is the background of this man, who until that killing spree, never showed signs of aggression? He never fought, he was never violent, but was seen as a very well behaved young man.

When you look at his background, you find a family with a history of psychiatric diagnosis, and when he and his mother was to be examined because of their troubles at the Centre for Child and Adolescent Psychiatry, when the boy was four years old, there was a clear recommendation from psychiatrists that the boy should be taken away from his mother, as she was damaging to him.

That did not happen, and the boy goes starts his school years trying to find a place to belong. His search is desperate and always ends with him feeling rejected. How does this feeling rejection, feeling of humiliation, and his psychiatric history makes him into the most lethal solo-terrorist of our time? When does the personal become political?

I will also go into how he prepares himself to kill, using meditation, drugs, training, but most importantly, decides to think like a soldier, because at war you are allowed to kill.

---

**Richard Rechtman** (EHESS)

*Questioning the predictive value of syndrome E*

Why do ordinary men turn so easily into mass murderers?

Since WW2, this question has given rise to different hypotheses. The "situationist" perspective focuses on the situation into which ordinary men were suddenly projected, ignoring potential psychological factors. Lifton's concept of "atrocities producing situations" applied to Vietnam veterans, Browning's "ordinary men", or Welzer's "ordinary Germans", all try to explain how almost anyone could become a mass murderer in certain situations. The psychodynamic approach, focuses on archaic psychological instincts rather than situational variables, but represents in fact a similar perspective. In this case, it is not the situation itself, but the "death instinct", present in every human being, that explains how evil men can be(become).

This idea of "an evil man" doing "evil things, not being rooted in empirical studies, sociological and psychodynamic perspectives attempted to assert that almost everybody can indeed become a mass murderer. The social context of war, persecution, extreme violence and so on, in the one hand, the submission to authority and the death instinct, on the other hand, were enough to "explain" how ordinary men can become mass murderers.

However, from an empirical point of view the fact that everybody does not become a mass murderer - even in the same context of extreme violence - is an undisputable fact. This issue readdresses the question of predictive factors. Who, how and why most men or women, but not all of them, accept



to kill defenseless peoples.

Itzhak Fried's Syndrome E is an attempt to respond from a neuro-cognitive perspective to the issues of predictive factors. In this presentation I will discuss the paradigm of predictive factors as it emerges from Itzhak Fried proposition and especially its direct connection / opposition with the notion of "ordinary men".

In fact the notion of "ordinary man" that emerged in the aftermath of WW2 was less a psychological assertion of the "normality" of perpetrators, than a way to avoid the myth of perpetrators as monster –i.e. non-human. In other words, I will try to demonstrate that because an "ordinary man" is nothing else than a human being, with all the potentials of any human being, one can anticipate that all types of psychological functioning - from pathological to quite normal - may be found among mass killers. This does not mean that almost everybody can become a killer, or that only few specific pathological types might become mass murderers.

---

**Thomas Boraud** (Université de Bordeaux)

### *Syndrome E: pathological process or inheritance of evolution?*

In human decision making, many processes of different hierarchical levels are taken into account in order to produce a behaviour: Ethics and Social norms as much as lower level physiological processes such as stress level, aggressiveness and physiological needs (thirst, hunger, libido etc.). In a given context, The chosen behaviour results from competition mechanisms that involve cortical and sub cortical structures. What are the conditions that

allow Syndrome E to emerge? Why, in certain context, individuals produce behaviour that are against they own original social belief and ethical values? In this talk, I will expose what insight a phylogenetic approach of neuroscience can bring to us to answer these questions.

---

## Session 3: Valuation and violence

---

**Ray J. Dolan** (University College London)

### *Representing value for self and others*

Humans and other animals are adept at representing value, including values of conspecifics. One widely used metric of value representation is captured by inter-temporal discounting. This is often considered a key measure of impulsivity, that can be well-captured in an hyperbolic model. Here I will provide evidence that impulsivity as measured in the context of an inter-temporal discount task is surprisingly plastic, both at behavioural and neural levels of description. I will suggest that (at least at the level of behaviour) this plasticity reflects uncertainty about one's own preferences. Finally, I will ask whether impulsivity as captured in an inter-temporal choice task has any predictive power in relation to common manifestations of psychopathology, such as conduct disorder and indeed a propensity to be unduly influenced by others.

---

**Mathias Pessiglione** (ICM)

*What's wrong with the valuation system in a terrorist brain?*

According to standard decision theory, making a choice can be reduced to first assigning values to available options and then selecting the option with the highest value. During the last decade, neuroscience has identified a brain system that signals option values in a variety of choice situations implemented in the lab. In this framework, any decision follows from subjective valuation: a terrorist must act upon the belief that he/she is doing the right thing. Therefore, there would be nothing wrong in a terrorist brain at the time of killing; it is the construction of values elaborated beforehand that needs to be understood. An alternative is that action selection could be directly specified from other persons, bypassing the brain valuation system. This might resemble what happens in hypnotic suggestion or in pathological situations such as auto-activation deficit. These two possibilities – subjective valuation being either deviated or bypassed – are open for discussion.

---

**Session 4: Clinical Correlations and Parallels**

---

**Michel Botbol** (Université de Bretagne Occidentale)

*What the clinical approaches of difficult adolescents can teach us about E syndrome*

In their educative and therapeutic approach of Difficult Adolescents, professionals have to deal with a clinic of

violent acting in which there are obvious similarities with the signs and problems described in the syndrome E hypothesis (coexistence or alternation of callous insensitive behaviors and of normalized empathic conduct of solidarity, coexistence or alternation of non-compatible systems of values, socialization of psychological distress, ineffectiveness of classical social and therapeutic systems of cares etc...) As Syndrome E individuals, these adolescents behaviors question the possible underlying mental health pathology, the medical model behind the diagnostic process to approach it, the consequence of such labelling on the moral and legal responsibility of the person involved in these violent behaviors, and the validity of the current nosographic references.

After a brief presentation of the issue and clinical approaches of Difficult Adolescents in social French legal juvenile systems, this presentation will discuss the utility of this clinical analogy to discuss the validity, the psychopathology and the physiopathology of the Syndrome E hypothesis.

---

**Lionel Naccache** (ICM)

*Is our society subject to "epileptic seizures" ? An analogy between communication within the brain microcosm and communication within the societal macrocosm*

An epileptic seizure is a phenomenon characterized by an excess of communication between distant brain areas. This hyper-synchronization is associated with a loss of information complexity, and with a dedifferentiation between these distinct brain areas.

Hyper-communication, loss of complexity, loss of differentiation: the combination of these three properties is reminiscent of many symptoms of world globalization like for instance the stereotyped shopping streets that eventually all look alike across countries and continents. Using this analogy, - and exploring its limits -, I will propose that the functional architecture of our societies conveys both a potential of global consciousness never reached before, but also a vulnerability that can be described as a macrocosmic epileptic loss of consciousness. This analogy can be applied to new forms of societal violence.

---

**Trevor W. Robbins** (Cambridge)

### *The Neuropsychopharmacology of Syndrome E*

Syndrome 'E' comprises a set of symptoms, at least some of which can be related to aspects of anti-social behaviour, as defined by DSM5, as well as some of its constituents such as conduct disorder or psychopathy. Some of the component symptoms of Syndrome E resemble those acquired through lesions of the ventromedial or lateral orbitofrontal cortex or via pharmacological agents affecting dopamine function known to be abused by terrorist groups, such as methamphetamine and Caprogan (CCT or fenethylamine). Thus frontal lobe damage can lead to a pseudo-psychopathic syndrome in the absence of gross cognitive deficit, including enhanced reactive aggression and reduced empathy which can readily be interpreted as a form of 'top-down' loss of executive control over subcortical systems including the amygdala, hypothalamus and brainstem.

Moreover, chronic methamphetamine has been shown to lead to alexithymia, a dysfunction in emotional awareness, social attachment, and interpersonal relations, as well as enhanced reactive aggression. Methamphetamine abuse also leads to serotonin depletion, especially in the orbitofrontal cortex which is associated in humans and other animals with reduced harm aversion (in tests of social cognition) and impaired responses to punishment and inflexibility of responding when reward and punishment contingencies change (as in reversal learning). Exposure to stress in otherwise healthy animals has been shown to exaggerate some of these effects and this may be relevant to the human situation. Whilst it would appear therefore that we have the beginnings of a neural account of symptoms of Syndrome 'E', there are in fact many issues that require debate and resolution by appropriate experimentation: (i) if its symptoms can be indeed related to these neural and neurochemical changes (ii) if the changes in the brain are causes or effects of the symptoms (iii) consideration of whether an approach based on Research Domain Criteria might be more useful to define Syndrome 'E' than DSM-type categorical diagnosis (iv) alternative conceptualizations of how the prefrontal cortex controls behaviour, which include imbalance and competition between different frontal circuits, for example mediating rule governed and social behaviour, or goal-directed versus habitual responding; and (v) enhanced scientific understanding of how the formation of ideological beliefs and their representation in the brain interact with neural systems controlling social

behaviour and rational cognition, and to what extent neurobehavioural endophenotypes and environmental circumstances may enhance such vulnerability.

---

## Session 5: Responsibility and Intervention

---

**Patrick Haggard** (University College London / IEA Paris)

*Why I didn't do it... can other people reduce individual responsibility for action?*

All known human societies hold individuals responsible for the impacts of their action on others. Therefore, experiencing responsibility for consequences of one's own actions is a key psychological event with implications for society as a whole. Little is known about how the brain generates the experience of responsibility. I will report two laboratory experiments using simple experimental paradigms that aim to measure the subjective feeling of one's own control over an external outcome. I will show that this experience is strongly related to the social context of action and decision-making. First, I will show that experience of control is reduced when someone orders one to do something, as opposed to when one freely chooses for oneself to do it. Second, I will show that, even when one freely and fully chooses what to do, the mere presence of another potential agent leads to a reduced experience of control. The proximate cause of actions lies in the motor system of the individual

brain. However, humans live in large and complex societies, with hierarchical structures and divisions of labor. These social contexts mean that responsibility for action can partly transfer beyond the individual to others. The motivational and cognitive system of one individual can effectively gain access to the motor system of another. This arrangement creates great potential advantages, but also grave existential risk for societies as a whole.

---

**Ken Paller** (Northwestern University)  
*Changing hearts and minds - A perspective from memory research*

Individuals can change. They can be radicalized to the point of perpetrating extreme violence. They can also grow to fight for human rights out of compassion for other human beings. At the core of any such change is learning. Two types of learning are relevant. Explicit Learning is when we gain factual knowledge and the details of the events we experience each day, or what memory researchers call Declarative Memories. This knowledge can be consciously brought to mind. Information stored in this manner can be broadcast widely in the cerebral cortex, and we knowingly use it to guide our decisions. The second type of learning is Implicit Learning, and in this case we may not know what we have learned or even that we have learned. Importantly, the two types of learning can occur concurrently, and these memories can change over time (e.g., fragments of explicit factual knowledge may later be retrieved implicitly). Thus, we distinguish between consciously retrieved or explicit memories, and those that otherwise influence our

behavior, implicit memories. The latter category includes basic skills, habits, certain priming phenomena, and conditioning, each operating based on different principles. Both implicit and explicit memories can impact decision making even though we generally recognize only the impact of the latter. Another fundamental principal is that learning is not merely a function of changes in the brain at the moment of information acquisition — to produce enduring memories, a protracted extension of the learning process must continue after the initial experience. Reactivation of memories during sleep is now thought to be a key part of effective learning. Through reactivation and association, a progressive process of consolidation entails various adjustments in memory storage. Armed with this knowledge of memory storage in the brain, how can we conceptualize learning in ways that are incompatible with violence? Although this question must be addressed through a wide range of perspectives, memory research can offer some useful insights. The principals of memory storage apply to learning about social groups and regulate the extent to which our actions reflect tribalism and selfish forces. Social categorization and implicit social biases are prevalent but can be countered through learning by cultivating a natural and pervasive sense of compassion.

---

## **Xabier Agirre Aranburu**

(International Criminal Court)

### *Obedience, Responsibility, Punishment*

At the Office of the Prosecutor of the ICC (International Criminal Court) we investigate perpetrators of the worst

atrocities in the world on a daily basis, since our Office was established in 2004. We cover 19 situations around the world, including cases of genocide, crimes against humanity and war crimes involving hundreds of thousands of victims. We need to consider the different motives and triggers of the violence at difference levels. Generally, as Raoul Hilberg would say, to understand the point of view of the criminal is one of the secrets of success for complex criminal investigations. Furthermore, for some specific legal requirements we also need to prove “beyond reasonable doubt” what was happening in the brains of the criminal. Such legal requirements include the “modes of responsibility” and “mental element” of the alleged perpetrator (arts. 25 and 28 of the ICC Statute) for any crime, as well as “*dolus specialis*” or specific intent for a number of crimes, including the “intent to destroy in whole or in part” a protected group for genocide, the specific motives required for the crime of persecutions, or those required for the crime of forced pregnancy. Reviewing some of the recent cases and accused before the ICC will suggest different hypotheses of causation and mental states behind the crimes.

---



# Practical informations

---

## Venue

---

Institut d'études avancées de Paris  
Hôtel de Lauzun - Île Saint-Louis  
17 quai d'Anjou - 75004  
M° Pont-Marie or Sully-Morland (line 7)

## Contact

---

01 56 81 00 52 - [information@paris-iaea.fr](mailto:information@paris-iaea.fr)

## WiFi

---

Network: IEA-Public  
Password: IEAParis123

## Connect with us

---

Website: [www.paris-iaea.fr](http://www.paris-iaea.fr)  
Facebook : [www.facebook.com/IEAdeParis](http://www.facebook.com/IEAdeParis)  
Twitter : @IEAdeParis