

## Otlet Salons\*

Jeremy Denk Edition, February 5, 2016

'Bach and sciences – Goldberg variations'

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### SUMMARY

For their third Edition, Otlet Salons invited US pianist Jeremy Denk ([www.jeremydenk.net](http://www.jeremydenk.net)) for a musical soiree centered around Bach's Goldberg Variations: one of the most famous and difficult pieces for piano ever written and a challenge for both pianist and audience. A high-ceiling apartment and an eclectic mix of chairs and listeners forms the intimate setting wherein Denk proves his skills as performer by wittily illustrating the skeleton of the piece while playing excerpts 'that go directly to the soul'.

A three-men panel (physicist, mathematician, artist) interacts with the musician and the diverse, involved audience on the subject of the seeming paradox between the soul and the mathematical foundation of the piece and the tension between art and science in general. The freely flowing discussion leads to the broader notion that science in its core seeks to describe an external reality; art and music are more about dealing with the world from the human perspective.

### REPORT

*The New York Times once described pianist Jeremy Denk (US) ([www.jeremydenk.net](http://www.jeremydenk.net)) as someone 'you want to hear no matter what he performs'. Otlet Salons invited Denk for a soiree centered around Bach's Goldberg Variations (one of the most challenging pieces for piano) brimming with passion, some mathematical notions and, of course, music. A three-men panel mediates between the musician and the eager audience.*



This third Edition of Otlet Salons takes place in a spacious and subtly ornamented apartment where an eclectic mix of chairs and side tables is set up to face the piano – the centre of gravity this evening. The equally diverse audience (coming from research, business, government, society and the arts) is quietly conversing. Light excitement upon Jeremy Denk's entrance. Before anything he heads for the piano; 'easy enough', he smiles while hitting some keys.

Denk plays, writes and effortlessly crosses boundaries between genres. His energetic attitude, eloquence and skill have granted him many awards and acknowledgement. Tonight he talks about Bach's *Goldberg Variations*, one of the most challenging pieces for piano ever written and one, up until ten years ago, he never wanted to play 'because it's so famous'. One of the specific aspects of this piece is its mathematical construction. It makes the perfect subject for a salon that wishes to push boundaries.

### **How to challenge an audience**

There's no short way to introduce the *Goldberg variations*, but Denk tries nonetheless. Bach based it on a composition by Handel. It's one of his later pieces, published first in 1741. Almost the entire 80 minute long piece is set in G major, which Denk thinks is disastrous for an audience and makes him consider the possibility that it was never meant to be performed. Someone from the audience reacts with the suggestion that Bach never did anything just for the 'intellectual challenge'. 'He was paid royally', Denk replies. There's even a myth suggesting the composition was ordered by a royal with sleeping disorder, both alluding and untrue. When asked what the piece is about, Denk says 'It's dangerous to talk about emotions, but I think it's safe to suggest it's about the passing of time.'

Denk lays bare the piece's foundations by explaining the way thirty variations are built up and grouped in pairs of three. He illustrates the mathematical foundations (one of the important principles behind the *Goldberg Variations*) by means of piano because of the limitations of words describing music. When he plays, it seems Denk is visualising the music on the back of his closed eyelids, as if he becomes the music. Panel member Christian Maes refers to this later on as an intriguing paradox: a musical piece that can be theoretically dissected and which speaks directly to the soul as well. Judging by the smiles and restrained nods, the audience feels it too, despite what was said about the challenge they're faced with.

A second principle that underlies the piece is its design for a harpsichord with two keyboards. 'Some of the magic is lost when playing a single keyboard', Denk explains, 'also because of the occasional crashing of two hands.' With some 'maniacal hand gymnastics' he demonstrates what a two-level design looks like on a contemporary piano. Not only does he have a profound knowledge of Bach's genius, Denk also proves to be a gifted entertainer.

### **Three wise men and a book – Panel discussion**

When its time for the panel - three wise men (Frederik De Wilde, multi- and trans disciplinary artist; Henk Barenbregt, mathematician in love with *Hofstadter's book* and Christian Maes, contrary thinker and theoretical physicist, KU Leuven) are asked to react from their background, slightly leaning on the notions from 'Gödel, Escher, Bach', Douglas Hofstadter's Pulitzer prize-winning book from 1979. (Some notes on the book by the author himself can be found here <https://prelectur.stanford.edu/lecturers/hofstadter/excerpts.html>, Another nice contemplation of the book is in "I'm a Strange Loop", also written by Hofstadter.)

Before the audience gets their turn to share and react, the panel members share their thoughts on the subject.

Henk Barenbregt has an apparent love and knowledge of music: 'Jeremy Denk convincingly shared his view on Bach's Goldberg Variations that he defines as a harmonic scheme (a form familiar in jazz), rather than a theme with counterpoint. Denk also showed how Bach had pleasure in using permutations, e.g. inversions to avoid parallel fourths. I found a question about the golden section or ratio in relation to this piece less adequate: that irrational number occurs in geometric context, not in discrete context. (I could be wrong, because sometimes the continuous and the discrete have unexpected relations.)'

Christian Maes focuses on similarities and differences between arts and sciences. 'Both are often experimental, for example in the way observations and verification thereof are possible ingredients. Both can be emancipatory, especially when confronting us with aspects of life and reality unknown or unnoticed, even if we do recognize the result. Artists and scientists share passion as driving force, and arts as well as sciences are often stimulated by technological developments. As for differences: sciences exceed cultural boundaries, whereas the arts are often an expression of culture. Science in its core seeks to describe an external reality by means of mechanical frameworks and reductionism. Arts are based upon and connected with human experiences. To the scientist, space and time are fields of study that exist outside man, even though it's man that speaks about it. Science seeks the order within nature and leads to technology that could cross cultural and human boundaries.'

The main theme of the freely flowing discussion that follows is the seeming paradox between spirit and maths within the piece, extending to theories on computers composing. Some of many interesting notions:

- Bach as a sum of science, genius and a product of his, structured upbringing;
- All the composers of his time were writing novels and Bach was writing non-fiction;

- Reluctance to use the term 'mystical' in relation to the 'mysterious' variation (nr. 25). Some proposals: minor keys are not about sadness but complexity. Maybe complexity conjures the mystique;
- There are different ways of appreciating music – you don't need a mathematical background to appreciate this piece;
- Prime numbers will be prime numbers, art and music are more about dealing with the world from the human perspective;
- How can you tell if computers will or won't enjoy the act of composing? How can you really tell if an audience appreciates the music?;
- There's beauty in defect, in the fuzzy zone between art and science.

Videos of this edition and more about the Otlet Salons and past and upcoming editions on [otlet.salons.wordpress.com](http://otlet.salons.wordpress.com)

\* About the Otlet Salons:

Insight and collaboration across fields pushes boundaries for institutions, academia and society forward. The *Otlet Salons* lift the concept of a public free space into the 21st Century. It brings together young leaders in research, business, government, society and the arts to promote knowledge spillovers and to create a strong and broad impact on society by sharing ideas and methods. Its main innovation lies in its approach to knowledge sharing: the *Otlet Salons* allow diverse sets of people to gain knowledge, to build networks, and to create genuine learning environments. To foster interdisciplinary change in society.