

SADI: a new approach...

SYNESTHESIA:
SENSATION PR
ODUCED AT A P
OINT OF THE R T
HANOR REMO
TE FROM THE P
OINT OF STIMU
LATION, AS OF
A COLOUR FRO
M HEARING A C
CERTAIN SOUN
D (FR. GK. SYN
= TOGETHER +
AISTHESIS = T
O PERCEIVE).



SYNESTHESIA:
"Mathematics by itself is indeed an art, but it's direct
SENSATION PRODUCED AT A POINT INTO THE HAN
FROM THE POINT OF STIMULATION, AS OF
A COLOUR FROM THE HEARING OF A CERTAIN SOUND
(FR. GK. SYN = TOGETHER + AISTHESIS = TO PERCEIVE).



SYNESTHESIA:
translation to visual representations does not necessarily
SENSATION PRODUCED AT A POINT INTO THE HAN FROM THE POINT OF STIMULATION, AS OF A COLOUR FROM THE HEARING OF CERTAIN SOUNDS (FR. GK. SYN = TOGETHER + AISTHESIS = TO PERCEIVE).



SYNESTHESIA:
SENSATION
PRODUCED AT A
POINT OF CONTACT
HITHERTO REMOVED
FROM THE POINT
OF STIMULATION,
AS OFTEN HEARD
CERTAIN SOUNDS
(FR. GK. SYN-
= TOGETHER +
AISTHESIS = TO
PERCEIVE).

result in art of any value. John Maeda, Design By Numbers .



SYNESTHESIA:
SENSATION PRODUCED BY
Historically there has always been a link between science and art. In the
COMBINATION OF SENSATIONS,
AS OF A COLOUR FROM
HEARING A CERTAIN SOUND
(FR. GK. SYN = TOGETHER +
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SYNESTHESIA:
SENSATION PRODUCED AT A POINT
INTO OTHER THAN OR REMOTE FROM THE POINT OF STIMULATION, AS OF A COLOUR FROM HEARING A CERTAIN SOUND (FR. GK. SYN = TOGETHER + AISTHESIS = TO PERCEIVE).

classical periods there was a strong link between how the philosophers thought



SYNESTHESIA:
SENSATION PRODUCED BY
STIMULATION OF ONE SENSE
BY ANOTHER. (FR. G. K. SYNESTHESIA = TOGETHER + AESTHESIS = TO PERCEIVE).

about art and their view of the world, often trying to incorporate a mathematical



SYNESTHESIA:
SENSATION PRO
DUCED AT A P
view to greater understand it. Pythagoras was obsessed with the nature of
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SYNESTHESIA:
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numbers and their link to art and music, in some ways his creation of the



SYNESTHESIA:
SENSATION PRO
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OINT TO THE RT
Pythagorean triangle' was the closest that Pythagoras could get seeing to the
HANORREMO
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SYNESTHESIA:
SENSATION PRODUCED AT A POINT
JOINT TO OTHER POINTS OF
STIMULATION, AS OF A COLOUR
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face of god. Özcan and Akarun argue that Plato "asserted that aesthetics is



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based on logical forms and that geometrical objects were “forms of beauty”².



SYNESTHESIA:
SENSATION PRODUCED AT A POINT INTO THE HANORREMO
FROM THE POINT OF STIMULATION, AS OF A COLOUR FROM THE HEARING OF A CERTAIN SOUND (FR. GK. SYN = TOGETHER + AISTHESIS = TO PERCEIVE).

In the renaissance times it was easily demonstrable by the works of people



SYNESTHESIA:
SENSATION PRODUCED AT A POINT
IN THE HUMAN ORGANISM BY
STIMULATION OF A SENSE ORG
AN, AS OF A COLOUR FROM HEAR
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SYNESTHESIS = TOGETHER + AISTHESIS = TO PERCEIVE).

such as Leonardo da Vinci who would have classed himself as a scientist for



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the majority of his career. And yet with this logical backing he painted arguably



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the best figurative portraits in the world. Michelangelo designed St Peters



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basilica (at that period an exercises also in technical skill to achieve the dome



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dimensions) as well as being a sculptor. The uses of mathematical ratios were



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applied thought the renaissance and classical period in the arts. For instance it



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design of Medici Chapel³. At this point in time science and art was still a unified



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field and people would take aspects of all these fields into their works.
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Even outside of the context of the renaissance man or the classical philosopher



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there was still broad overlapping of disciplines. Leibnitz and Newton are



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extraordinary examples of this, both developing independently calculus, one of



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the most important achievements in the history of man. Both of these men



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transcended their fields, Newton became a member of the British Parliament



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and Leibnitz devoted a large portion of his time to diplomacy "*his manuscripts*



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addressed a broad range of subjects including law, theology, politics, political



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and economic history, architecture and technology."⁴ The interesting thing to



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note about their differing developments in Calculus is that while Newton used it



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more effectively to create a legacy (i.e. Newtonian laws of physics) an is



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generally considered the first person to develop it Leibnitz notation is the type



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that is commonly used for aesthetic reasons, both typographically and



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mathematically.



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In recent decades there has been a separation of the sciences to the arts,



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stemming from the specialisations that the industrial revolution started. It would



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not be unexpected to find that a scientist had never visited an art gallery or an



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ⁱ A Pythagorean triangle is a right angle triangle where the sum of the square of two sides equal the



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square of the hypotenuse. $A^2+B^2=C^2$, this only occurs for specific integer numbers.



artist to have not studied any science apart from the basics of maths needed to

MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE,
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION
OF SYNESTHETIC MEDIA.
AS THERE IS NO SINGLE
VISION OR EMOTION
WHY SHOULD THERE BE
A SINGLE MESSAGE.



operate in the modern world.

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Someone who is trained in the hard sciences can appreciate a beauty to maths



MY ARGUMENT:

and its application but may have trouble interpreting the abstract

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MY ARGUMENT:

IT FOLLOWS THAT
expressionists. A conceptual artist may understand that there is deep seated

AT TRYING TO
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MY ARGUMENT:

methodology to the sciences, but still not perceive their essence in a way that

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will make them intrigued in it instead of shying away from those strange figures



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on the page. This is both an educational separation and personal one as



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institutions do not tend to teach these ideas as concurrent concepts but as



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differing fields that have no relations leading the individuals to view these ideas



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in the same way.



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Is it a worthwhile question asking when or why this separation exists? In my



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opinion it will not significantly help to resolve the problem of this separation. It is



MY ARGUMENT:
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HOW AND INDETERMINABLE. A
more important to realise that this situation, and problem, exists and look at
FEELING IF YOU
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ENIT IS THE PRODUCTION OF
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IS NO SINGLE VISION OR EMOTION
NOW WHY SHOULD THERE BE A SINGLE MESSAGE.



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ways to counter the issue instead of spending time trying to fix the blame on



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how this occurred.



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Recently people and institutions have been trying to remedy this issue through



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the implementation of multi- or cross-disciplinary programs. The Bauhaus and



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the Ulm⁵ institutes were both working on these principals, but with the objective



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of quantizing the artistic process or product. Other examples can be seen by



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academic scientific departments encouraging resident artist's presence. My



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undergraduate physics department (The University of Bristol, UK), for instance,



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had a resident artist to highlight some of the concepts that he came across in



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But this still does not get at the core of the argument. There needs to be a



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visual language formed from math to show that there is common ground to art



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N WHY SHOULD
THERE BE A SIN
GLE MESSAGE.

and design. The creation of a hybrid child between art and science, without



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE,
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION
OF SENSITIVE MEDIA.
AS THERE IS NO SINGLE
VISION OR MOTION
WHY SHOULD THERE BE
A SINGLE MESSAGE.

compromising either, will demonstrate that there is more common ground



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETER
MINABLE, A
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRO
DUCTION OF SY
NESTHETIC ME
DIA. AS THERE
between the two then is presently acknowledged.
SNO SINGLE VIS
ION OR MOTIO
N WHY SHOULD
THERE BE A SIN
GLE MESSAGE.



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE,
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION
OF SYNESTHETIC MEDIA.
AS THERE IS NO SINGLE
VISION OR MOTION
NOW WHY SHOULD
THERE BE A SINGLE
MESSAGE.

Computational media naturally tends towards this process, and in itself can be



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE,
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION
OF SYNESTHETIC MEDIA.
AS THERE IS NO SINGLE
VISION NOW WHY SHOULD
THERE BE A SINGLE MESSAGE.

a demonstration of mathematical elements as computers purely carry out



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE,
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION
OF SYNESTHETIC MEDIA.
AS THERE IS NO SINGLE
VISION OR REMOTION
WHY SHOULD THERE BE
A SINGLE MESSAGE.

mathematical functions and then interpret them by logical rules to create



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AND INDETERMINABLE, A
FEELING IF YOU
WILL. ON SCREEN
ENIT IS THE PRO
DUCTION OF SY
NESTHETIC ME
DIA. AS THERE
IS NO SINGLE VIS
ION OR EMOTIO
N WHY SHOULD
THERE BE A SIN
GLE MESSAGE.

images on screens. Computational essence is one of mathematics and



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE,
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION
OF SYNESTHETIC MEDIA.
AS THERE IS NO SINGLE
VISION OR EMOTION
WHY SHOULD THERE BE
A SINGLE MESSAGE.

numerals; everything else is a demonstration of how maths can be interpreted.



MY ARGUMENT:
IT FOLLOWS THAT
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WILL, ON SCREEN
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DUCTION OF SY
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S NO SINGLE VIS
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N WHY SHOULD
THERE BE A SIN
GLE MESSAGE.

The visual design and scientific communities have long used computers for



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AND INDETERMINABLE, A
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION OF
SYNESTHETIC MEDIA. AS THERE
IS NO SINGLE VISION OR
EMOTION WHY SHOULD
THEY BE A SINGLE MESSAGE.

their own ends and therefore there is potential for this medium to demonstrate



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE,
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION
OF SYNESTHETIC MEDIA.
AS THERE IS NO SINGLE
VISION OR EMOTION
NOW WHY SHOULD
THERE BE A SINGLE
MESSAGE.

the principals laid out in this document using a tool that is native to both. This



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE, A
FEELING IF YOU
WILL. ON SCREEN
ENIT IS THE PRODUCTION OF
SYNESTHETIC MEDIA. AS THERE
IS NO SINGLE VISION OR EMOTION
NOW WHY SHOULD THERE BE A
SINGLE MESSAGE.

reduces the risk of producing a piece of work that inadvertently alienates the



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
HOW AN INDETERMINABLE, A
FEELING IF YOU
WILL, ON SCREEN
ENIT IS THE PRODUCTION OF
SYNESTHETIC MEDIA. AS THERE
IS NO SINGLE VISION OR
EMOTION WHY SHOULD
THERE BE A SINGLE MESSAGE.

audience by selecting a tool that they are not familiar with, the lack of familiarity



MY ARGUMENT:
IT FOLLOWS THAT
ATTEMPTING TO
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DUCTION OF SY
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S NO SINGLE VIS
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N WHY SHOULD
THERE BE A SIN
GLE MESSAGE.

changing their focus on the work.



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
S. THE PRINCIPA
L BEHIND IT ST
EM FROM THE
DEAS OF SYNES
THESIA, BLURR
ING THE DISTIN
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THE SENSES SO
R IN THIS CASES
EPARATION OF
CONCEPTS.



MY THESIS:

of digital design media. The title refers to the central project *Science and Art; a*

THE INTEGRATION OF SCIENCE AND ART IS A NATURAL PROCESS. THE PRINCIPALS BEHIND THEM FROM THE IDEAS OF SYNESTHESIA, BLURRING THE DISTINCTION BETWEEN THE SENSES OR IN THIS CASES SEPARATION OF CONCEPTS.



MYTHESIS:

Design Interface (SADI). This interface will primarily consist of a computer

THE INTEGRATION OF SCIENCE AND ARTISAN NATURAL PROCESSES. THE PRINCIPALS BEHIND IT STEEM FROM THE IDEAS OF SYNESTHESIA, BLURRING THE DISTINCTION BETWEEN THE SENSES OR IN THIS CASES SEPARATION OF CONCEPTS.



MYTHESIS:

program where numerals and equations can be entered demonstrating

THE INTEGRATION OF SCIENCE AND ARTISAN NATURAL PROCESSES. THE PRINCIPALS BEHIND THEM FROM THE DEAS OF SYNESTHESIA, BLURRING THE DISTINCTION BETWEEN THE SENSES OR IN THIS CASES SEPARATION OF CONCEPTS.



MY THESIS:

graphically and typographically the different potentials of how data can be

THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
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DEAS OF SYNES
THESIS, BLURR
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IN THE SENSES
R IN THIS CASES
EPARATION OF
CONCEPTS.



MY THESIS:

interpreted and information density contained, as a dynamic process. There

THE INTEGRATION OF SCIENCE AND ARTISAN NATURAL PROCESSES. THE PRINCIPALS BEHIND THEM FROM THE DEAS OF SYNTHESIS, BLURRING THE DISTINCTION BETWEEN THE SENSES OF IN THIS CASES SEPARATION OF CONCEPTS.



MY THESIS:

can be parallels drawn to the work of Jason Lewis in his text engine,

THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
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DEAS OF SYNES
THESIS, BLURR
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EPARATION OF
CONCEPTS.



MY THESIS:

transposing it to a subject matter or math and science. Lewis describes the

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AND ARTISANA
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DEAS OF SYNES
THESIA, BLURR
ING THE DISTIN
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EPARATION OF
CONCEPTS.



MY THESIS:

THE INTEGRATION OF SCIENCE AND ARTISAN NATURAL PROCESSES. THE PRINCIPALS BEHIND THEM FROM THE DEAS OF SYNTHESIS, BLURRING THE DISTINCTION BETWEEN THE SENSES OF IN THIS CASES SEPARATION OF CONCEPTS.

basis for the program as follows "The user can enter and edit text, adjust static



MYTHESIS:

THE INTEGRATION OF SCIENCE AND ARTISANAL PROCESSES. THE PRINCIPALS BEHIND THEM FROM THE DEAS OF SYNTHESIS, BLURRING THE DISTINCTION BETWEEN THE SENSES OF IN THIS CASES OF SEPARATION OF CONCEPTS.

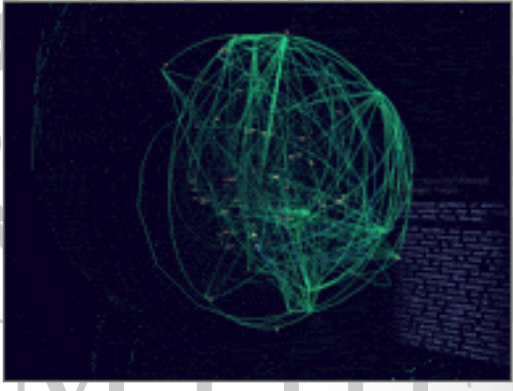
and dynamic layout, apply dynamic and interactive behaviors, and adjust their



MY THESIS:
THE INTEGRATION
OF SCIENCE
*parameters with a common set of tools and a common interface.*⁶
AND ART IS A NATURAL
PROCESS. THE PRINCIPAL
REASON BEHIND IT IS
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DEAD SOFSYNES
THESIS, BLURRING
THE DISTINCTION
BETWEEN THE
SENSES SO
IN THIS CASES
SEPARATION OF
CONCEPTS.



MYTHESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISANRY
DEAD END
THESE SENSES
IN THIS CASE
SEPARATION OF
CONCEPTS.



MYTHESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCESSES.
THE PRINCIPALS
BEHIND IT
EMERGE FROM THE
DEAS OF SYNTHESIS,
BLURRING
THE DISTINCTION
BETWEEN
THE SENSES
IN THIS CASES
SEPARATION OF
CONCEPTS.

Fig. 1: OBX Labs, *Parting The Monkeys*, no date

Fig. 2: Benjamin Fry, *Valance* (2001)



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
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EPARATION OF
CONCEPTS.

given.

Fry's program being applied to a German text



MYTHESIS:
THE INTEGRATION
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AND ARTISAN
NATURAL PROCES
S. THE PRINCIPA
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EPARATION OF
CONCEPTS.

An example of the use of Lewis's TextEngine.⁷ to analyse the structure of it. See reference



MY THESIS:
THE INTEGRATION
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AND ARTISAN
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EPARATION OF
CONCEPTS.

No. 8.



MY THESIS:
THE INTEGRATION
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EPARATION OF
CONCEPTS.

There are also links that can be drawn to the works of Benjamin Fry, a graduate



MY THESIS:
THE INTEGRATION
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AND ARTISAN
NATURAL PROCES
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EPARATION OF
CONCEPTS.

student a MIT, who has developed a system called *Valence*⁸ to analyse the



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
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CONCEPTS.

structure of information deep systems. Also there are parallels to the work of



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
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EPARATION OF
CONCEPTS.

Peter Cho who uses dynamic typography to examine the way the text is read⁹.



MY THESIS:
THE INTEGRATION
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AND ARTISAN
NATURAL PROCES
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EPARATION OF
CONCEPTS.

This project is founded on the gap between disciplines, so to speak, as digital



MY THESIS:
THE INTEGRATION
OF SCIENCE
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NATURAL PROCES
S. THE PRINCIPA
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DEAS OF SYNES
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ING THE DISTIN
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THESE SENSES
R IN THIS CASE
EPARATION OF
CONCEPTS.

media offers a new ground to bridge the divide between art and science. While



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ART IS A NATURAL
PROCESS. THE PRINCIPAL
REASON BEHIND IT IS
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DEAD SOFSYNES
THESIS, BLURRING
THE DISTINCTION
BETWEEN
THE SENSES
IN THIS CASES
SEPARATION OF
CONCEPTS.

there has been growth to link the disciplines of science and art there is still a



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
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THESIA, BLURR
ING THE DISTIN
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THE SENSES SO
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EPARATION OF
CONCEPTS.

lack of knowledge exchange as scientists and most artists have little or no



MY THESIS:
THE INTEGRATION
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AND ARTISAN
NATURAL PROCES
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DEAS OF SYNES
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ING THE DISTIN
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THE SENSES SO
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EPARATION OF
CONCEPTS.

understanding of the other discipline. This thesis and program will act to show



MYTHESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCESSES.
THE PRINCIPALS
BEHIND IT
EMERGE FROM THE
DEAS OF SYNESTHESIA,
BLURRING THE
DISTINCTION
BETWEEN THE
SENSES OF
REPRESENTATION
OF CONCEPTS.

that there are ways to have a scientific principle/methodology that can be



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
S. THE PRINCIPA
L BEHIND IT ST
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DEAS OF SYNES
THESIS, BLURR
ING THE DISTIN
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IN THE SENSES
R IN THIS CASES
CONSIDERED ART OR DESIGN AND THEREBY DEMONSTRATES COMMON GROUND USEFUL TO
COMPARATION OF
CONCEPTS.



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
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DEAS OF SYNES
THESIA, BLURR
ING THE DISTIN
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THE SENSES SO
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COMPARATION OF
CONCEPTS.

both disciplines.



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
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DEAS OF SYNES
THESIS, BLURR
ING THE DISTIN
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R IN THIS CASES
EPARATION OF
CONCEPTS.

Central to this project is the choice of subject matter (typography and



MY THESIS:
THE INTEGRATION
OF SCIENCE
AND ARTISAN
NATURAL PROCES
S. THE PRINCIPA
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DEAS OF SYNES
THESIA, BLURR
ING THE DISTIN
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THE SENSES SO
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EPARATION OF
CONCEPTS.

numerals), which are largely looked as having functional properties rather than



MY THESIS:
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OF SCIENCE
AND ARTISAN
NATURAL PROCES
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DEAS OF SYNES
THESIS, BLURR
ING THE DISTIN
CTION BETWEEN
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EPARATION OF
CONCEPTS.

creative. I wish to challenge this perception by presenting type and numerals in



an inventive and dynamic manner. This kind of research is integral to

MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE.

HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



understanding our human and digital landscape.

MY ACTION:
THERE IS NO SE
PARATION OF A
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O SIMILAR SUBJ
ECTS VIEWED A
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SIT A QUESTIO
N OF AESTHETI
CS OR OF HUMA
N JUDGMENT?



MY ACTION:
Mathematics is the corner stone of the hard sciences, and while it goes further

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SO SIMILAR SUBJECTS VIEWED AS SO DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

into pure mathematics that is beyond the scope of this project. Not because this

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

area holds not interest or is not worth exploring, but to the author of this thesis

HERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

it holds less interest than the applied form of mathematics used in physics, for

THE REASON
PARADOX OF A
PART AND SCIENCE
OF HUMAN EXPERI
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NUAL SPECIFIC
TRUTH SO WHY
ARE THESE TWO
SO SIMILAR SUBJ
ECTS VIEWED AS
SO DISSIMILAR
IS IT A QUESTION
OF AESTHETIC
SOCIETY OF HUMAN
JUDGMENT?



MY ACTION:

example. This decision is one of practicality as well. By exploring the more

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

applied side of pure sciences it is easier to present this information in a

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

demonstrable manner that is likely to be of interest to the reader rather than a

PARATION OF A
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TRUM SO WHY
ARE THESE TW
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S DISSIMILAR
SIT A QUESTIO
N OF AESTHETI
CS OR OF HUMA
N JUDGMENT?



MY ACTION:

higher order process that is difficult to convey to a highly trained audience let

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

alone someone not schooled in the subject.

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL STRUGGLE SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE

Only by presenting this process, central to that of a scientists mind, in a visually

HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM

SO WHY ARE THESE TWO

SIMILAR SUBJECTS VIEWED AS

DISSIMILAR IS IT A QUESTION

OF AESTHETICS OR OF HUMAN

JUDGMENT?



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE

appealing and interesting manner will this kind of information be seen as more

HUMAN EXPERIENCE IS A CONTINUAL SPEC

TRUM SO WHY

ARE THESE TWO

SO SIMILAR SUBJECTS VIEWED AS

SO DISSIMILAR

IS IT A QUESTION OF AESTHETI

C SO R OF HUMAN

AND JUDGMENT?



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

then just a thought process or conveyance of information. This process will be



MY ACTION:

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shown to be the art form that it is.



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

This is a different process to that which has recently been used in mathematical



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUOUS SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

representations in art. Recently the focus has been on the ordering of patterns



MY ACTION:

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that have only been possible to visualise through computers, namely fractals.



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IT IS A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

While there is debate about whether these images are art or not¹⁰ from this



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY

thesis's point of view they are ultimately un-interesting as they offer no insight

ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IT A QUESTION OF AESTHETIC SOR OF HUMAN JUDGMENT?



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM. SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

into the process of mathematics, but represent a specific visualisation of it and



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL STRUGGLE TO UNDERSTAND WHY WE ARE. THESE TWO SUBJECTS VIEWED AS DISSIMILAR IS A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

have historical interest as some of the first mathematical visualisations that



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL STRUGGLE SO WHY ARE THESE SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

would not have been possible without computational means. John Maeda



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO

describes fractals as “*primarily the selection of psychedelic colour pallets*”¹¹.

OSIMILAR SUBJECTS VIEWED AS DISSIMILAR. IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO

The other times that math has been used in art it has often been used as a

SIMILAR SUBJECTS VIEWED AS DISSIMILAR. IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL STRUGGLE SO WHY ARE THESE TWO SO SIMILAR SUBJECTS VIEWED AS SO DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

purely pictorial or typographic medium; this can be seen in the works of Anna



MY ACTION:

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Bliss¹², Berner Venet¹³ and Mel Bochner¹⁴. In Windows (1989-1990) by Anna



MY ACTION:

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Bliss the works consist of scientific images/typography applied to form a visual



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL STRUGGLE SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

mural (see reference no. 12 for provenance), Bochner writes numerals by



MY ACTION:

THERE IS NO SEPARATION OF ART AND SCIENCE. HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR? IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?

cleaning areas of glass occluded by soap in To Count: Intransitive (see



MY ACTION:

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reference number 14 for provenance). The use of maths in this creates a



MY ACTION:

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barrier between the artist and the audience, and it can be argued it is being



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HUMAN EXPERIENCE IS A CONTINUAL SPECTRUM SO WHY ARE THESE TWO SIMILAR SUBJECTS VIEWED AS DISSIMILAR?

used only because of this barrier instead of the use of non-roman text which

IS IT A QUESTION OF AESTHETICS OR OF HUMAN JUDGMENT?



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could be augmented to perform the same visual appearance but would allow

NOF AESTHETICS OR OF HUMAN JUDGMENT?



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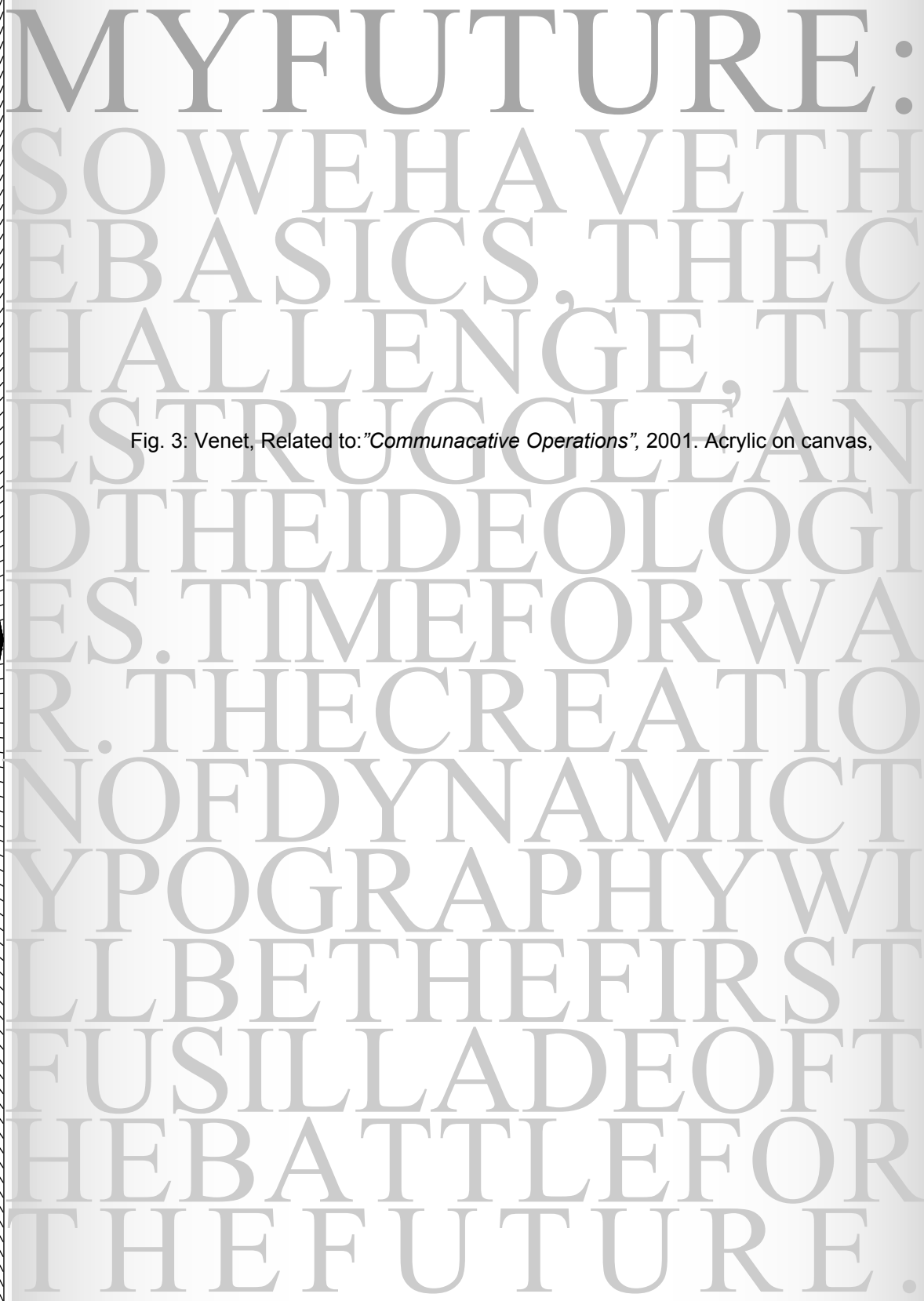
the audience to notice the background concepts behind it.



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$$\begin{aligned}
 & \{[(v' \circ v') \circ (v' \circ v')] \circ [(v' \circ v') \circ (v' \circ v')]\} \\
 & \quad \circ \{[(u' \circ x) \circ (y \circ u')] \circ [(v' \circ v') \circ (v' \circ v')]\} \\
 = & \{[(v' \circ v') \circ (v' \circ v')] \circ [(v' \circ v') \circ (v' \circ v')]\} \\
 & \quad \circ \{[(u' \circ x) \circ (v' \circ v')] \circ [(y \circ u') \circ (v' \circ v')]\} \\
 = & \{[(v' \circ v') \circ (v' \circ v')] \circ [(u' \circ x) \circ (v' \circ v')]\} \\
 & \quad \circ \{[(v' \circ v') \circ (v' \circ v')] \circ [(y \circ v') \circ (u' \circ v')]\} \\
 = & \{[(v' \circ v') \circ (u' \circ x)] \circ [(v' \circ v') \circ (v' \circ v')]\} \\
 & \quad \circ \{[(v' \circ v') \circ (v' \circ v')] \circ [(y \circ v') \circ (u' \circ v')]\} \\
 = & \{[(v' \circ u') \circ (v' \circ x)] \circ [(v' \circ v') \circ (v' \circ v')]\} \\
 & \quad \circ \{[(v' \circ v') \circ (v' \circ v')] \circ [(y \circ v') \circ (u' \circ v')]\} \\
 = & \{[(v' \circ u') \circ (v' \circ v')] \circ [(v' \circ x) \circ (v' \circ v')]\} \\
 & \quad \circ \{[(v' \circ v') \circ (v' \circ v')] \circ [(y \circ v') \circ (u' \circ v')]\} \\
 = & \{[(v' \circ u') \circ (v' \circ v')] \circ [(v' \circ v') \circ (v' \circ v')]\} \\
 & \quad \circ \{[(v' \circ x) \circ (y \circ v')] \circ [(v' \circ v') \circ (v' \circ v')]\}
 \end{aligned}$$





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Fig. 3: Venet, Related to: "Communacative Operations", 2001. Acrylic on canvas,



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76 by 90 inches. See reference No. 13 for details of provenance.



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This is an example of Venet's work; extracting and re-printing elements from



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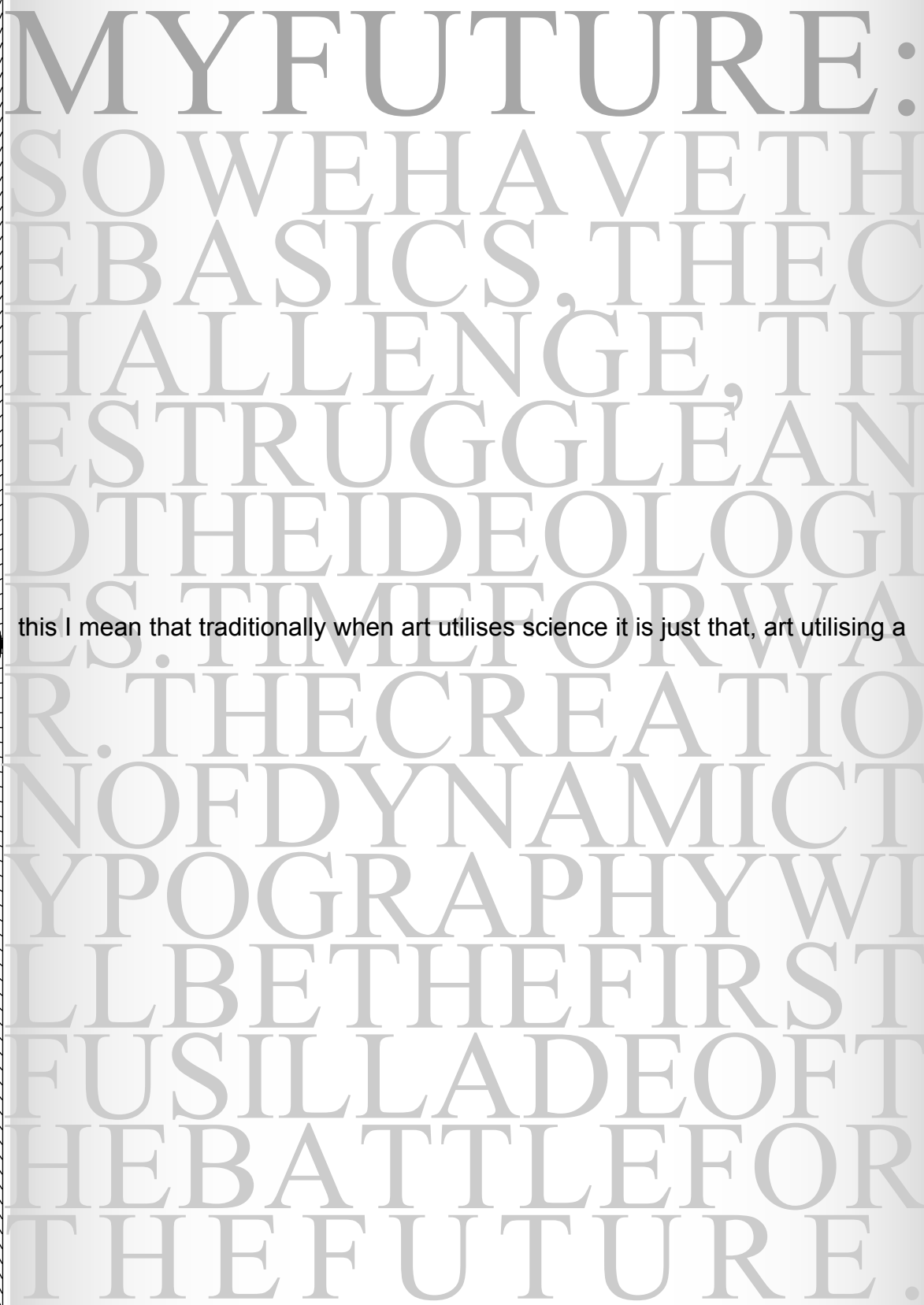
scientific text books.



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By changing the side that is demonstrated it should present new insights. By





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this I mean that traditionally when art utilises science it is just that, art utilising a



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foreign subject in much the same way that it would utilise any different subject.



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When scientists have applied themselves to the arts it has been traditionally to



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show the visual order and process that mathematics can produce. By reversing



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the emphasis to numerals and demonstrating their internal order and



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information density it should be possible to allow an aesthetically pleasing side



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of mathematics that has previously not been expanded upon to be



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demonstrated and visualised.



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By prefacing this paper with a quote from John Maeda, one of the more



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innovative contemporary computational artists and teachers, it gives and



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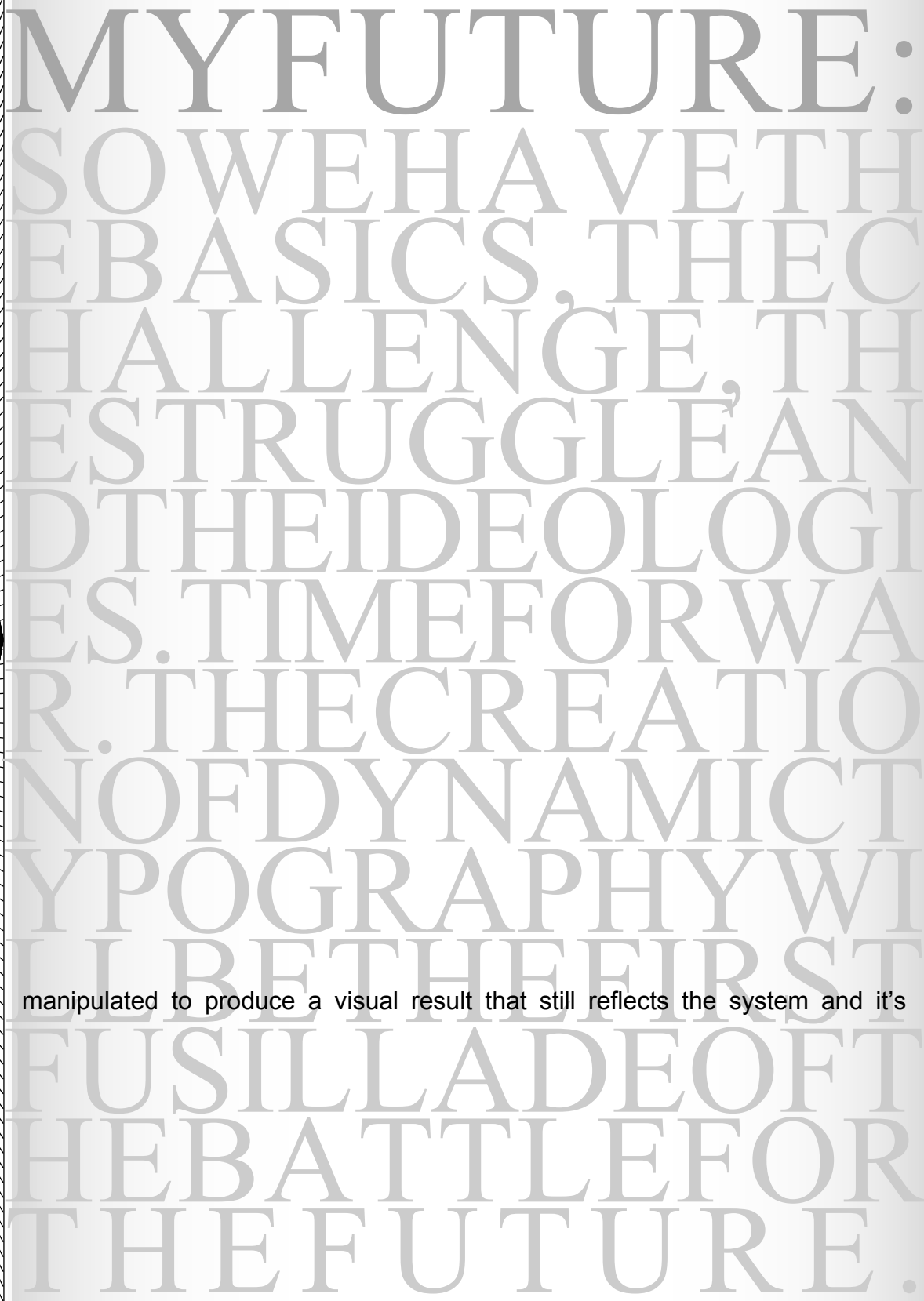
essence of the challenge that is contained within this work. The central



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challenge is to show that the visualisation of numerals and science can be





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manipulated to produce a visual result that still reflects the system and it's



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inherent beauty to art. An analogy can be drawn to typographic works



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connected to poetry, how the typography affects the way that the poem is



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experienced and understood.



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A question that may be asked is why is it important to have this interface or



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expression shown. This is a difficult and contentious question to answer as it



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becomes one of subjectivity. Bush states that *“there is a growing mountain of*



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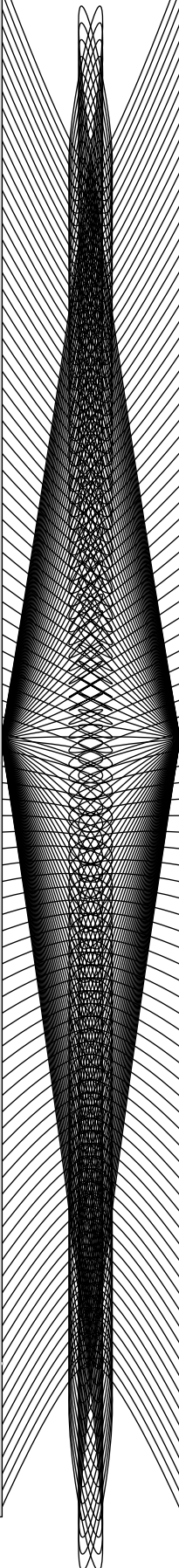
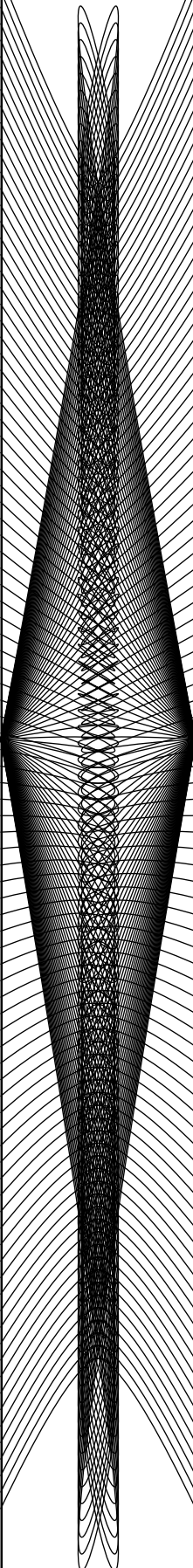
research. But there is increased evidence that we are being bogged down



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*today as specialisation extends*¹⁵. Bush sees the specialisation as both a good





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and bad one, but views the answer as a technological one. Licklider also



proposes the use of computers to assist human's mental processes but notes

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IS THIS POSSI-
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that the lack of a coherent joint language poses problems¹⁶.

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While the technology is now in place for the visions of Licklider and Bush to be

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achieved there is still the problem of people blinkering their thoughts to other

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TOTAL WAR:

areas limiting their perception of other fields, and a part of this work is to break

THE FINAL SUMMATION WILL BE THE CREATION OF A NEW VISUAL LANGUAGE FORM A THEMATICS AND SCIENCE. IS THIS POSSIBLE; YES. IS THIS EASY; NO. BUT WHEN IS WAR EVER EASY?



TOTAL WAR:

down the language and re-use it to allow the penetration of the perception

THE FINAL SUMMATION WILL BE THE CREATION OF A NEW VISUAL LANGUAGE FORM AT THE MATHEMATICS AND SCIENCE. IS THIS POSSIBLE; YES. IS THIS EASY; NO. BUT WHEN IS WAR EVER EASY?



TOTAL WAR:

THE FINAL SUMMATION WILL BE THE CREATION OF A NEW VISUAL LANGUAGE FORM AT THE MATHEMATICS AND SCIENCE. IS THIS POSSIBLE; YES. IS THIS SEASY; NO. BUT WHEN IS WA REVEREASY?

divide. Artists tend to work in a qualitative medium while science is based in



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quantities (excluding pseudoscience).



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A scientist, by quantising a physical action, relationship, process etc then



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begins to understand it. This leads to a different, and I would argue the most



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insightful, way to view the corporeal world. Someone who is trained to do this



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will then see the inner art that is mathematics applied to the physical world. An



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artist lacks this perception ability and therefore loses an insightful manner or



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experiencing the world.



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A scientist also loses out as their training does not teach them to look beyond a



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purely conceptual view of their tools and see that they have an innate visual



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aesthetic appearance.



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The unification needs to re-occur to progress.



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¹ *Design By Numbers*, John Maeda, 1999, pp235, MIT Press.



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² Özucan & Akarun; *Mathematics and Design Education*, Design issues, vol. 17, No. 3, Summer 2001.



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³ William, K; *Leonardo* (USA), Vol. 30, No. 2, pp105-112, 1997



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⁴ Holtzman, S; *Digital Mantras*, MIT Press, pp125, 1994.



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⁵ Betts, P; *Science, Semiotics and Society: The Ulm Hochschule für Gestaltung in Retrospect*. Design



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Issues, Vol. 14, No. 2, Summer 1998.



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⁶ Lewis, J, *Discussion of ACTIVETEXT*, The Thought Shop,



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<http://www.thethoughtshop.com/research/atext/atext.htm>, No publication date.



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⁷ OBX Labs, *Research Area: Next Text,*



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⁸ Fry, B; <http://acg.media.mit.edu/people/fry/valence/> no publication date



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⁹ Peter Cho's website: <http://pcho.net/> no publication date



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¹⁰ Tye, E & Pollock, G; *Photographic Journal* (UK), Vol. 133, No. 6, July – Aug 1993, pp226-227



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¹² Bliss, A C; *Leonardo* (USA), Vol. 26, No. 1, pp 19-22, 1993



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¹³ McEvelley, T; *Art In America*, Vol. 91, No. 4, pp 108-113, April 2003



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¹⁴ Kalina, R; *Art In America*, Vol. 84, No. 9, pp 88-93, September 1996



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¹⁵ Bush, V; *As We May Think*, *Atlantic monthly*, 176(1):101-108, July 1945



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¹⁶ Licklider, J. C. R.; *Man-Computer Symbiosis*, IRE Transactions on Human Factors in Electronics,



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