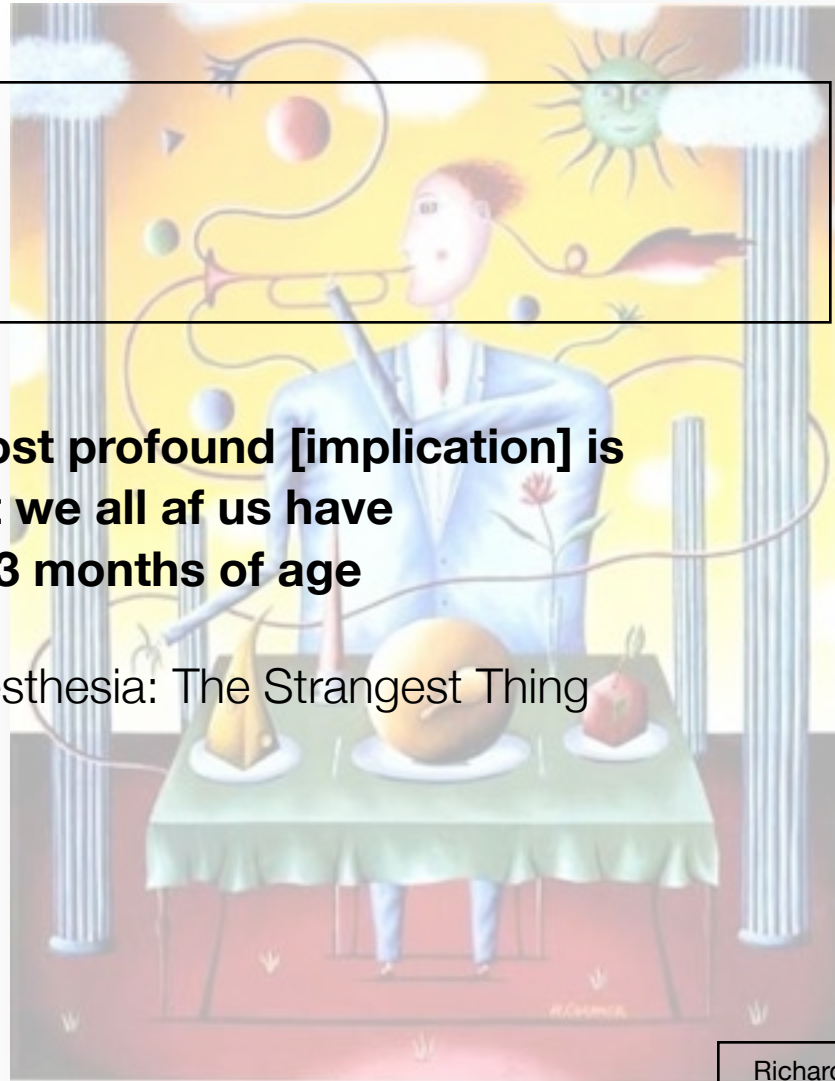


## Synaesthesia

**The first, and perhaps most profound [implication] is that... it seems likely that we all of us have synaesthesia until about 3 months of age**

John Harrison, 2001, *Synaesthesia: The Strangest Thing* (Oxford: OUP)



Richard Hoadley  
2007-15  
v0.7

## Note

This presentation is available in **pdf** format at  
[rheadley.net/presentations](http://rheadley.net/presentations)

Further information is available at  
[rheadley.net/sonicart](http://rheadley.net/sonicart)



# Synaesthesia

## Definition

### **1. Psychol.**

**a.** A sensation in one part of the body produced by a stimulus applied to another part.

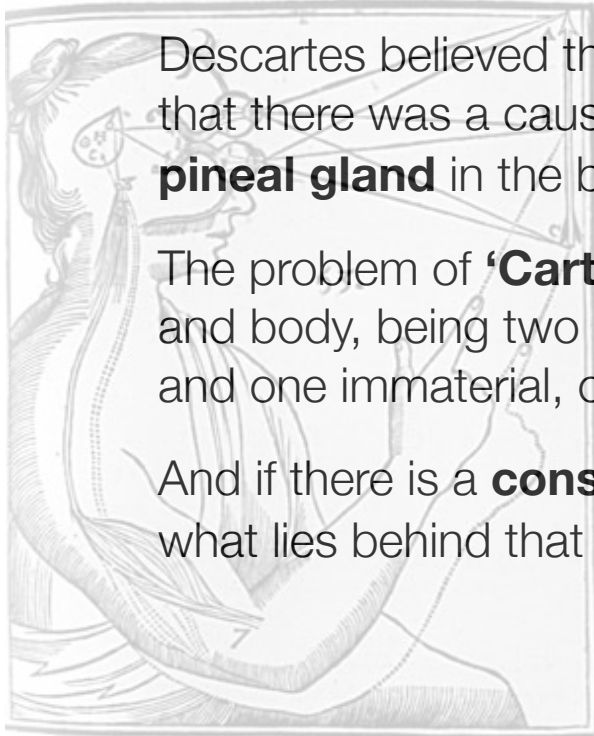
**b.** Agreement of the feelings or emotions of different individuals, as a stage in the development of sympathy.

**c.** Production, from a sense-impression of one kind, of an associated mental image of a sense-impression of another kind...

## **Oxford English Dictionary**

Synaesthesia **Descartes** (1596-1650)

## The Pineal Gland - Mind and Body



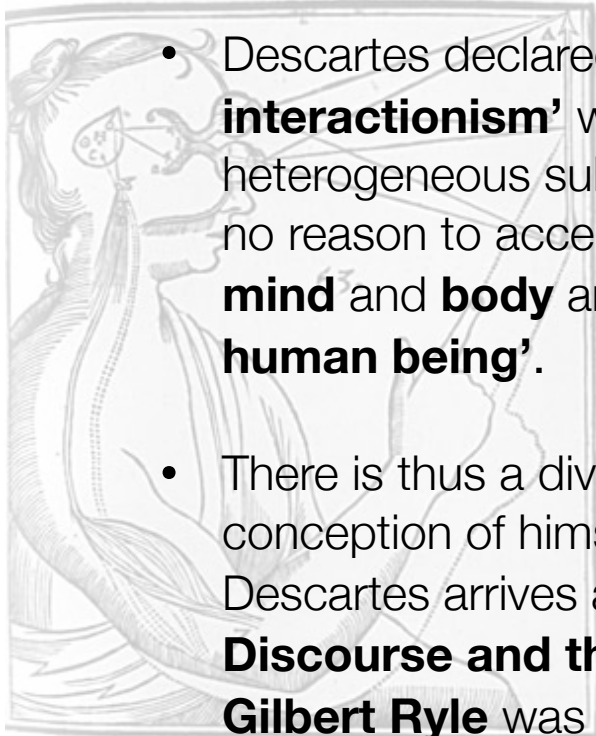
Descartes believed that **mind** and **body** were **separate**, but that there was a causal flow between mind and body via the **pineal gland** in the brain

The problem of '**Cartesian interactionism**': how can mind and body, being two utterly distinct substances, one material and one immaterial, causally interact in such a way?

And if there is a **consciousness** watching from our **minds**, what lies behind that **consciousness**, and so on.

Synaesthesia **Descartes** (1596-1650)

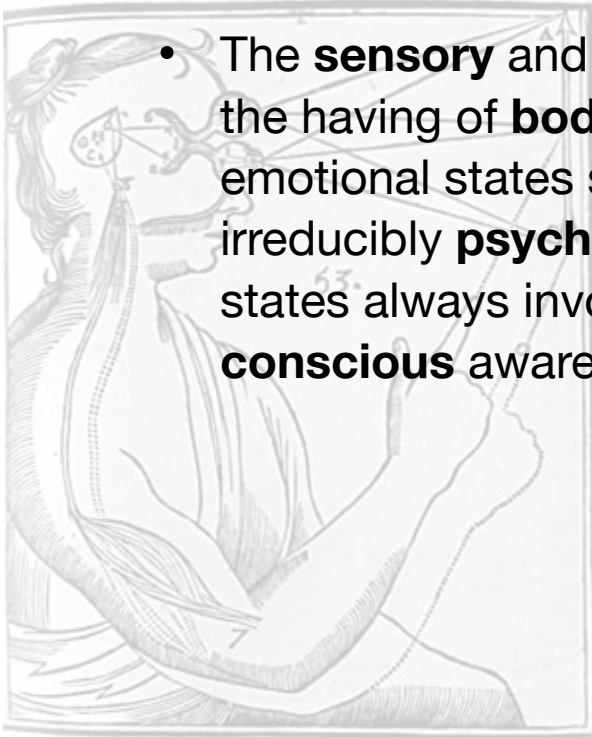
## The Pineal Gland - Mind and Body



- Descartes declared that the problem of **'cartesian interactionism'** was based on a supposition—that heterogeneous substances cannot interact—which he saw no reason to accept. Descartes also continued to insist that **mind** and **body** are **united** so as to form a **'genuine human being'**.
- There is thus a divergence between the metaphysical conception of himself as a pure incorporeal substance that Descartes arrives at through his **dualistic** arguments in the **Discourse and the Meditations**—the conception that **Gilbert Ryle** was later famously to stigmatise as the **'doctrine of the ghost in the machine'**—and the real

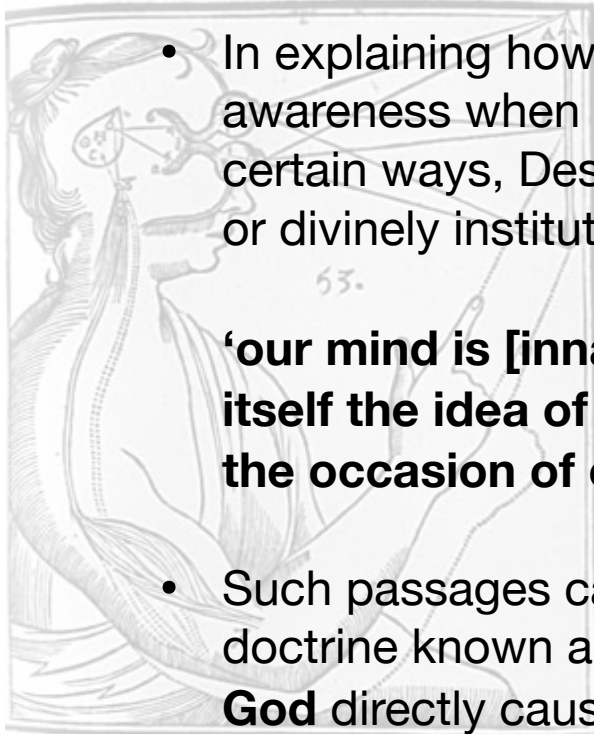
Synaesthesia **Descartes** (1596-1650)

## Mind and Body - the basic dualism



- The **sensory** and **affective** part of our nature (including the having of **bodily sensations** such as **pain** and emotional states such as **fear**) is for Descartes irreducibly **psycho-physical**: such **sensations** and states always involve **both physiological** activity and **conscious** awareness.

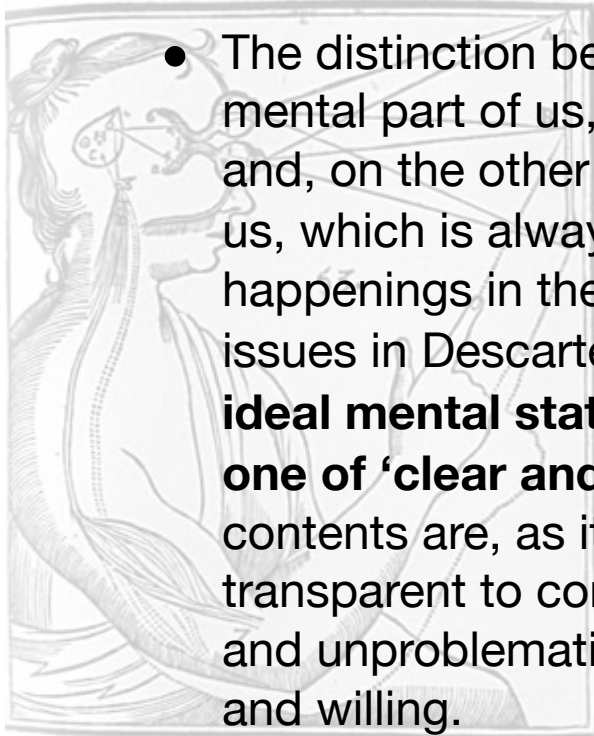
## The Pineal Gland and God



- In explaining how we have sensory and emotional awareness when our bodies and brains are stimulated in certain ways, Descartes sometimes appeals to a ‘natural’ or divinely instituted predisposition:  
**‘our mind is [innately] capable of representing to itself the idea of pain, colours, sounds and the like on the occasion of certain corporeal motions’** (1648).
- Such passages can be interpreted as indicating the later doctrine known as ‘occasionalism’, according to which **God** directly causes certain sensory states in the human mind on the ‘**occasion**’ of bodily happenings.

Synaesthesia **Descartes** (1596-1650)

## The Pineal Gland



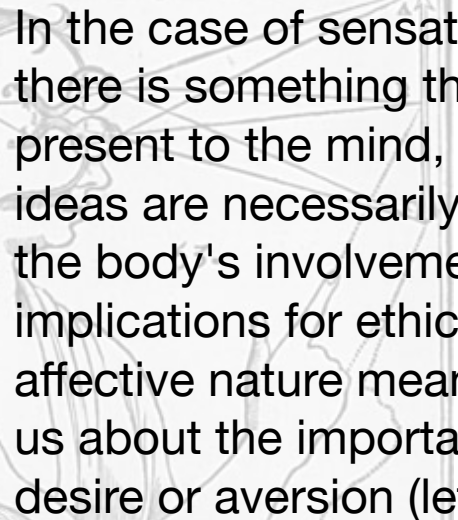
- The distinction between, on the one hand, the purely mental part of us, comprising understanding and volition, and, on the other hand, the sensory and affective part of us, which is always '**contaminated**', as it were, with the happenings in the body, gives rise to some important issues in Descartes's philosophical psychology. **The ideal mental state**, as presented in the Meditations, is **one of 'clear and distinct perception'**: here the mind's contents are, as it were, completely open and transparent to consciousness, so that we have a direct and unproblematic awareness of what we are thinking and willing.

## Metaphor, Memes and the Cartesian Music-hall



## Synaesthesia **Descartes**

### **The Pineal Gland**



In the case of sensations and emotions, however, although there is something that is immediately (and often urgently) present to the mind, Descartes insists that the resulting ideas are necessarily ‘obscure and confused’, as a result of the body's involvement. This obscurity has important implications for ethics, for the confusions inherent in our affective nature mean that the passions may often mislead us about the importance or value of a particular object of desire or aversion (letter of 1 September 1645).

Prof. John Cottingham "Descartes, René" The Oxford Companion to Philosophy. Oxford University Press 2005. Oxford Reference Online. Oxford University Press. Stoke-on-Trent Libraries. 30 January 2007 <<http://www.oxfordreference.com/views/ENTRY.html?>

## **Metaphor, Memes and the Cartesian Music-hall**

Synaesthesia **Basho** (1644-1694)

## Haiku

**Umi kurete  
kamo no koe  
honoka ni shiroshi.**

The sea darkens –  
the wild duck's call  
is faintly white.

(as translated by Hass 1994)

**Kane kiete  
Hana no ka wa tsuku  
Yube kana**

As the bell tone fades  
Blossom scents take up the ringing  
Evening shade

(as translated by Ueda 1967)

<http://www.daysyn.com/Famous-synesthetes.html>

Synaesthesia **Vivaldi** (1648-1741)

**The Four Seasons** Concerto in E Major, Op. 8, No. 1, RV 269 - Spring (1725)

### **1: Allegro**

Springtime is upon us.

The birds celebrate her return with festive song,  
and murmuring streams are softly caressed by the  
breezes.

Thunderstorms, those heralds of Spring, roar, casting  
their dark mantle over heaven,

Then they die away to silence, and the birds take up their  
charming songs once more.

Synaesthesia **Vivaldi** (1648-1741)

**The Four Seasons** Concerto in E Major, Op. 8, No. 1, RV 269 - Spring (1725)

## **2: Largo**

On the flower-strewn meadow, with leafy branches rustling overhead, the goat-herd sleeps, his faithful dog beside him.

## **3: Allegro**

Led by the festive sound of rustic bagpipes, nymphs and shepherds lightly dance beneath the brilliant canopy of spring.

Synaesthesia **Beethoven** (1770-1827)

**Symphony No 6** (1808)

ii By the Brook (including birdsong at ~11:30)

iv Storm

Synaesthesia **Romanticism**

**Science and Spirituality**

"What if you slept? And what if, in your sleep, you dreamed?  
And what if, in your dream, you went to heaven and there  
plucked a strange and beautiful flower? And what if, when you  
awoke, you had the flower in your hand? Ah, what then...?"

Coleridge

Synaesthesia **Richard Wagner** (1813-1883)

**Rhinegold** (1876)



includes audio clip from *Rhinegold*

Synaesthesia **Scriabin** (1872-1915)

**Poem of Ecstasy** (1905-8)

“

The colour organ used in *Prométhée* was to have been only the beginning of a vast synaesthetic experiment: Scriabin intended the *Mysterium* to consist of music (with chorus, solo voices, orchestra and, of course, himself centre-stage at a piano), dance, lights and perfume, augmented by ‘bells suspended from the clouds’.

”

<http://www.classicalcdreview.com/scriabin.htm>



Synaesthesia **Scriabin**

**Poem of Ecstasy (1905-8) *Mysterium*, Coloured Keyboard**

In 1905 when composing the **Poème de l'extase**, Scriabin enthused that the work would be '**a great joy, an enormous festival**'; this concept of his music to be not only a source of artistic celebration but a participatory act of celebration grew throughout the following years of the decade. **Prométhée** was at one point considered by Scriabin to be a section of a much larger **Misteriya ('Mysterium')** which would occupy his creative efforts from that time onwards. Later the incorporation of **Prométhée** into the larger work was abandoned in favour of the creation of an intermediate **Predvaritel'noye deystvo ('Acte préalable')** which would prepare an as yet unready public for the **Mysterium**. In 1914 Scriabin bought a piece of land in Darjeeling; for him, India was the 'land of sages, sadhus, magical and mystifying attainments' and its backdrop of the Himalayas would form a natural temple at which the selected participants could attain Scriabin's prescription of samadhi, an Indian word for the spiritual ecstasy central to Scriabin's artistic aims.

Synaesthesia **Scriabin**

**Poem of Ecstasy (1905-8) *Mysterium Coloured Keyboard***

To paraphrase Skryabin's close friend Vyacheslav Ivanov, Skryabin's music and therefore also its logical culmination in the **Mysterium** 'would not have wanted to be and could not have been “**only art**”' (V. Ivanov: *Borozd'i i mezhi*, Moscow, 1916), an assertion which, although made with reference to the Russian symbolist movement as a whole, is particularly pertinent to Skryabin's example.

Jonathan Powell: Scriabin, Grove Music Online ed. L. Macy (Accessed [06/02/07]), <<http://www.grovemusic.com>>

## Synaesthesia **Piotr Tchaikovsky - Programme Music**

### **Symphony No 4 (1877-78)**

movement 1  
excerpt 1

- ...according to a letter the composer wrote to Madame von Meck in 1878, it is actually the fanfare...(the **kernel, the quintessence, the chief thought of the whole symphony**) that stands for **Fate**, with this being **the fatal power which prevents one from attaining the goal of happiness ... There is nothing to be done but to submit to it and lament in vain.**

movement 1  
excerpt 2

- The programme of the first movement is ... that **all life is an unbroken alternation of hard reality with swiftly passing dreams and visions of happiness....** He went on: **No haven exists ... Drift upon that sea until it**

movement 1  
excerpt 3

# Synaesthesia **Piotr Tchaikovsky - Programme Music**

## **Symphony No 4**

movement 2 excerpt

movement 3  
excerpt 1

movement 3  
excerpt 2

- The second movement is **“tinged with melancholy and regret”**;
- the third **expresses no definite feeling, but is made up of capricious arabesques, of the elusive images which rush past in the imagination when you have drunk a little wine and experience the first stage of intoxication.**

Synaesthesia

Piotr Tchaikovsky **Symphony No 4**

movement 4  
excerpt 1

movement 4  
excerpt 2

The fourth movement, by contrast, is a portrait of a folk-holiday, incorporating a famous Russian folk song, **In the Field Stood a Birch Tree**, as one of its themes. “If within yourself you find no reasons for joy, look at others. Go among the people. Observe how they can enjoy themselves, surrendering themselves wholeheartedly to joyful feelings. A picture of festive merriment of the people. Hardly have you managed to forget yourself and to be carried away by the spectacle of others’ joys, than irrepressible 'Fate' again appears and reminds you of yourself... You have only yourself to blame; do not say that everything this world is sad. There are simple but strong joys. Rejoice in others’ rejoicing. To live is still possible.”

Synaesthesia

Brahms **Symphony No 4** (1884-85) **Abstract Metaphor**

This form of musical stimulation lasted for a particular historical period and in the particular area of **Western Art Music**: generally now recognised as the **Romantic Period** - roughly from **late Beethoven** to **Richard Strauss** - although there are many similarities to it both before and since. In analytical terms, this is still considered by many to be the epitome of musical art. Needless to say, **this is only an opinion**. One of the key features of appreciation of this music is that it reference only itself - in other words, that it solely involves musical 'reasoning'.

1 Theme of second movement

2 'Development'

## Synaesthesia

Rimbaud **Voyelles** (1871)

A black, E white, I red, U green, O blue --  
I'll tell One day, you vowels, how you come to be and whence.

A, black, the glittering of flies that form a dense,  
Velvety corset round some foul and cruel smell,  
Gulf of dark shadow; E, the glaiers' insolence,  
Steams, tents, white kings, the quiver of a flowery bell;

A noir, E blanc, I rouge, U vert, O bleu : voyelles,  
Je dirai quelque jour vos naissances latentes :

A, noir corset velu des mouches éclatantes  
Qui bombinent autour des puanteurs cruelles,  
Golfes d'ombre ; E, candeurs des vapeurs et des tentes,  
Lances des glaciers fiers, rois blancs, frissons d'ombelles ;

## Synaesthesia

Rimbaud **Voyelles** (1871)

I, crimson, blood expectorated, laughs that well  
From lovely lips in wrath or drunken penitence;  
U, cycles, the divine vibrations of the seas,  
Peace of herd-dotted pastures or the wrinkled ease  
That alchemy imprints upon the scholar's brow;

I, pourpres, sang craché, rire des lèvres belles  
Dans la colère ou les ivresses pénitentes ;  
U, cycles, vibration divins des mers virides,  
Paix des pâtis semés d'animaux, paix des rides  
Que l'alchimie imprime aux grands fronts studieux ;



Synaesthesia

Rimbaud **Voyelles** (1871)

O, the last trumpet, loud with strangely strident brass,  
The silences through which the Worlds and Angels pass:  
-- O stands for Omega, His Eyes' deep violet glow!

(Translation by Norman Cameon, in Bernstein 1947: 237-238.)]

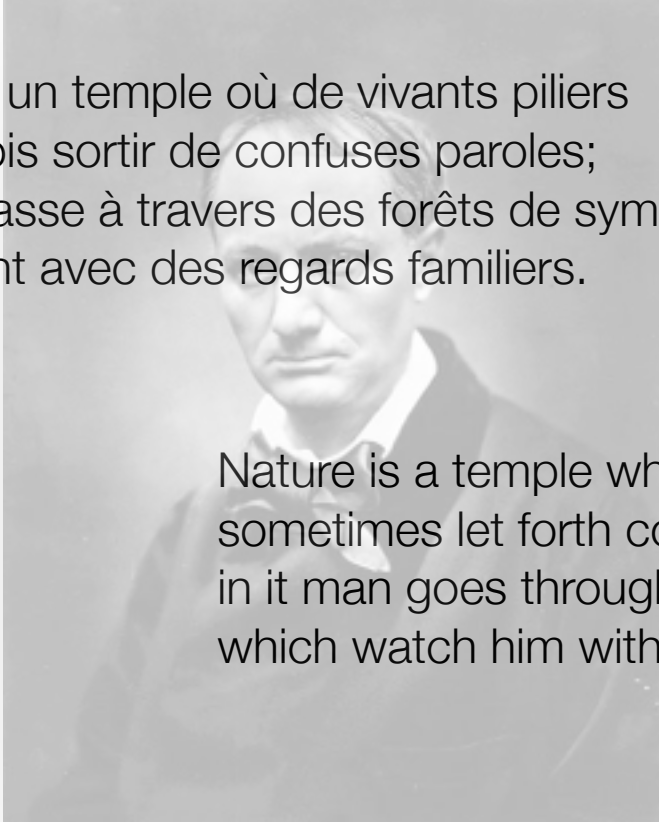
O, suprême Clairon plein des strideurs étranges,  
Silences traversés des Mondes et des Anges :  
- O l'Oméga, rayon violet de Ses Yeux !

"I invented the colors of the vowels! -- A black, E white, I red, O blue, U green. -- I settled on the form and the movement of each consonant, and, with instinctive rhythms, I flattered myself to invent an accessible poetic verb, one day or another, for all of the senses. I set up the translation"

Synaesthesia

Baudelaire **Correspondances**

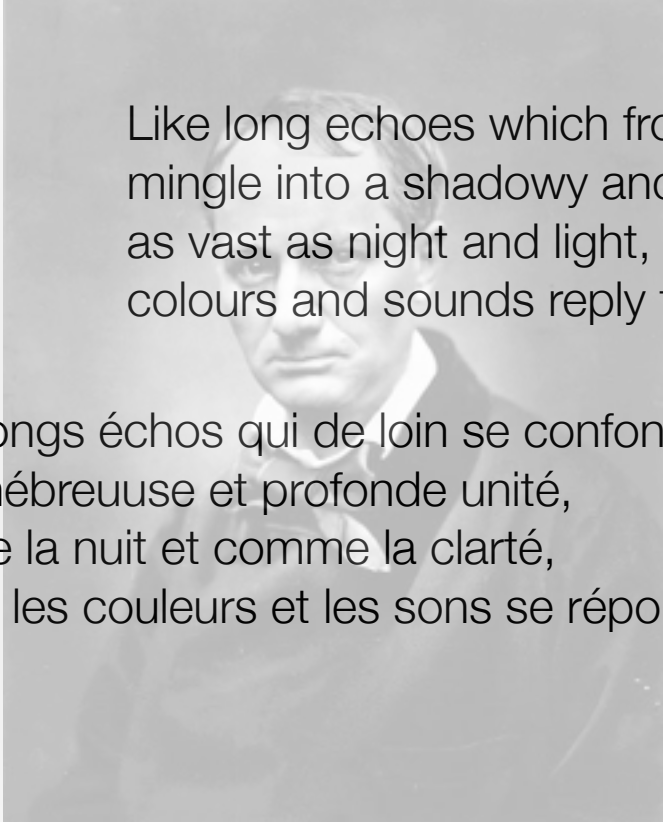
La Nature est un temple où de vivants piliers  
Laissent parfois sortir de confuses paroles;  
L'homme y passe à travers des forêts de symboles  
Qui l'observent avec des regards familiers.



Nature is a temple where living pillars  
sometimes let forth confused words;  
in it man goes through forests of symbols  
which watch him with familiar looks.

Synaesthesia

Baudelaire **Correspondances**



Like long echoes which from a distance  
mingle into a shadowy and deep unity,  
as vast as night and light, perfumes,  
colours and sounds reply to one another.

Comme de longs échos qui de loin se confondent  
Dans une ténébreuse et profonde unité,  
Vaste comme la nuit et comme la clarté,  
Les parfums, les couleurs et les sons se répondent.

# Synaesthesia

## Baudelaire **Correspondances**

Il est des parfums frais comme des  
chairs d'enfants,  
Doux comme les hautbois, verts  
comme les prairies,  
Et d'autres, corrompus, piches et  
triomphants,

Ayant l'expansion des choses infinies,  
Comme l'ambre, le musc, le benjoin et  
l'encens,  
Qui chantent les transports de l'esprit  
et des sens.

There are perfumes fresh as children's flesh,  
sweet as oboes, green as meadows,  
and others corrupt, rich and triumphant,

Sharing the capacity of expansion that infinite  
things have,  
such as musk, balsam and incense,  
which hymn the transports of the mind and  
the senses.

[From  
Christopher Robinson,  
French Literature in the Nineteenth Century;  
New York: Barnes & Noble; 1978. Pp.  
129-130.

Synaesthesia **Marinetti** (1876-1944)

## **Tactile Dinner Party**

...guests were required to wear pyjamas 'made of, or covered with a different tactile material such as sponge, cork, sandpaper, felt, etc.' During the course of this dinner, the guests were invited to eat a 'tactile vegetable garden'. This was done by burying the face in the plate, without the help of the hands, so as to inspire a true tasting with direct contact between the flavours and textures of the green leaves on the skin and lips. Every time the diners raised their heads from the plate to chew, the waiters sprayed their faces with perfumes of lavender and eau-de-Cologne. Between one dish and the next, since the dinner was completely based on tactile pleasures, the guests were to let their fingertips feast uninterruptedly on their neighbour's

*Profil Marinetti'ego (rysunek) – N. Kulbin*

Synaesthesia

## **Behaviourism**

During the middle part of the twentieth century, with the rise in influence of Behaviourism (Pavlov, Skinner), synaesthesia became less interesting to researchers...

Synaesthesia

**Olivier Messiaen (1908-1992) Catalogue d'Oiseaux (1956-58)**

Catalogue d'Oiseaux, Book 1, No 1: Le Chocard des Alpes

Also see score...

1 The actual song

2 Messiaen's version



## Olivier Messiaen **Colours of the Celestial City** (1963)

- For piano, winds and percussion (with the addition of eight violins in the former), Messiaen marked in the score the colours at which he was aiming: jewel colours as described by St John.



## Olivier Messiaen **Colours of the Celestial City** (1963)

In **Couleurs** the principle is instead that of a mosaic, or, better, of a stained-glass window, in which **coloured chords**, **birdsongs** and **pictorial elements** (an image of the abyss, plainsong alleluias) are tumbled together in repetitions, interchanges, decorations and new departures. This was, however, a unique moment. The movements of later works are often on a grand scale – up to three quarters of an hour in the case of the Bird Sermon scene in **Saint François** – but they generally return to the concatenation or verse-refrain forms of earlier Messiaen.

Paul Griffiths: 'Olivier Messiaen', Grove Music Online ed. L. Macy (Accessed [06/02/07]), <<http://www.grovemusic.com>>

## Programme Music and Abstraction (also see Behaviourism)

### **Petrushka - Programme Music?**

### **The Rite of Spring**

### **Agon - Abstract ballet**

“I consider that music, by its very nature, is essentially powerless to express anything at all, whether a feeling, an attitude of mind, a psychological mood, a phenomenon of nature, etc. . . . Expression has never been an inherent property of music. That is by no means the purpose of its existence. If, as is nearly always the case, music appears to express something, this is only an illusion and not a reality. It is simply an additional attribute which, by tacit and inveterate agreement, we have lent it, thrust upon it, as a label, a convention—in short, an aspect which, unconsciously or by force of habit, we have often come to confuse with its essential being.

“Music is the sole domain in which man realises the present. By the imperfection of his nature, man is doomed to submit to the passage of time—to its categories of past and future—without ever being able to give substance and, therefore, stability, to the category of the present.”

## Programme Music and Abstraction

“The phenomenon of music is given to us with the sole purpose of establishing an order in things, including particularly the co-ordination between man and time. To be put into practice, its indispensable and single requirement is construction. Construction once completed, this order has been attained, and there is nothing more to be said. It would be futile to look for, or expect anything else from it. It is precisely this construction, this achieved order, which produces in us a unique emotion having nothing in common with our ordinary sensations and our responses to the impressions of daily life. One could not better define the sensation produced by music than by saying that it is identical with that evoked by contemplation of the interplay of architectural forms. Goethe thoroughly understood that when he called architecture frozen music.”

Stravinsky' Chroniques de ma vie, taken from Morgenstern, Composers on Music (Pantheon, 1956), pp. 442-444.

[http://www.rowan.edu/philosop/clowney/Aesthetics/philos\\_artists\\_onart/stravinsky1.htm](http://www.rowan.edu/philosop/clowney/Aesthetics/philos_artists_onart/stravinsky1.htm)

Synaesthesia

Richard **Cytowic** at the **Hirshhorn**

Richard Cytowic,  
a leading scientific  
investigator of  
synaesthesia,  
speaks about  
Kandinsky and  
synaesthesia at  
the Hirshhorn  
Gallery  
[9:30]



# Synaesthesia

## Examples

A group of individuals were asked to draw their impression of the music (by Gavin Bryars) they heard.  
[2:04]



<http://uk.youtube.com/watch?v=an8rBmjHMqk>

# Synaesthesia

Examples: One Step Beyond - Synaesthesia



Highlights the perceptual condition of synesthesia and the research undertaken in Dr. David Eagleman's lab.  
[6:04]

<http://uk.youtube.com/watch?v=DvwTSEwVBfc>

Synaesthesia

Examples: **Synesthesia (short documentary)**



[6:06]

<http://uk.youtube.com/watch?v=DvwTSEwVBfc>

# Synaesthesia

Examples: Synaesthesia (Coloured Letters and Numbers)

“[This] shows my colored letters and numbers and a bit of an explanation of the broader concept of synaesthesia.”

[5:00]



[.http://uk.youtube.com/watch?v=oQLm11A08uQ.](http://uk.youtube.com/watch?v=oQLm11A08uQ)



# Synaesthesia

Examples: Synaesthesia Blue



Visual  
interpretation to  
“Window” by **The  
Album Leaf**  
[2:30]

<http://uk.youtube.com/watch?v=topzx8TC9yc>

Synaesthesia

Examples: 2nd International Conference on SYNAESTHESIA

December 1st-3rd, 2006  
Hanover Medical University  
<http://www.ics2006.de/>  
[4:53]



<http://uk.youtube.com/watch?v=m3-Z0AgQInY>

# Synaesthesia

## Bibliography

- Cytowic, R., 2003, **The Man Who Tasted Shapes**
- Cytowic, R., 2002, **Synesthesia: A Union of the Senses**, (Cambridge, MIT: Bradford)
- John Harrison, 2001, **Synaesthesia: The Strangest Thing** (Oxford: OUP)
- Marinetti, ed. Lesley Chamberlain, 1932, **La Cucina Futuristica** (London: Trefoil)

**Synaesthesia**

Other **Presentations**

**<http://rheadley.net/presentations>**

end

