

**The necessity of consciousness.**

**Why human zombies would be  
an evolutionary dead end.**

**Wassily Kandinsky, 1911:**

**Colour is a power which directly influences the soul. Colour is the keyboard, the eyes are the hammers, the soul is the piano with many strings.**

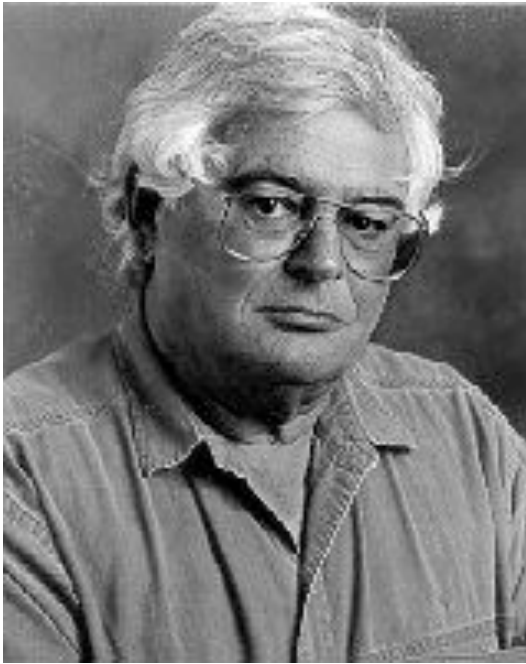


A theory of

**phenomenal  
consciousness**

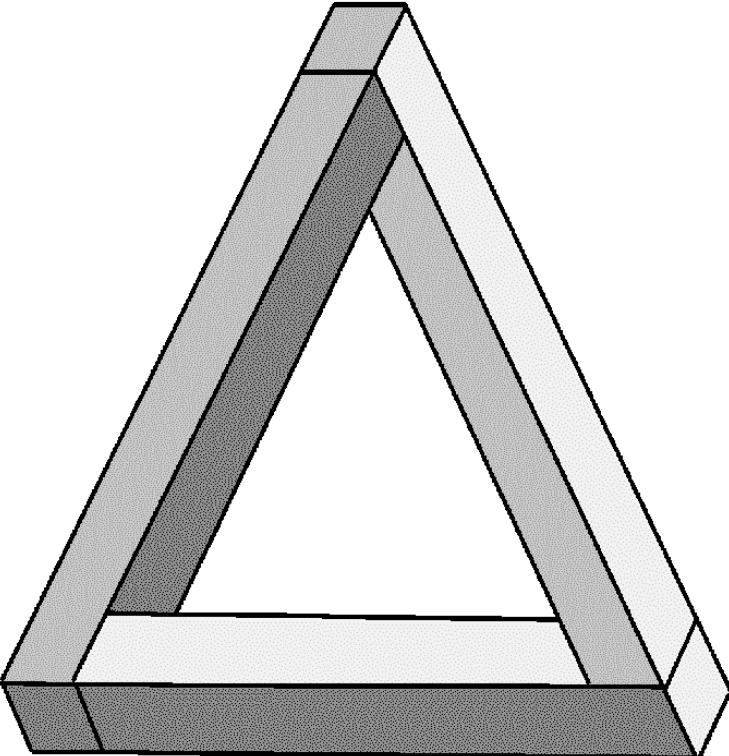
A theory of

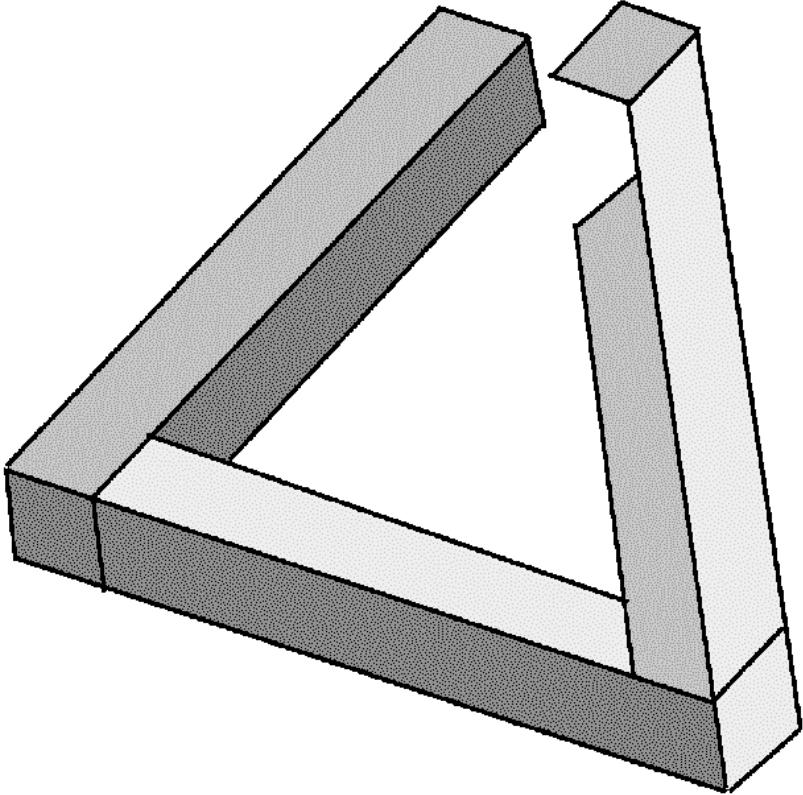
**qualia**



Jerry Fodor, 2007:

We can't, as things stand now, so much as imagine the solution of the hard problem. The revisions of our concepts and theories that imagining a solution will eventually require are likely to be very deep and very unsettling . . . There is hardly anything that we may not have to cut loose from before the hard problem is through with us.







Sherlock Holmes:

“How often have I said to you that when you have eliminated the impossible, whatever remains, *however improbable*, must be the truth?”



....

“We know that he did not come through the door, the window, or the chimney. We also know that he could not have been concealed in the room, as there is no concealment possible. Whence, then, did he come?”

"He came through the hole in the roof," I cried.

TELL HER NO b/w LEAVE ME BE

# THE ZOMBIES



DISTRIBUTED BY LONDON RECORDS INC.



## Philosophical zombie (Chalmers website)

A philosophical zombie is physically identical to a normal human being, but completely lacks conscious experience.

Philosophical zombies look and behave like the conscious beings that we know and love, but "all is dark inside."

There is nothing "it is like" to be a philosophical zombie.



## Philosophical zombie (Chalmers website)

A philosophical zombie is physically identical to a normal human being, but completely lacks conscious experience.

Philosophical zombies look and behave like the conscious beings that we know and love, but "all is dark inside."

There is nothing "it is like" to be a philosophical zombie [**yet nothing follows from this**].



## Psychological zombie

A psychological zombie is physically identical to a normal human being *except in one crucial respect*: namely, that he or she *lacks just that part of the brain that yields conscious experience*.

Psychological zombies do *not* look and behave like the conscious beings that we know and love, *precisely because* "all is dark inside."

There is nothing "it is like" to be a psychological zombie.



## Psychological zombie

A psychological zombie is physically identical to a normal human being *except in one crucial respect: namely, that he or she lacks just that part of the brain that yields conscious experience.*

Psychological zombies do *not* look and behave like the conscious beings that we know and love, *precisely because* "all is dark inside."

There is nothing "it is like" to be a psychological zombie [**and the result is quite debilitating**]

1.Sensations don't have to have the phenomenal quality they do. They could fulfil their basic functional role without it.

2.The special qualia-rich way humans experience sensations must have been added by natural selection as a quite peculiar *design feature*, possibly relatively late in evolution .

3.Qualia aren't what you think they are. Or rather they are exactly what you *think* they are is! (no more or less). And sensations have been designed to elicit *just such thoughts*.

3. This design has been selected just because having such thoughts promotes *psychological changes* in the phenomenally conscious subject that are highly adaptive.
4. Not least of these adaptive changes is an increased joy in being alive and a new kind of enchantment with the world outside.
5. While phenomenal consciousness may be present in other species, humans have built on it in ways none others have. For humans it underpins the idea of the private Self - enabling humans, alone in nature, to occupy the “soul niche”.

KINOKUNIYA COMPANY LTD.



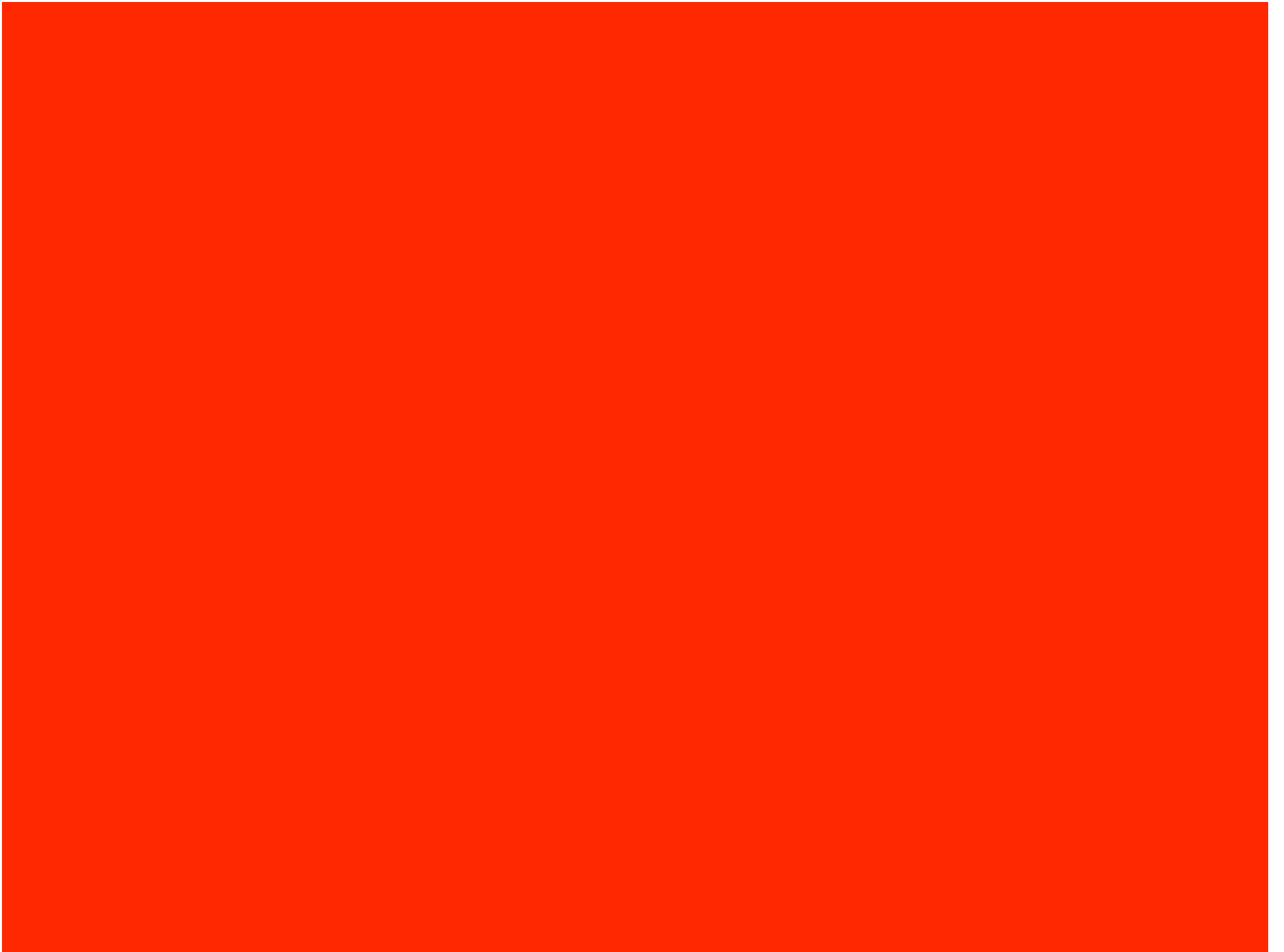
**Seeing Red**  
A study in consciousness

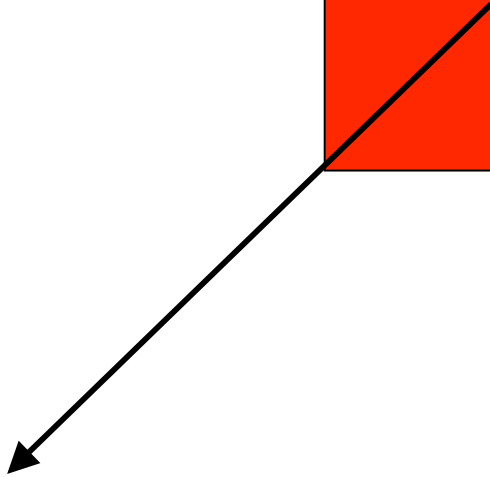
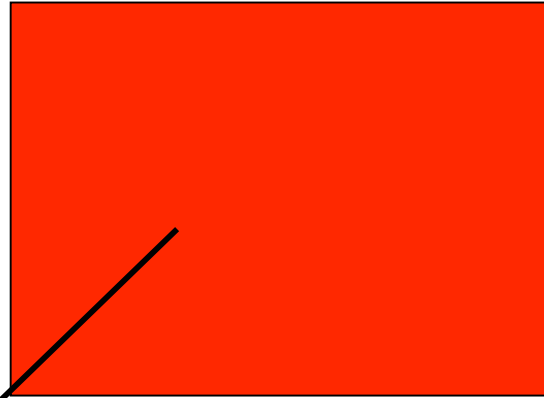
**赤を見る**

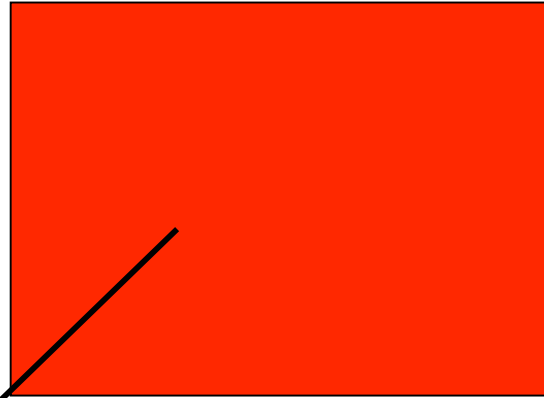
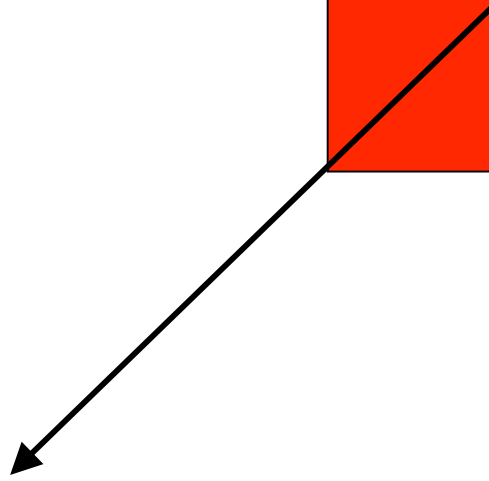
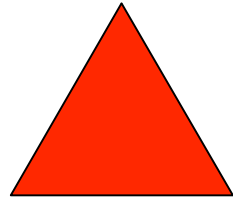
感覚の進化と意識の存在理由

ニコラス・ハンフリーー著  
柴田裕之訳

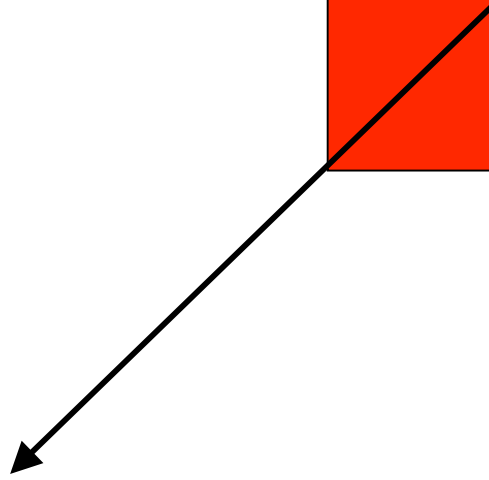
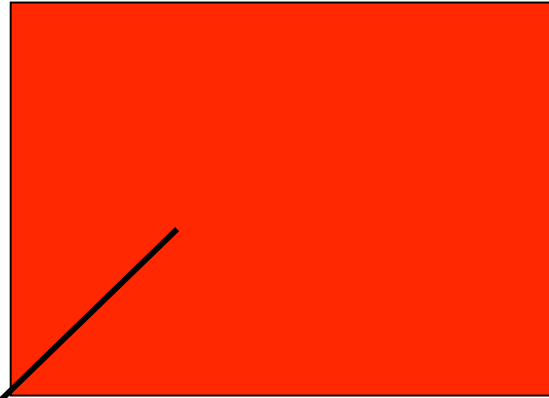
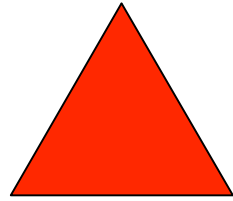
紀伊國屋書店



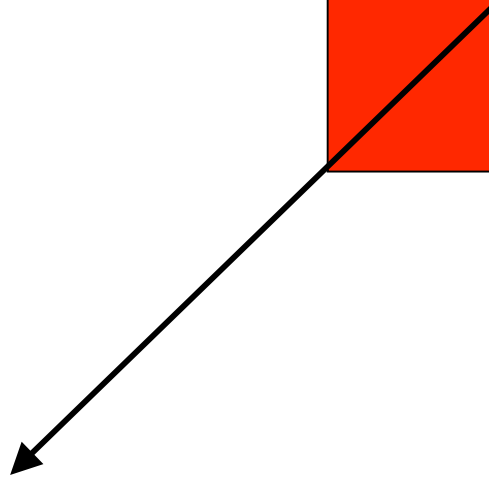
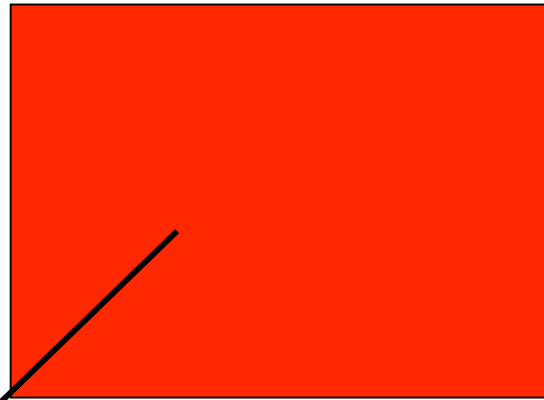
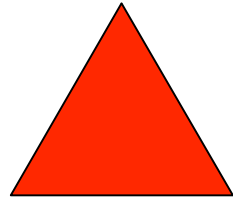




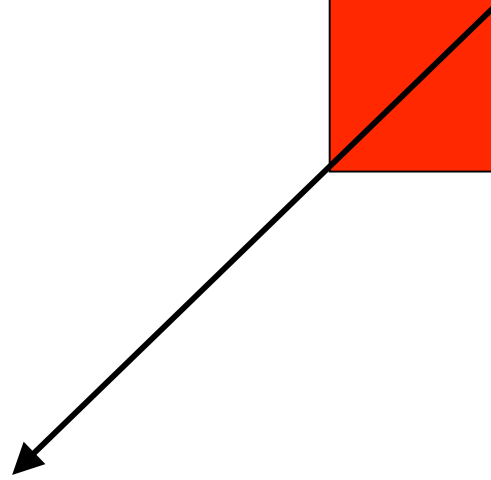
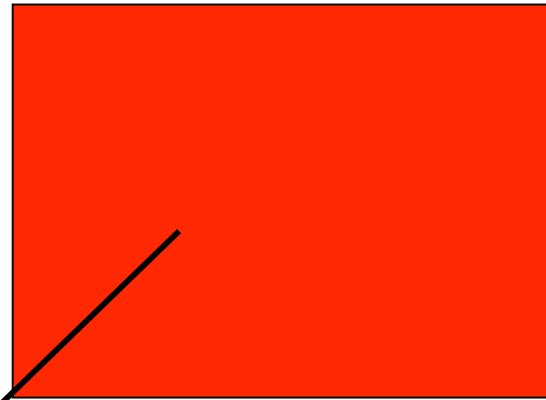
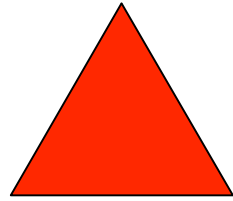


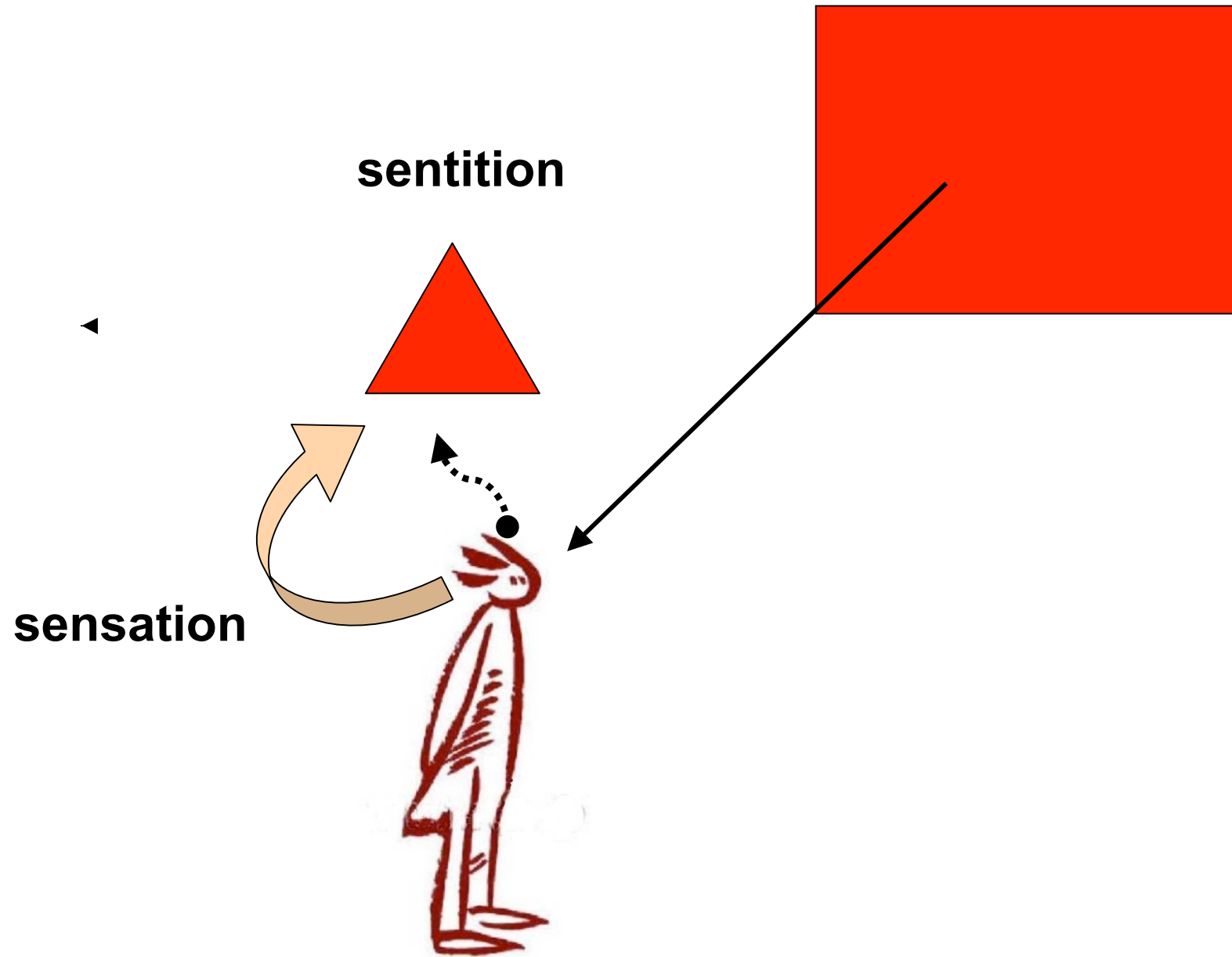


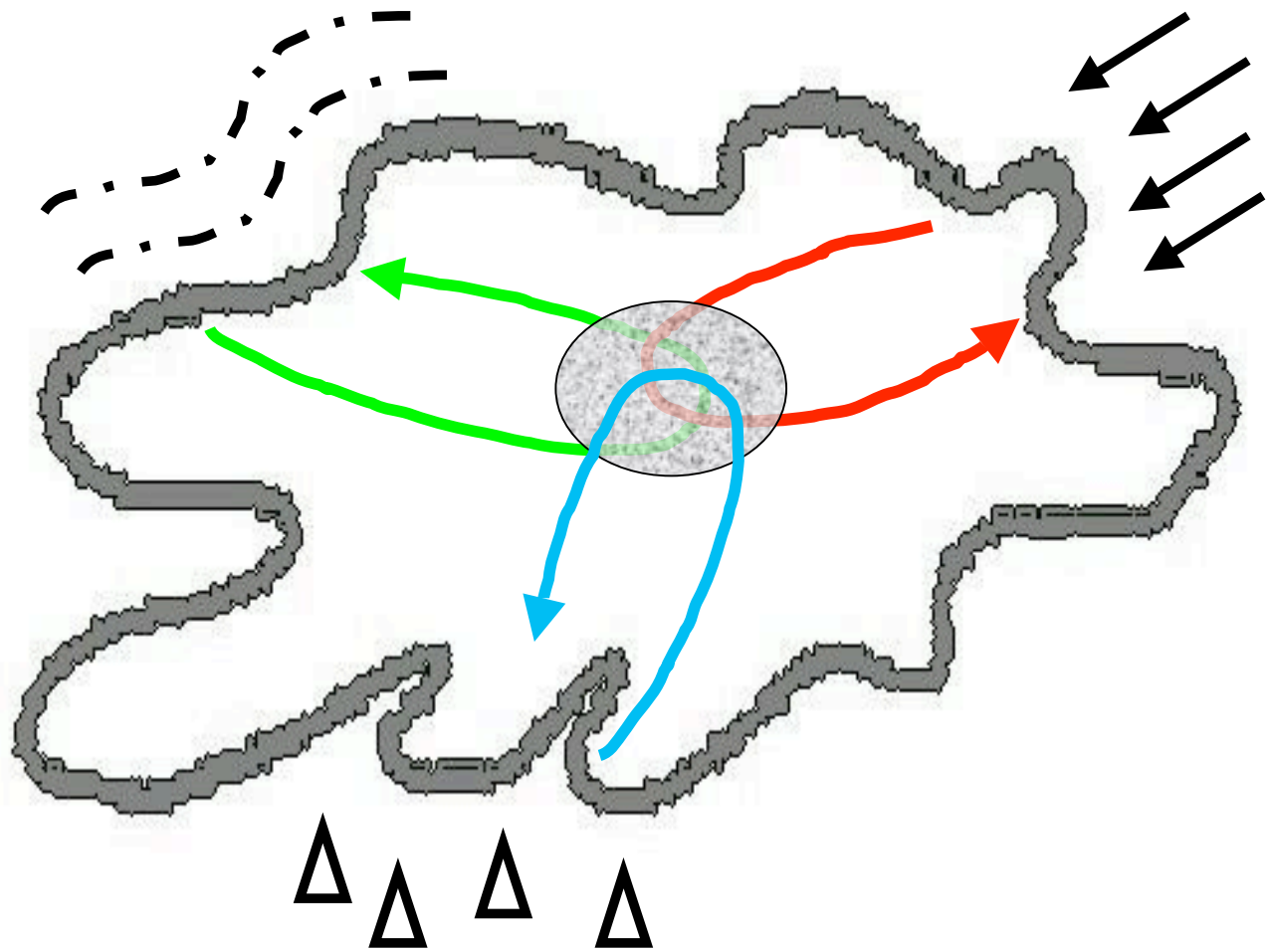
redding

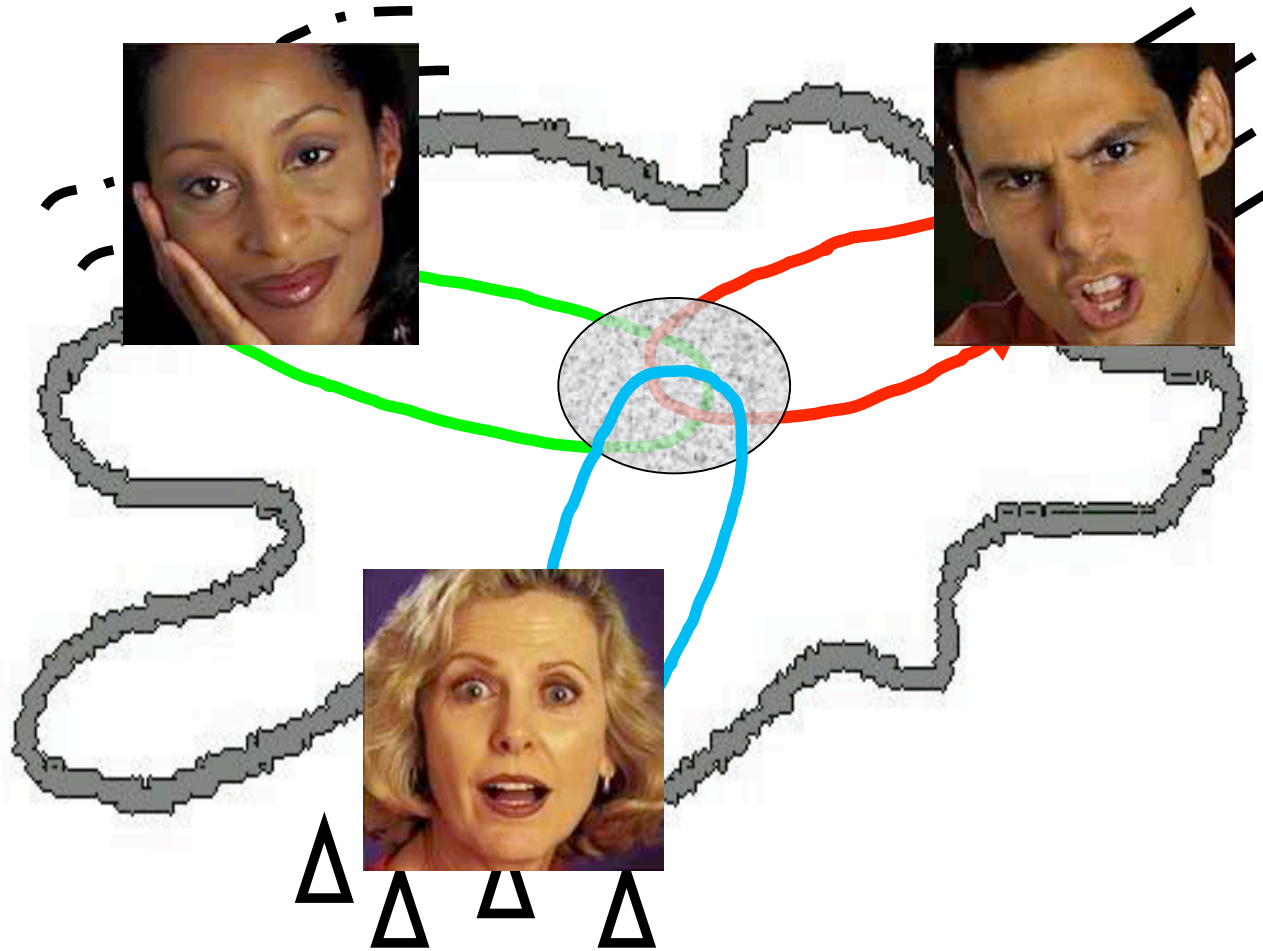


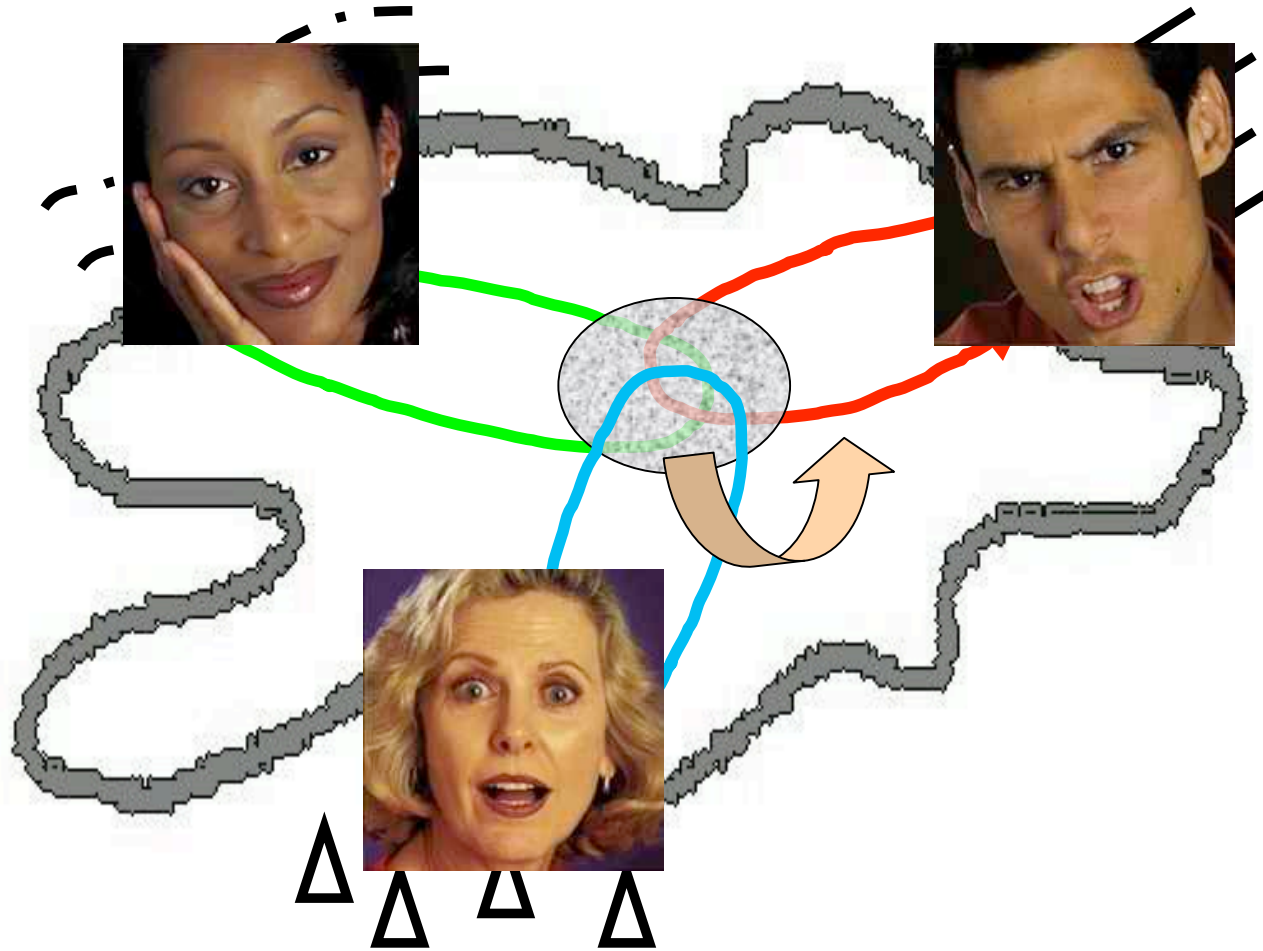
redding  
“sentition”

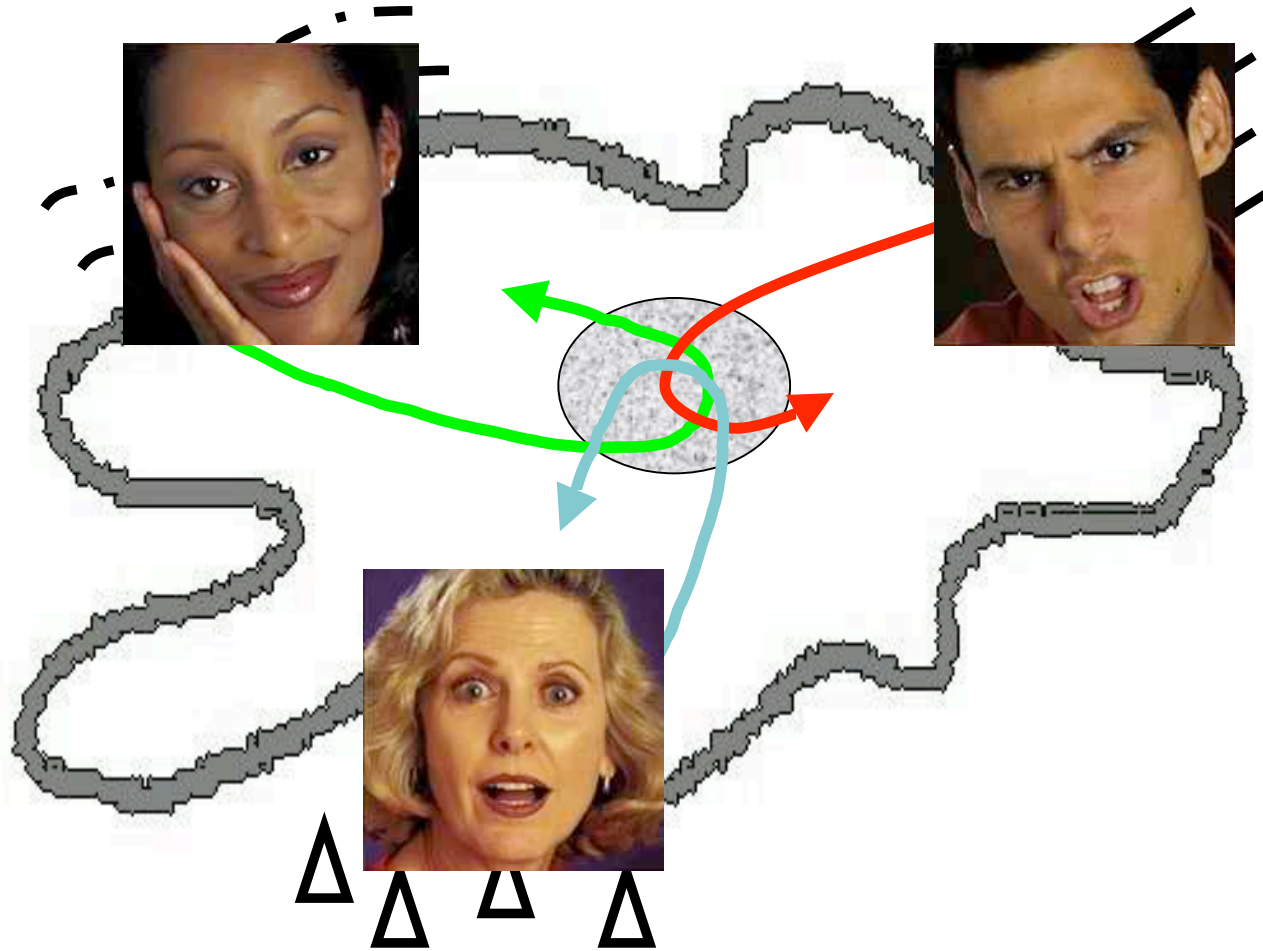


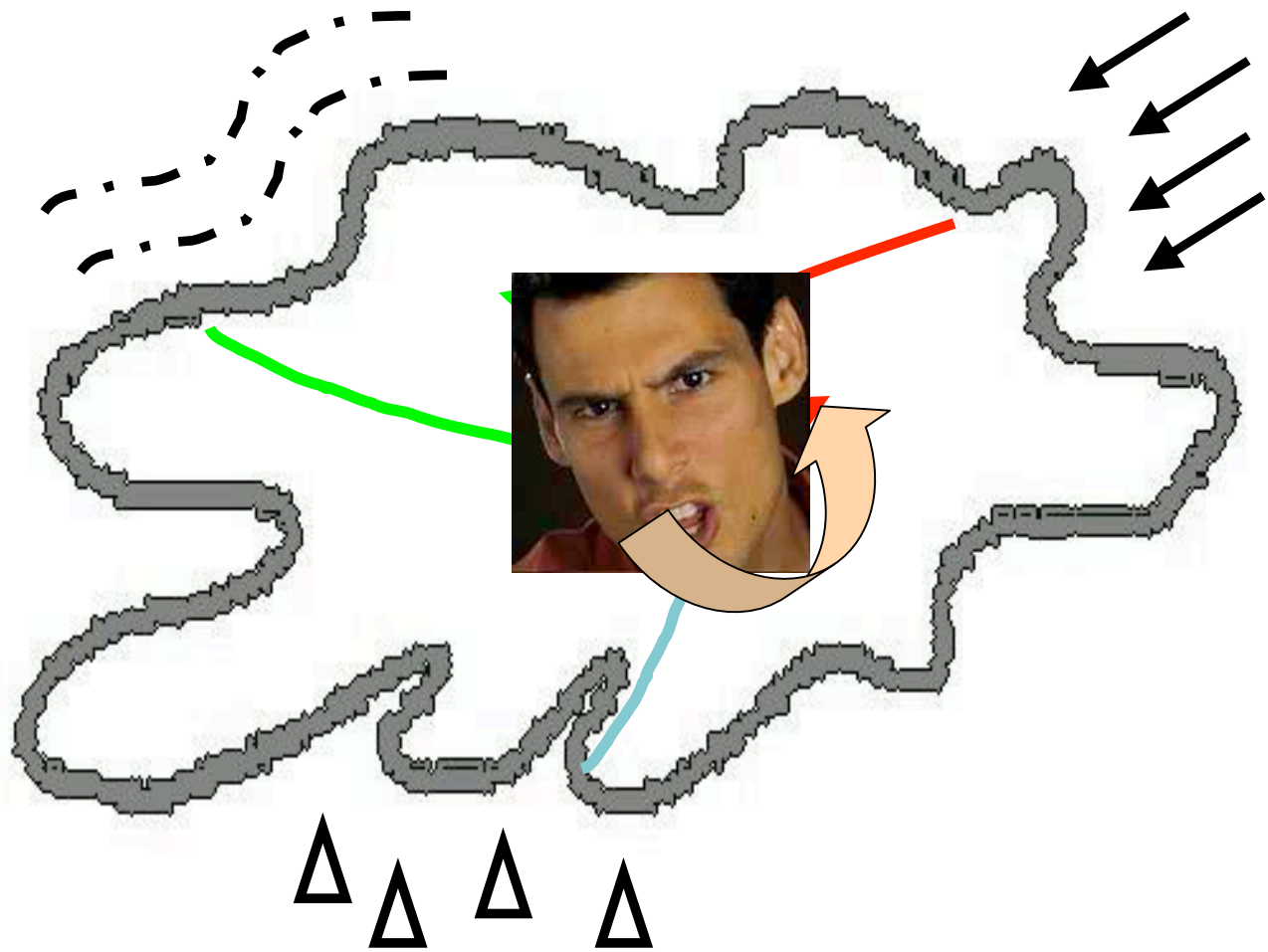


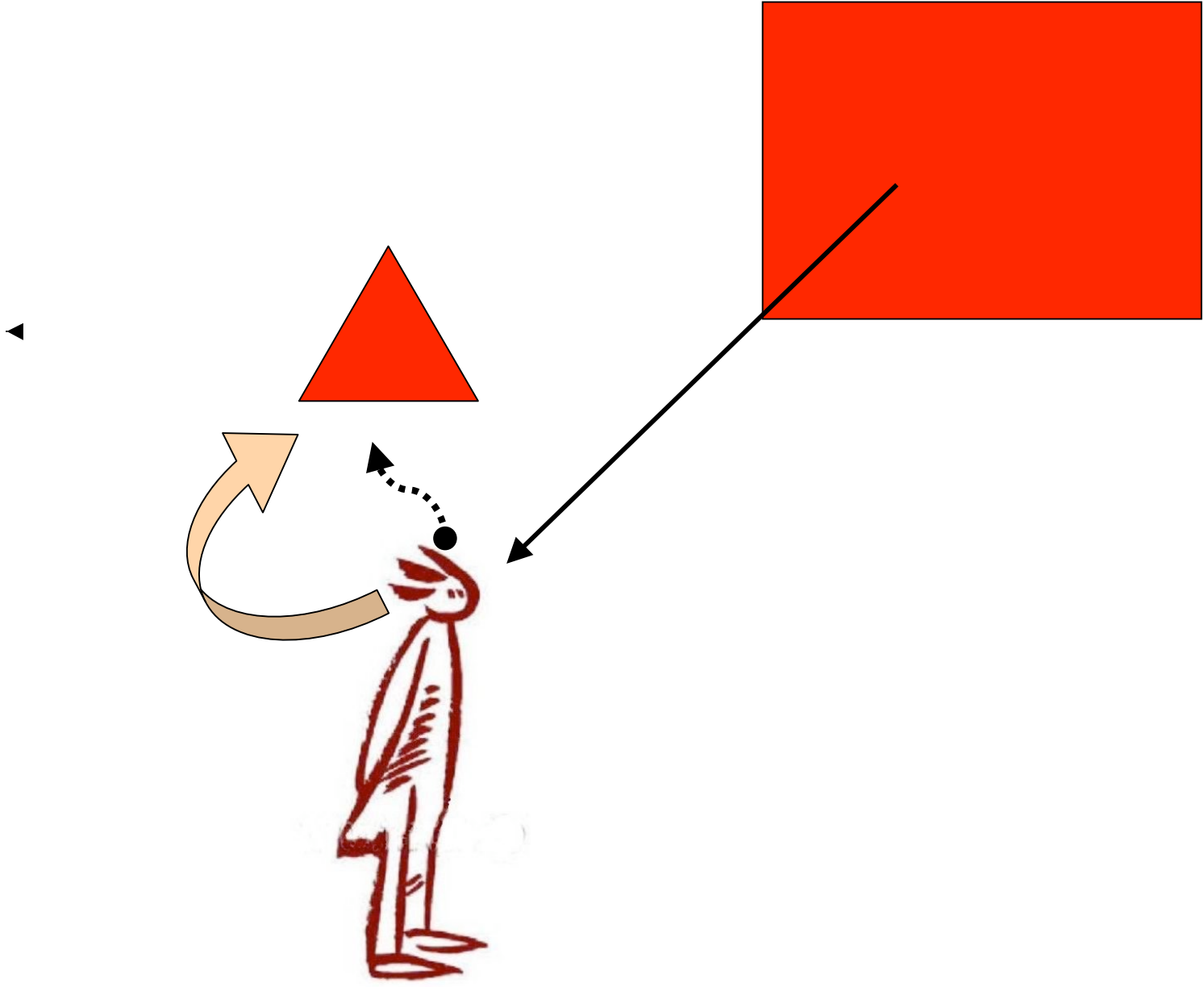




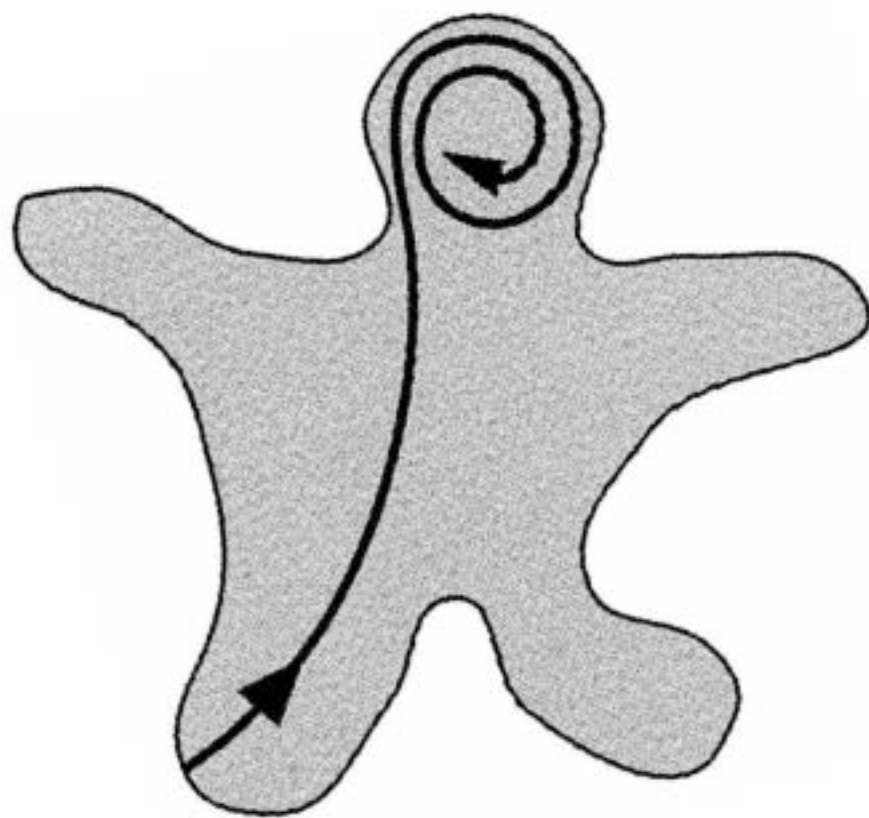


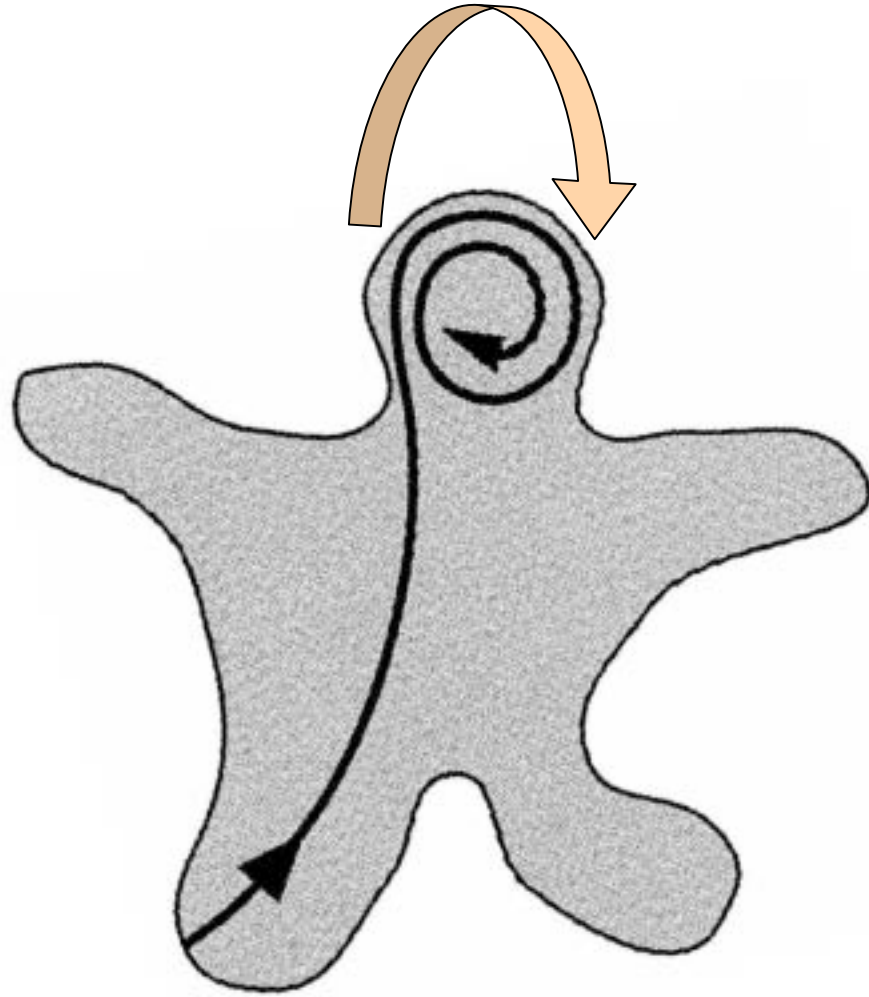




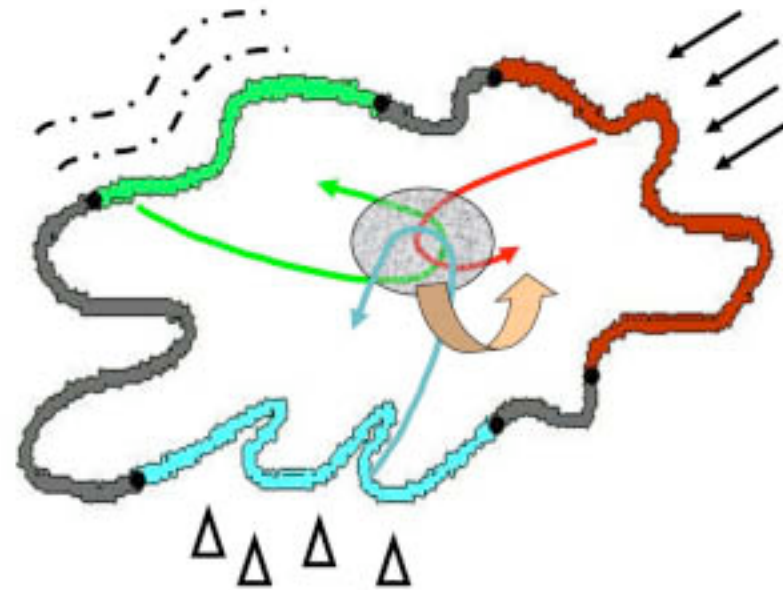
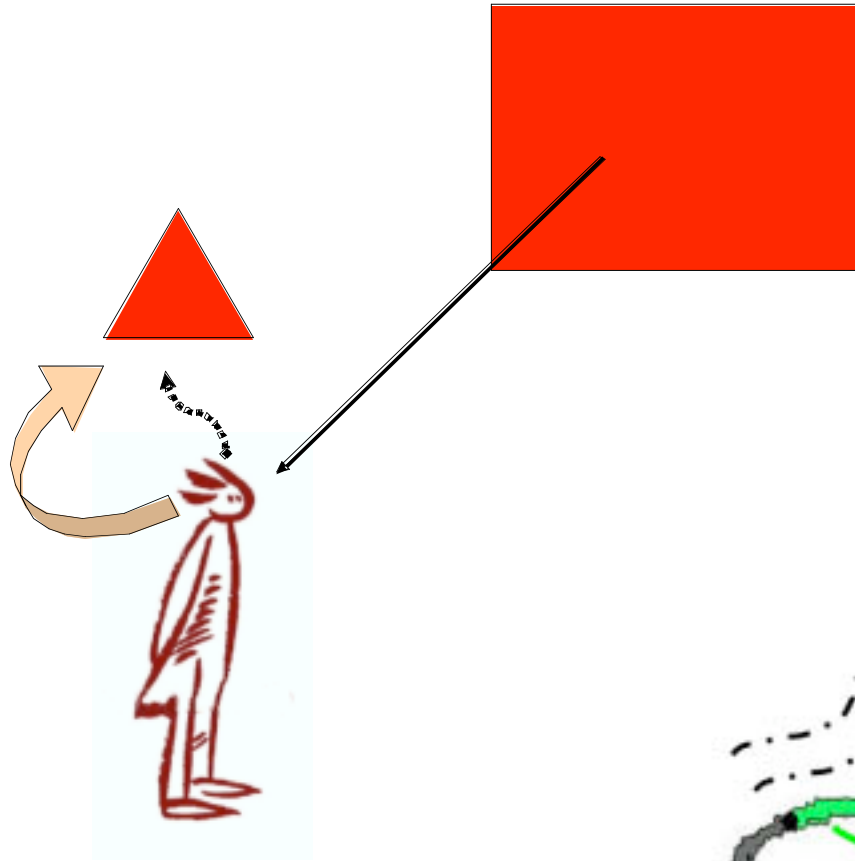








1. Sensations don't *have to have* the phenomenal quality they do.





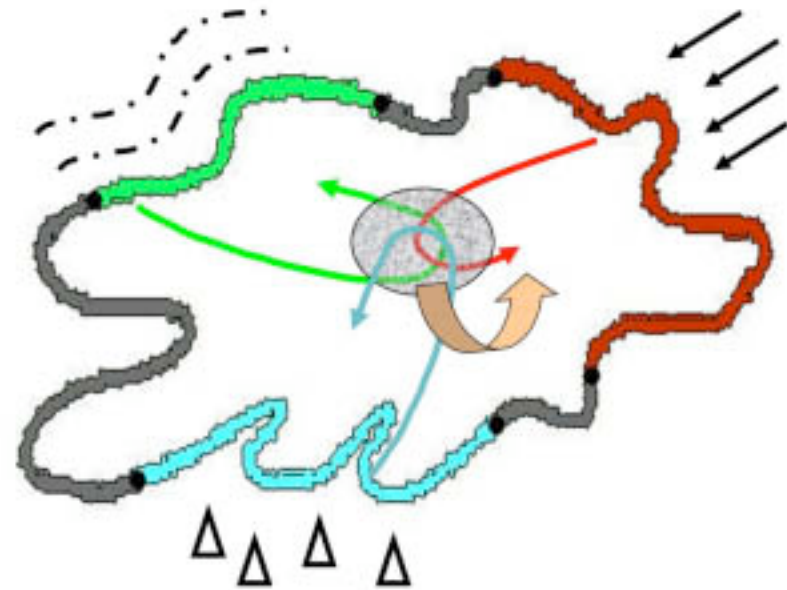
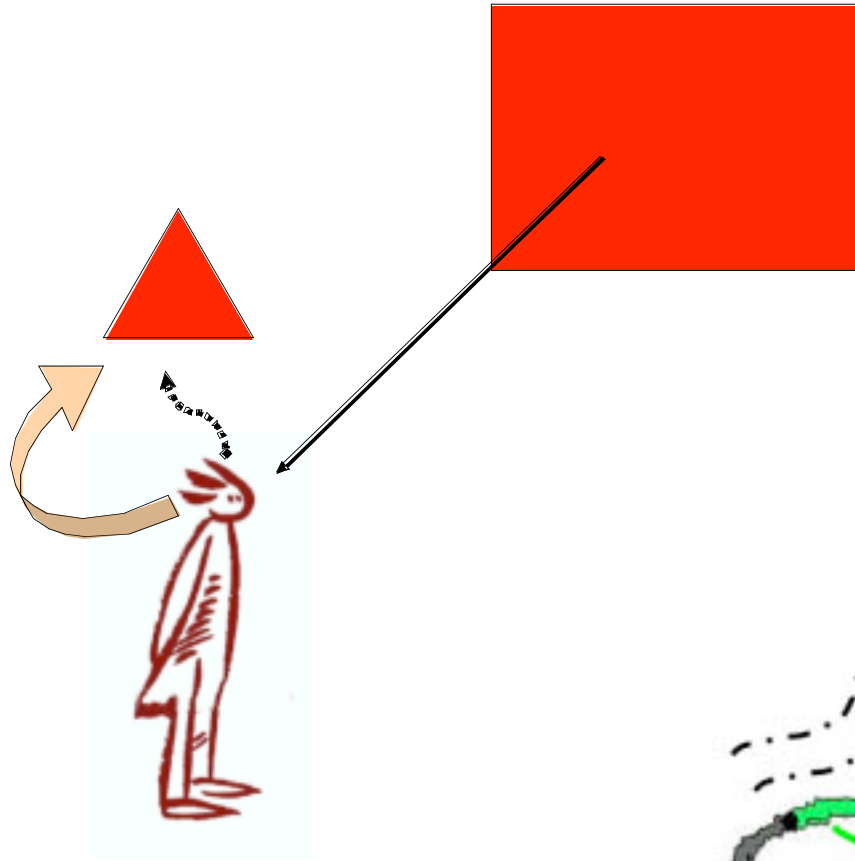
Jerry Fodor, 2004:

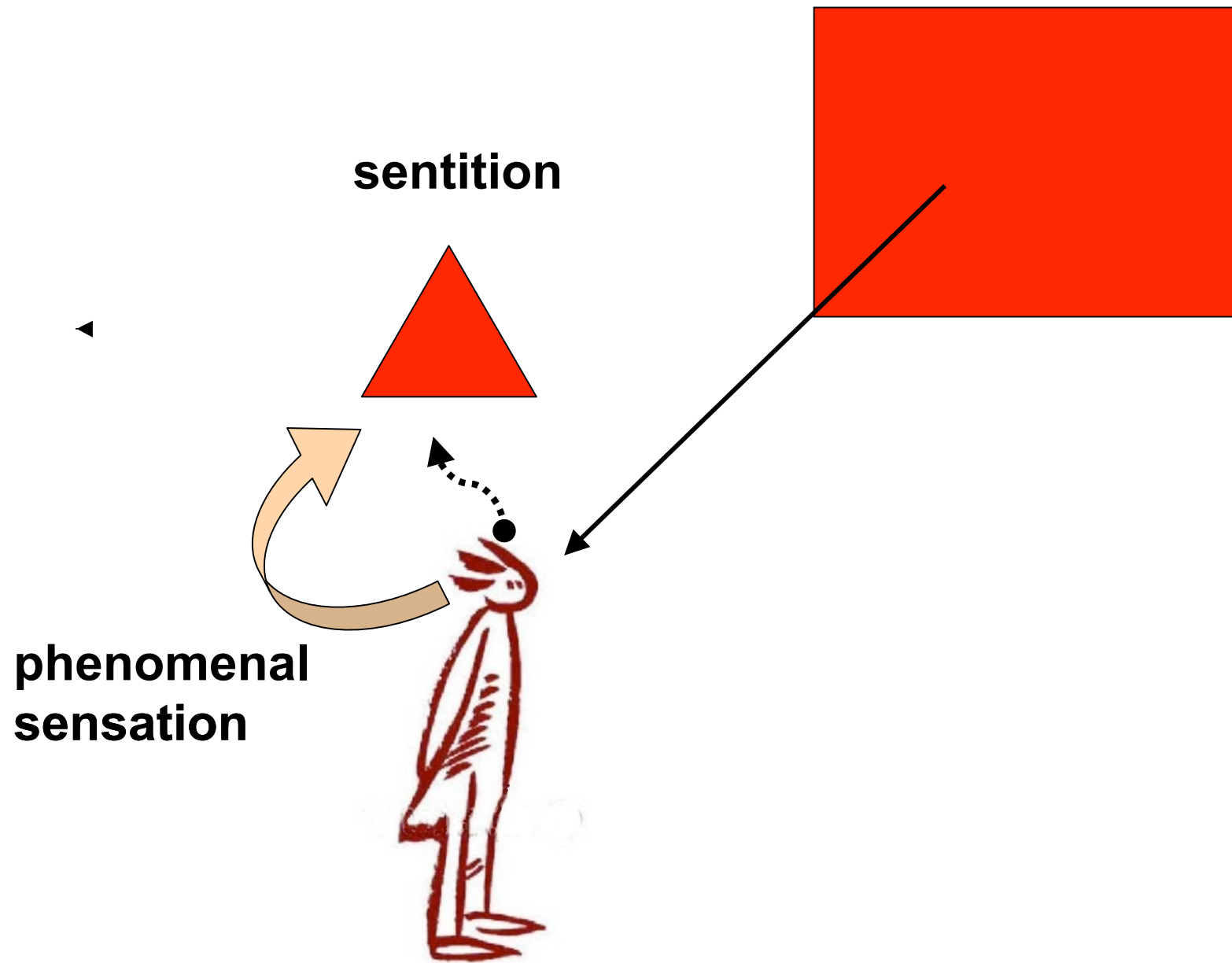
There are several reasons why consciousness is so baffling. For one thing, it seems to be among the chronically unemployed. What mental processes can be performed only because the mind is conscious, and what does consciousness contribute to their performance? Nobody has an answer to this question for any mental process whatsoever.



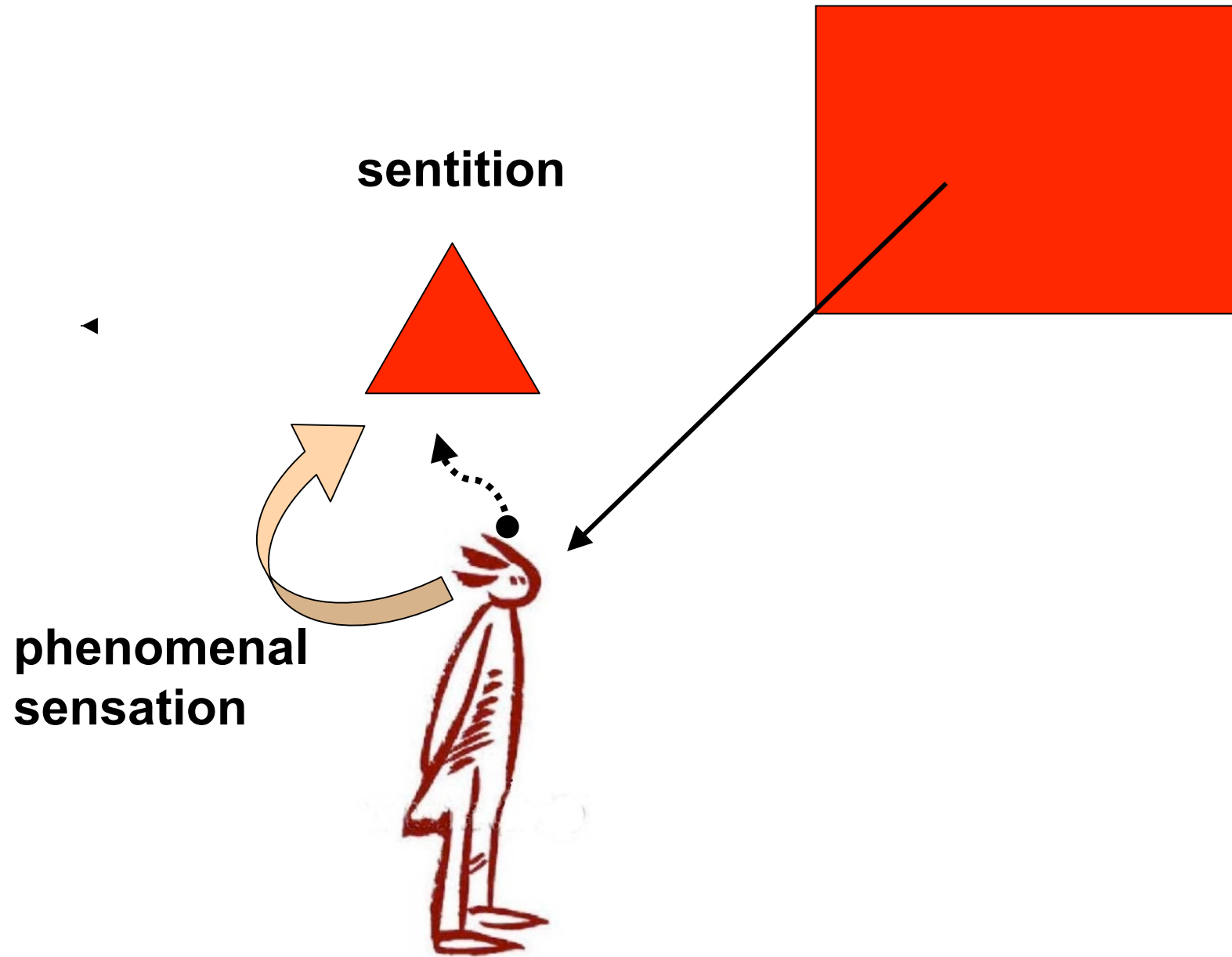
Stevan Harnad, 2000:

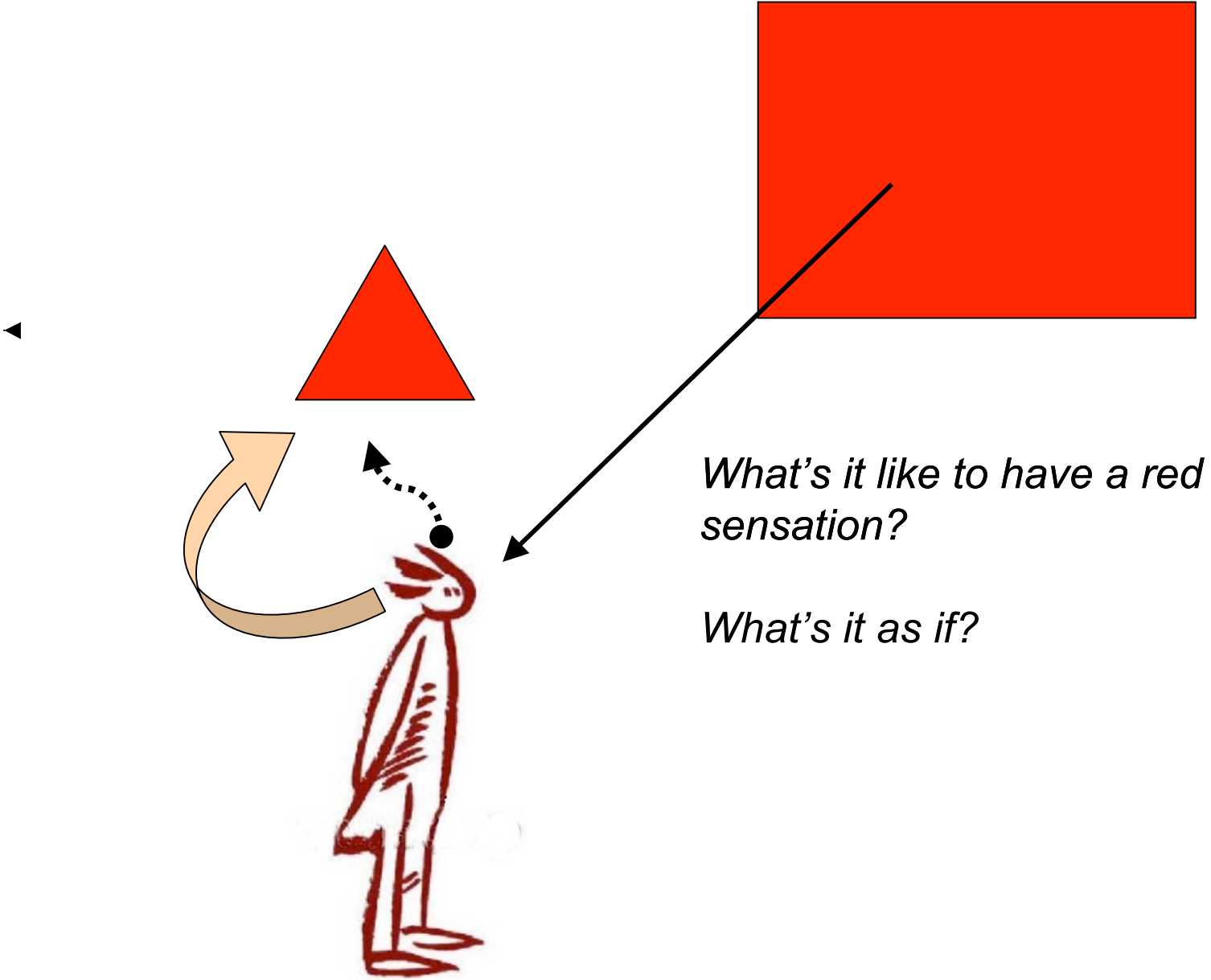
I'm ready to add phenomenal feelings the minute there is a **FUNCTIONAL** call for them; but as long as these feelings are merely decorative or hermeneutic or "supervenient," as long as there is no reason at all that the functions cannot be performed *feelinglessly*, the hard problem remains intact.





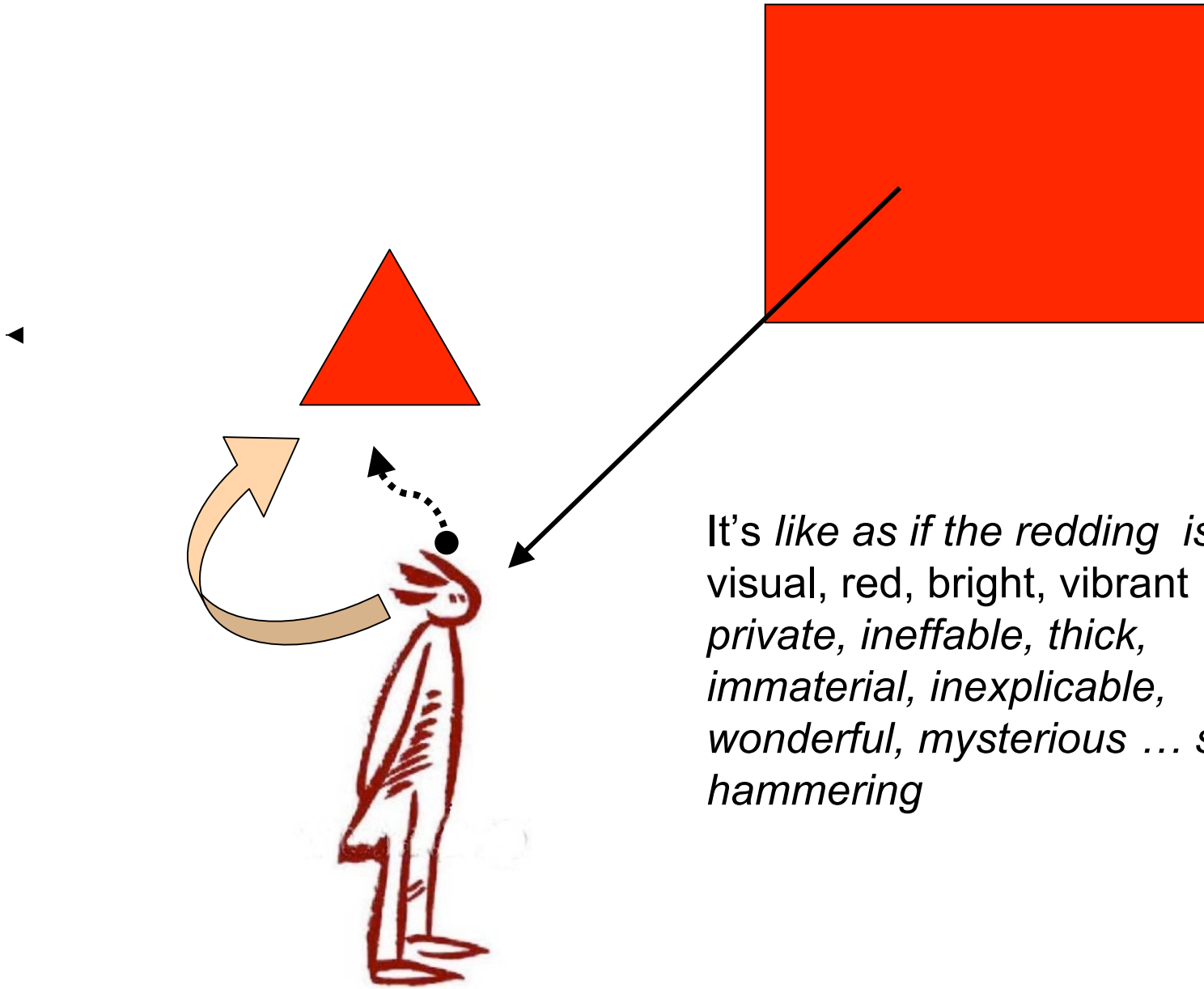
2. Qualia aren't what you think they are. Or rather they are exactly what you *think* they are!



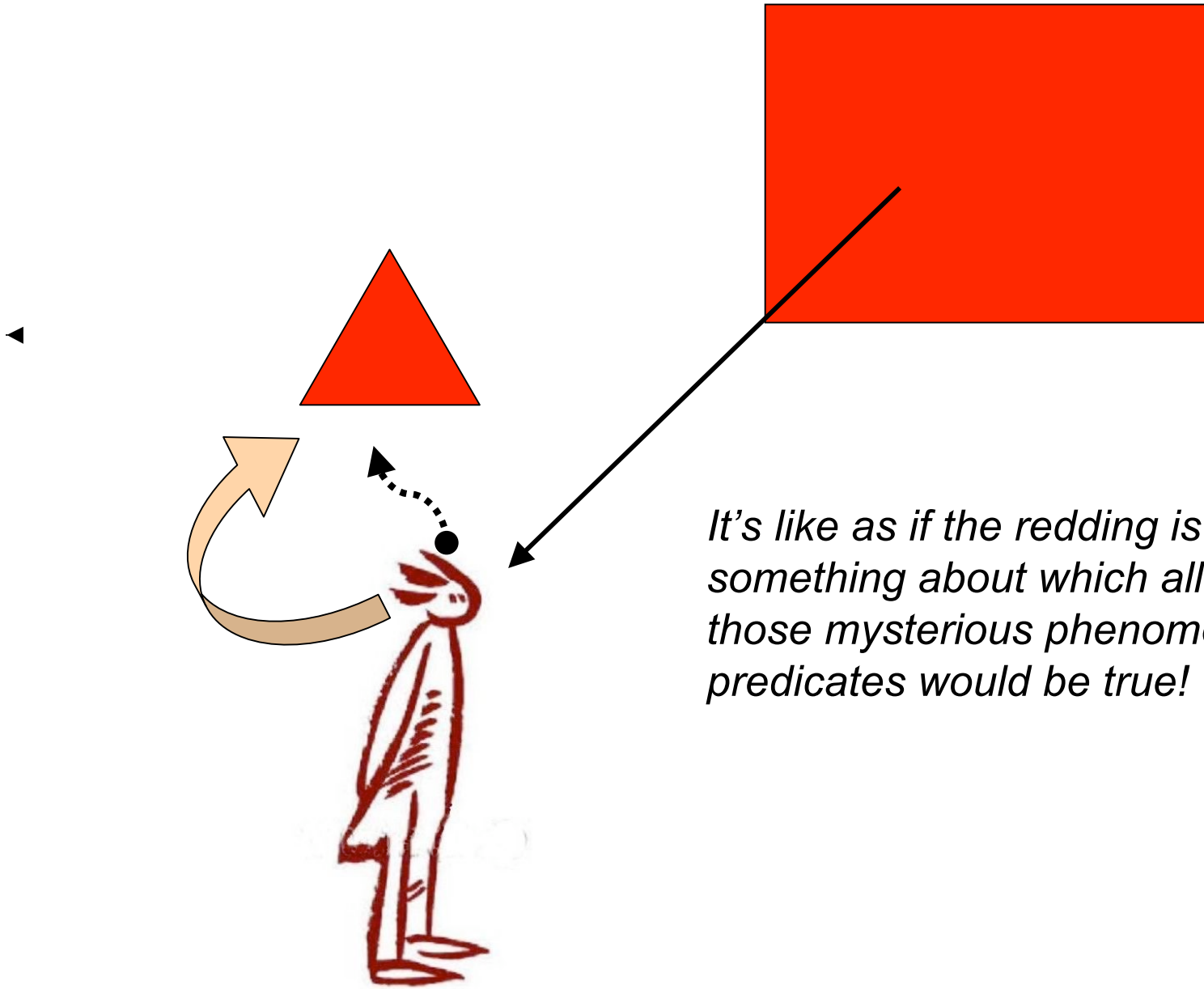


*What's it like to have a red sensation?*

*What's it as if?*



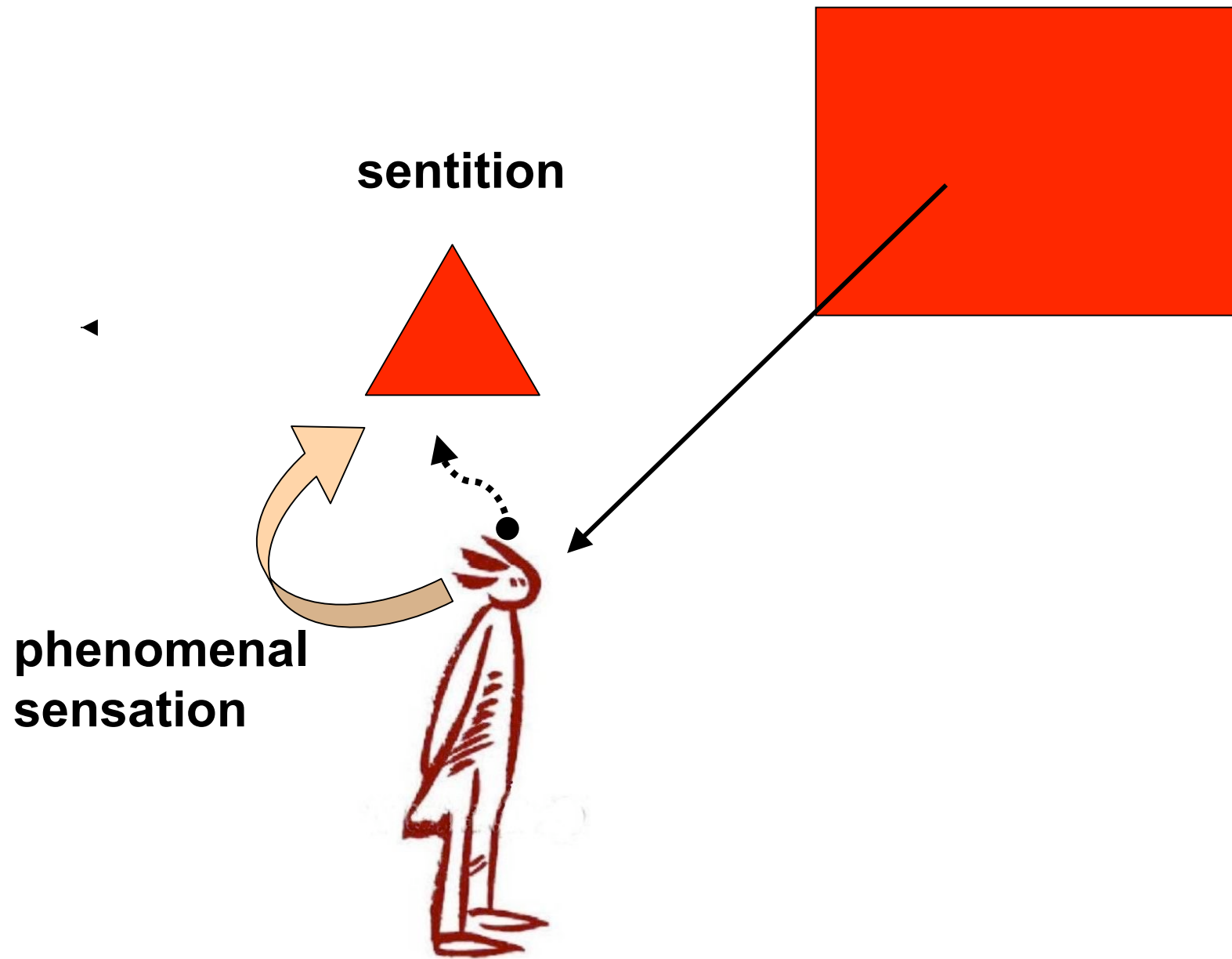
*It's like as if the redding is  
visual, red, bright, vibrant ..  
private, ineffable, thick,  
immaterial, inexplicable,  
wonderful, mysterious ... soul-  
hammering*



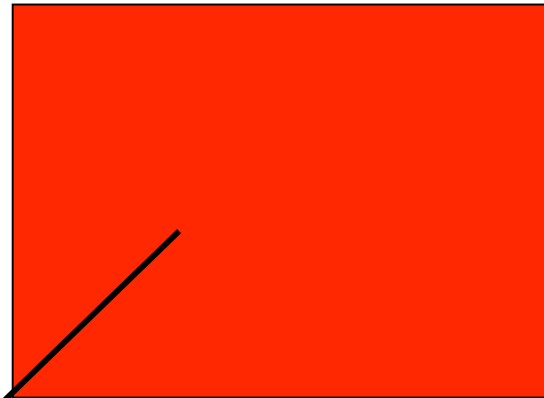
*It's like as if the redding is something about which all those mysterious phenomenal predicates would be true!*

## **“phenomenous object”**

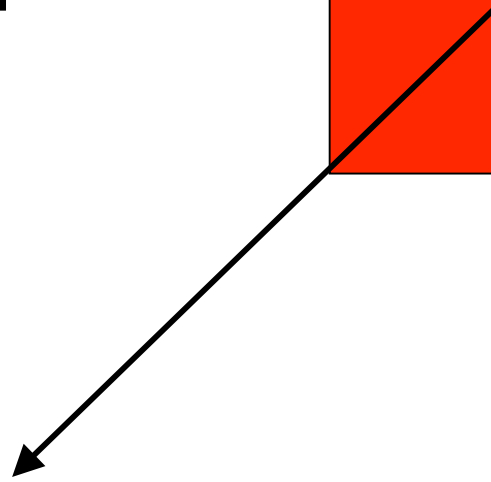
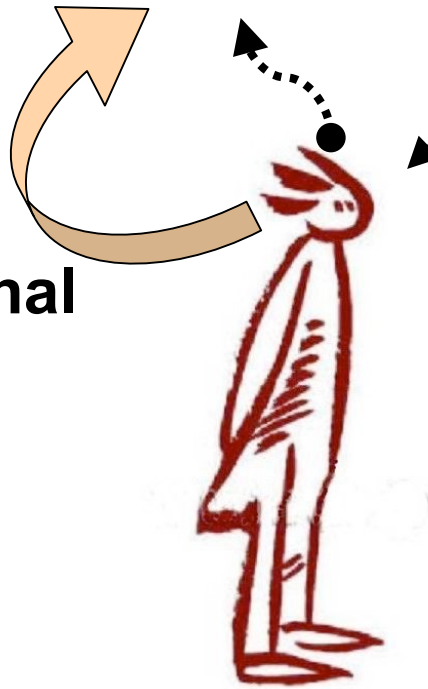
something created by the brain which  
when monitored introspectively *gives*  
*the illusion of having (impossible)*  
*phenomenal qualities.*

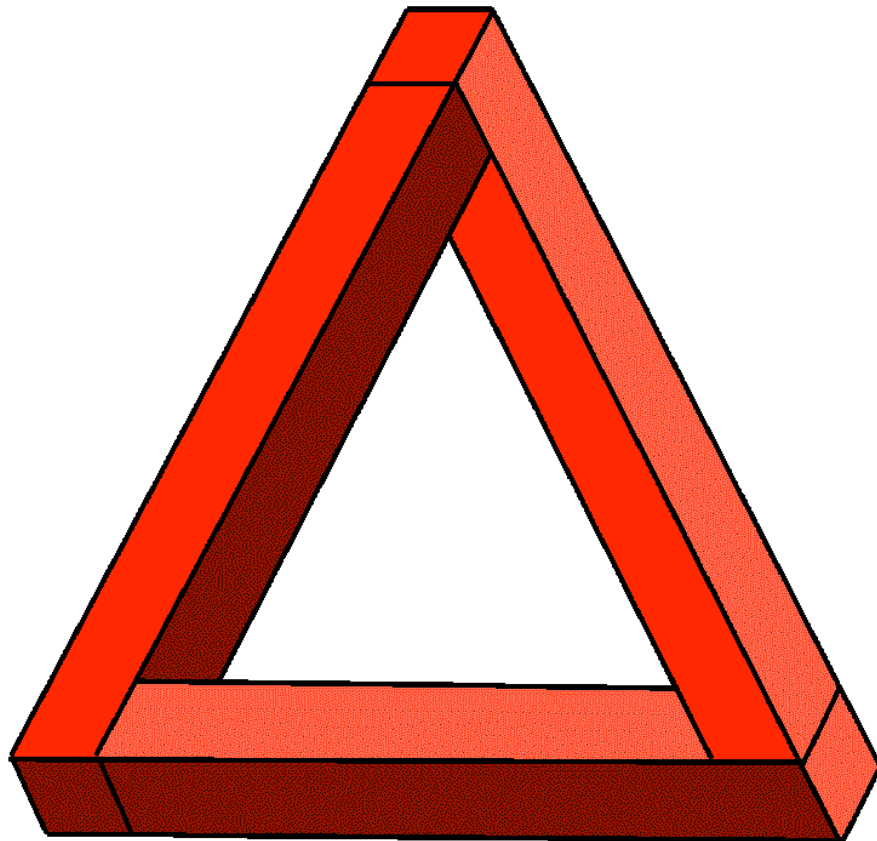


**phenomenous  
sentition**

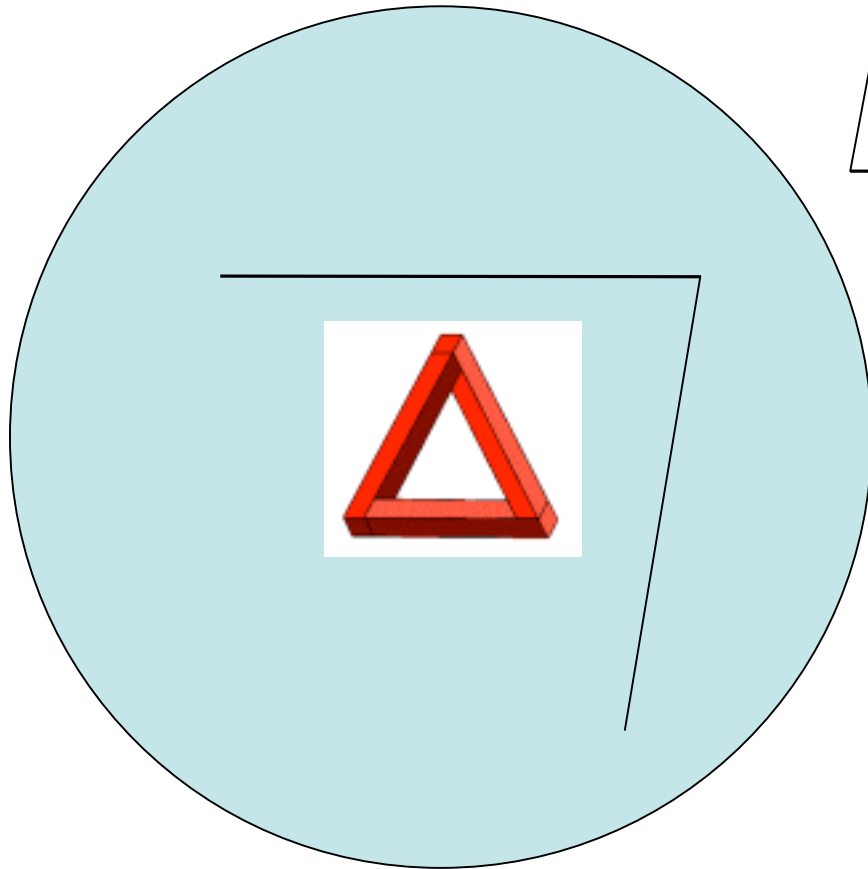


**phenomenal  
sensation**

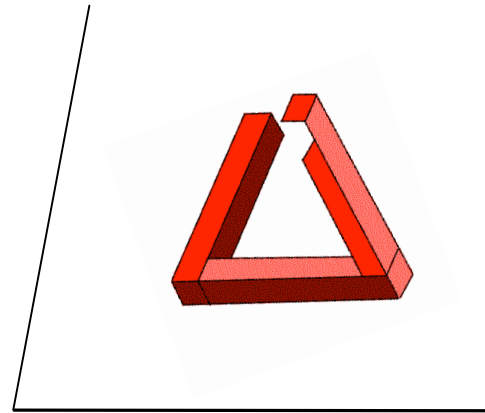








First person perspective



Third person perspective

3. This design has been selected just because ..



Jerry Fodor, 2004:

What mental processes can be performed only because the mind is conscious, and what does consciousness contribute to their performance? .. As far as anybody knows, anything that our conscious minds can do they could do just as well if they weren't conscious. Why then did God bother to make consciousness?



Thomas Kuhn, 1971:

Led by a new paradigm, scientists adopt new instruments and look in new places. Even more important, during revolutions scientists see new and different things when looking with familiar instruments in places they have looked before.



Australopithecus, 2 million years  
bp:

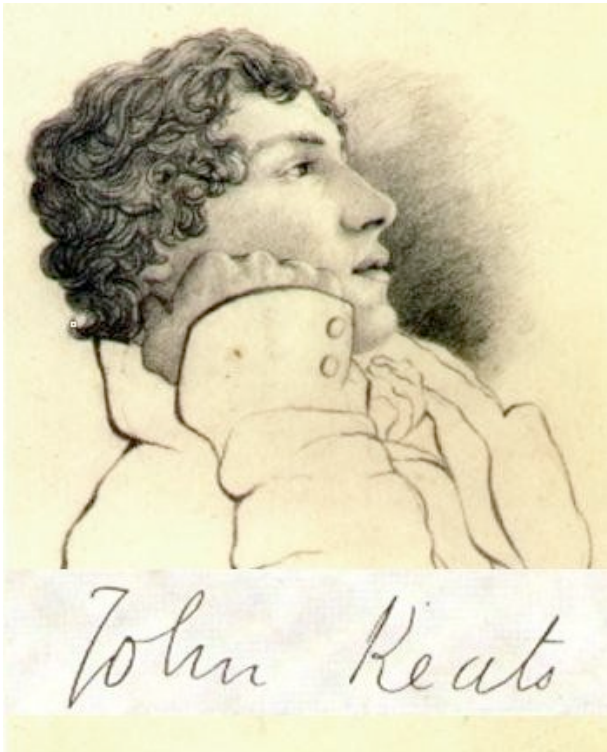
Led by the consciousness  
paradigm, human ancestors  
adopted new instruments and  
looked in new places. Even more  
important, after the consciousness  
revolution, they saw new and  
different things when looking with  
familiar instruments in places  
their unconscious predecessors had  
looked before.



Daniel Dennett, 2005:

Among the phenomena that would be readily observable by these Martians would be all our *public* representations of consciousness: cartoon “thought balloons”, soliloquies in plays, voice-overs in films, and so forth. . . They would also have available to them the less entertaining representations of consciousness found in all the books by philosophers, psychologists, neuroscientists, phenomenologists, and other sober investigators of the phenomena.

1. We like *being* phenomenally conscious
2. We like *the world* in which we're phenomenally conscious
3. We like *our selves* for being phenomenally conscious



John Keats, 1819:

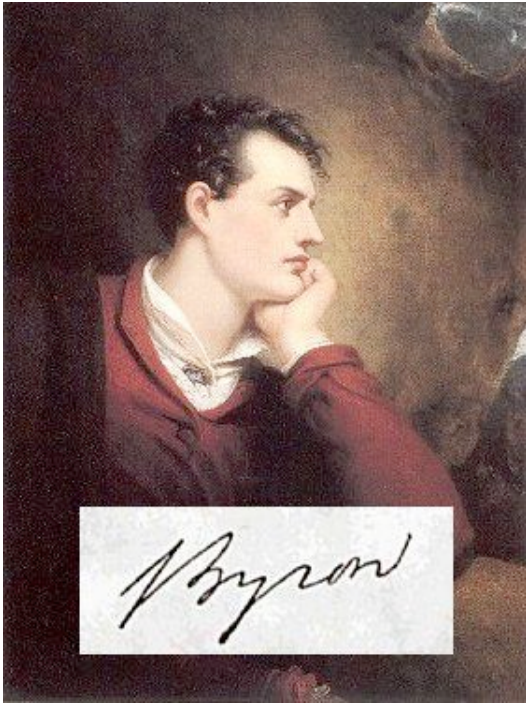
Talking of Pleasure, this moment I am writing with one hand, and with the other holding to my Mouth a Nectarine - good god how fine - It went down soft pulpy, slushy, oozy - all its delicious plumpness melted down my throat like a large beatified Strawberry.



Albert Camus, *Nuptials at Tipasa*, 1938:

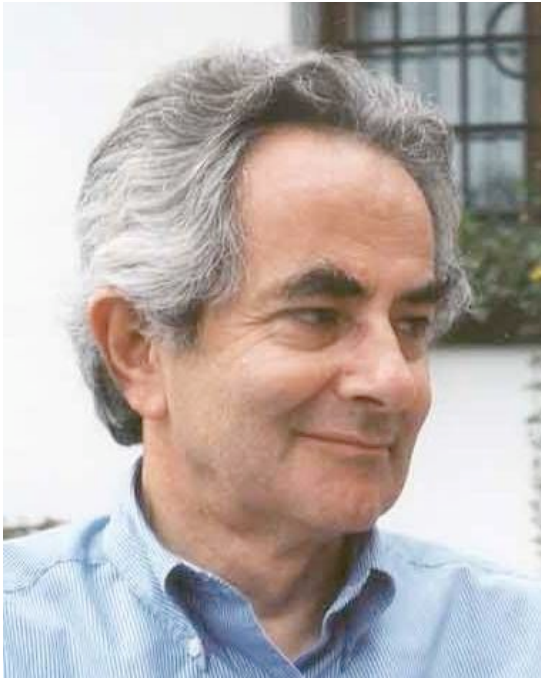
How many hours I have spent crushing absinthe leaves, caressing ruins, trying to match my breathing with the world's tumultuous sighs! Deep among wild scents and concerts of somnolent insects, I open my eyes and heart to the unbearable grandeur of this heat-soaked sky.





Lord Byron, 1813:

The great object of life is  
sensation – to feel that we exist,  
even though in pain.



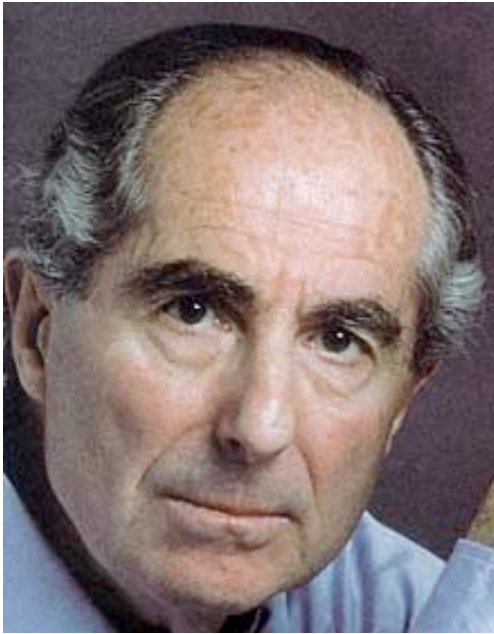
Tom Nagel, 1970:

There are elements which, if added to one's experience, make life better; there are other elements which, if added to one's experience make life worse. But what remains when these are set aside is not merely *neutral*: it is emphatically positive. . . The additional positive weight is supplied by experience itself, rather than by any of its contents.



Marc Bekoff:

I once saw a young elk run across a snowfield, jump in the air and twist his body while in flight, stop, catch his breath and do it again and again. Buffalo have been seen playfully running onto and sliding across ice, excitedly bellowing as they do so.



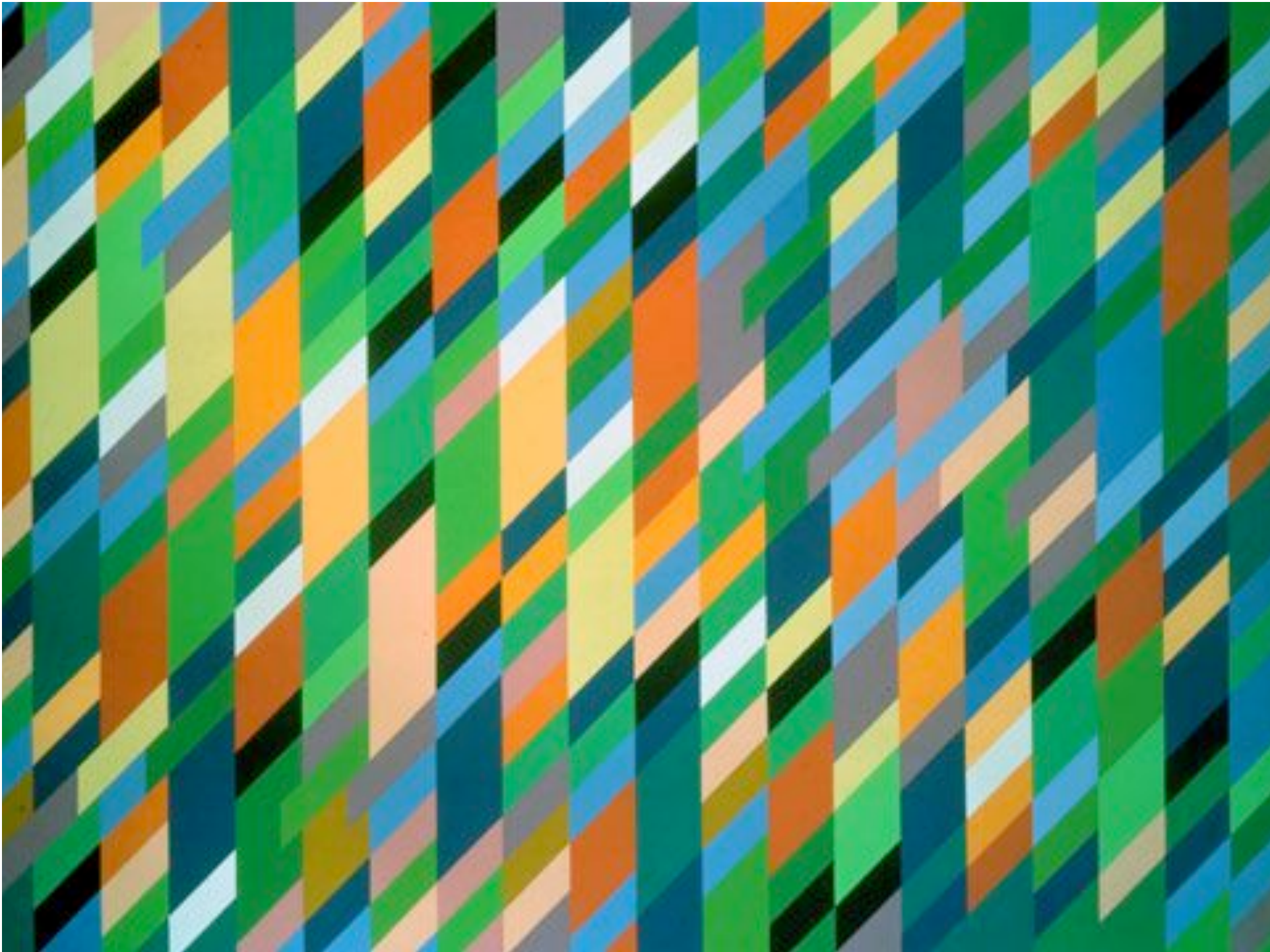
Philip Roth, 2005:

“I’m afraid of dying. . . I’m 72. What am I afraid of? . . . Oblivion. Of not being alive, quite simply, of not feeling life, not smelling it.”

Everything seems futile here except the sun, our kisses, and the wild scents of the earth. . .









Rupert Brooke:

These I have loved:

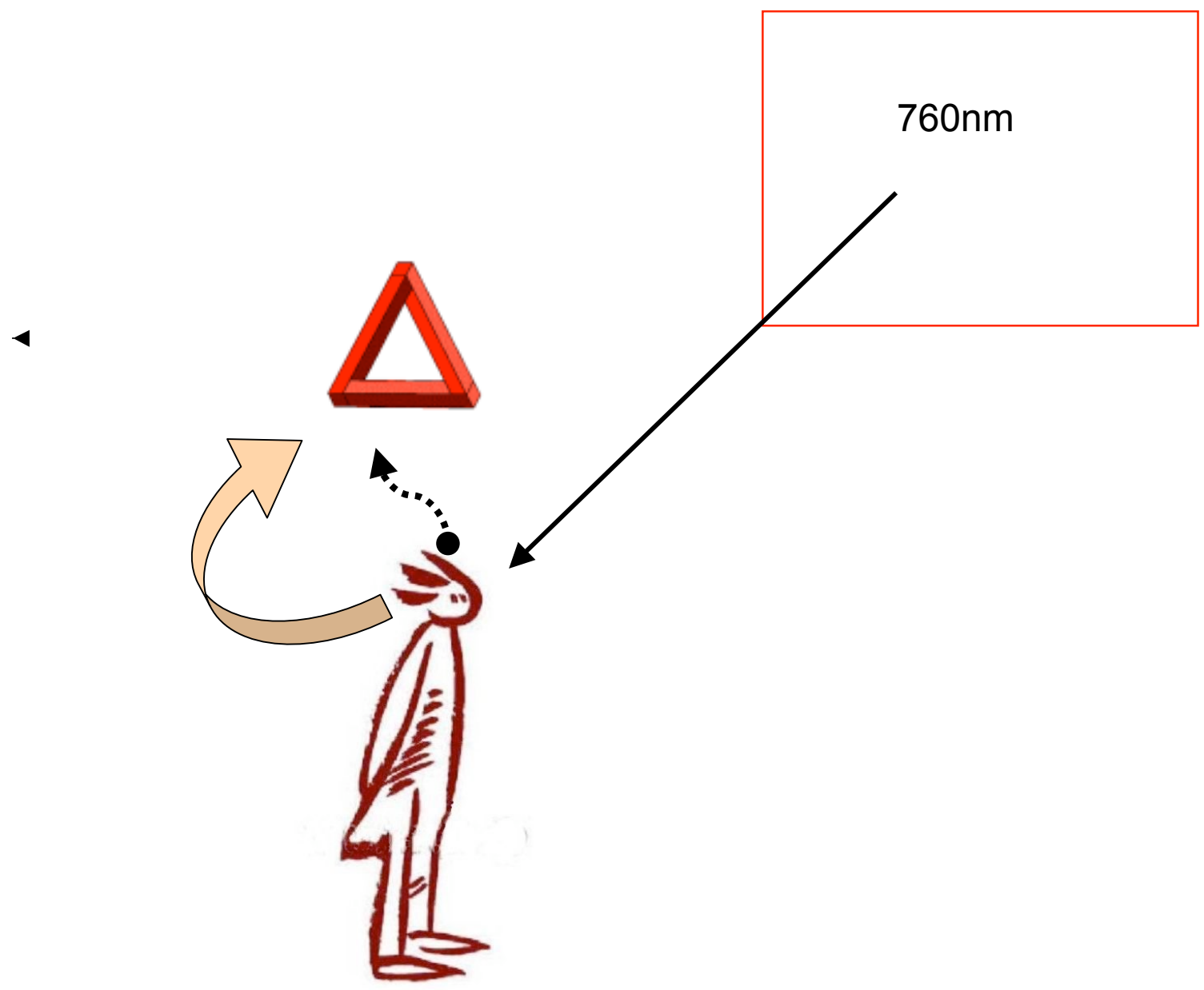
White plates and cups, clean-gleaming,  
Ringed with blue lines; and feathery, faery dust;  
Wet roofs, beneath the lamp-light; the strong crust  
Of friendly bread; and many-tasting food;  
Rainbows; and the blue bitter smoke of wood;  
And radiant raindrops couching in cool flowers;  
And flowers themselves, that sway through sunny hours,  
Dreaming of moths that drink them under the moon;

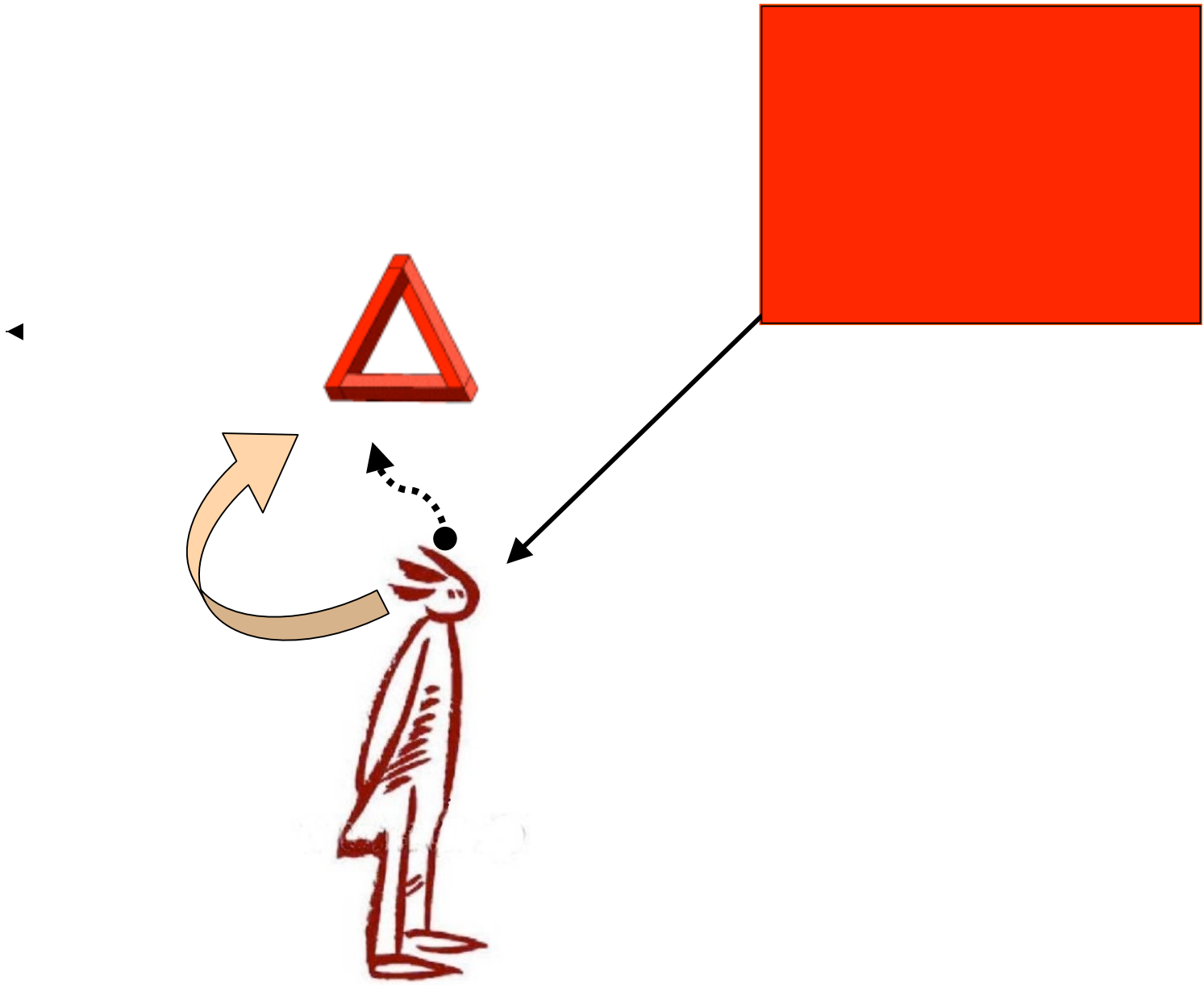


Then, the cool kindness of sheets, that soon  
Smooth away trouble; and the rough male kiss  
Of blankets; grainy wood; live hair that is  
Shining and free; blue-massing clouds; the keen  
Unpassioned beauty of a great machine;  
The benison of hot water; furs to touch;  
The good smell of old clothes; and other such —











---

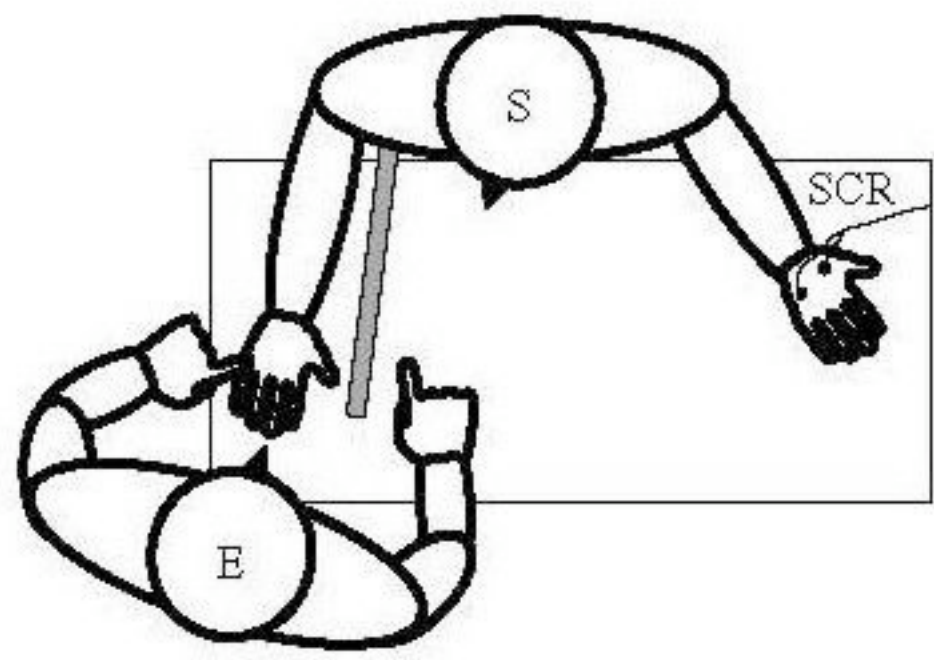
## Projecting sensations to external objects: evidence from skin conductance response

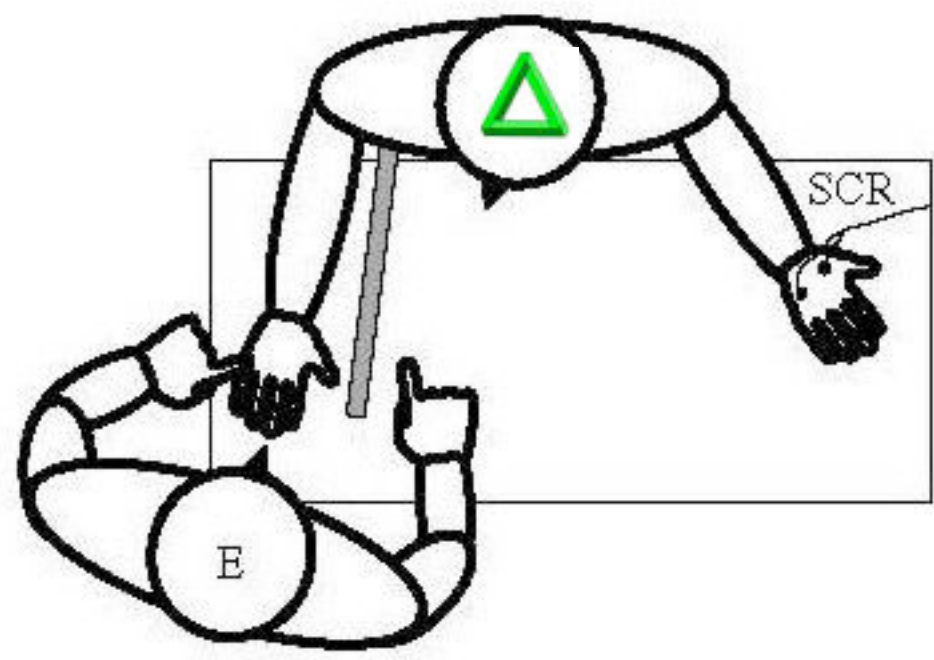
**K. Carrie Armel\* and V. S. Ramachandran**

*Brain and Perception Laboratory, Psychology Department, University of California at San Diego, La Jolla,  
CA 92093-0109, USA*

Subjects perceived touch sensations as arising from a table (or a rubber hand) when both the table (or the rubber hand) and their own real hand were repeatedly tapped and stroked in synchrony with the real hand hidden from view. If the table or rubber hand was then ‘injured’, subjects displayed a strong skin conductance response (SCR) even though nothing was done to the real hand. Sensations could even be projected to anatomically impossible locations. The illusion was much less vivid, as indicated by subjective reports and SCR, if the real hand was simultaneously visible during stroking, or if the real hand was hidden but touched asynchronously. The fact that the illusion could be significantly diminished when the real hand was simultaneously visible suggests that the illusion and associated SCRs were due to perceptual assimilation of the table (or rubber hand) into one’s body image rather than associative conditioning. These experiments demonstrate the malleability of body image and the brain’s remarkable capacity for detecting statistical correlations in the sensory input.

**Keywords:** body image; skin conductance response; hand illusion; table illusion; logic of perception; phantom limbs

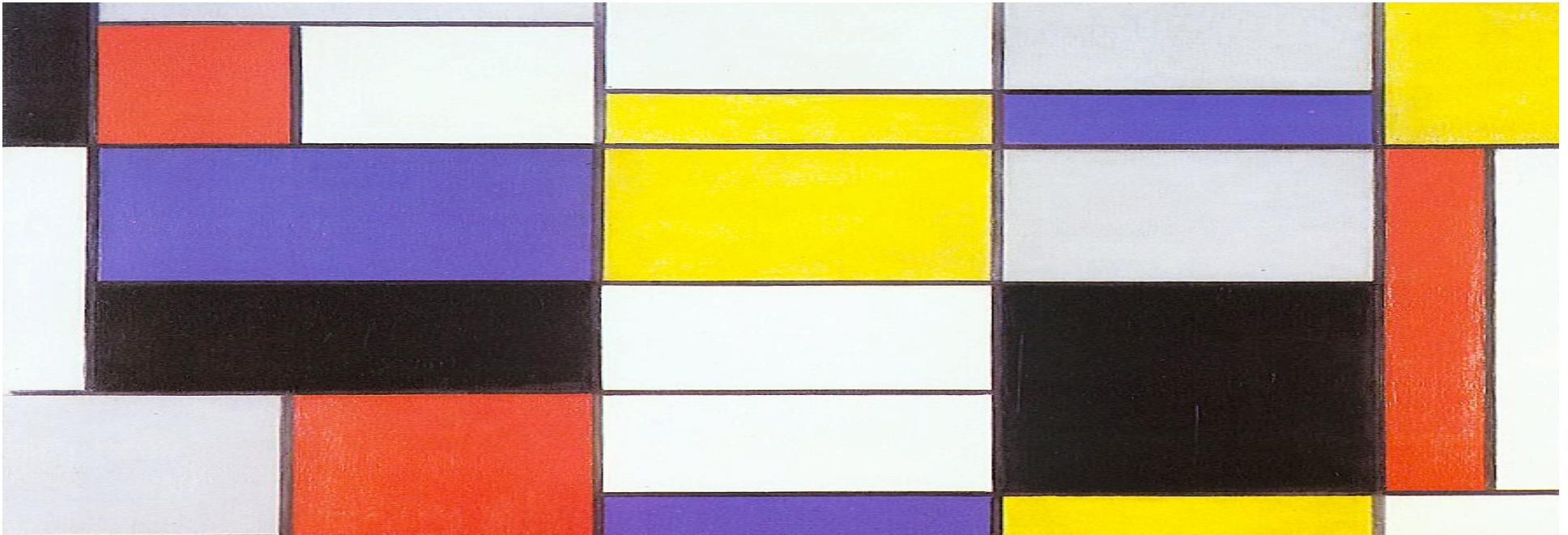






Aldous Huxley:

The books with which my study walls were lined glowed with brighter colours, a profounder significance. Red books, like rubies; emerald books; books bound in white jade; books of agate; of aquamarine, of yellow topaz. . .

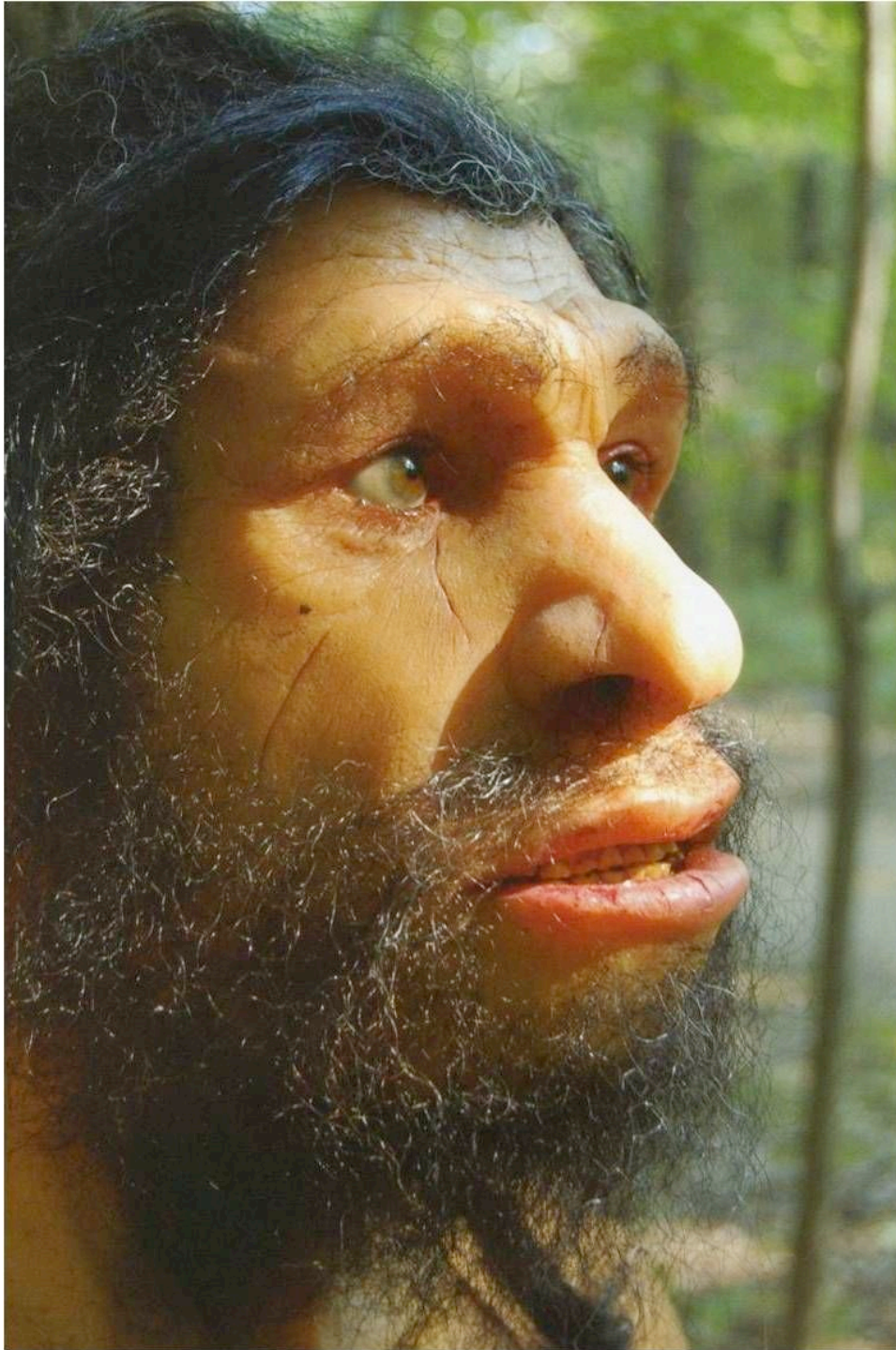












“The play of light and shadow between tree, sun and sky fills this Neanderthal man with a sense of awe”



Elizabeth Barrett Browning, 1850:

Earth's crammed with heaven,  
And every common bush afire with  
God:  
but only he who sees takes off his



Rupert Brooke:

In a flicker of sunlight on a blank wall, or a reach of muddy pavement, or smoke from an engine at night, there's a sudden significance and importance and inspiration that makes the breath stop. It's a feeling that has amazing results. I suppose my occupation is being in love with the universe.







THE NIGHTINGALE.



“A juvenile  
*Australopithecus  
africanus* greets  
a new morning  
two and a half  
million years ago”



A.A.Milne, *Spring Morning*:

Where am I going? I don't quite know.  
Down to the stream where the king-cups  
grow.

Up on the hill where the pine-trees blow –  
Anywhere, anywhere. I don't know.

Where am I going? The high rooks call:  
“It’s awful fun to be born at all.”



Richard Dawkins:

After sleeping through a hundred million centuries we have finally opened our eyes on a sumptuous planet, sparkling with colour, bountiful with life. Isn't it a noble, an enlightened way of spending our time in the sun, to work at understanding the universe and how we have come to wake up in it? This is how I answer when I am asked why I bother to get up in the mornings.



Henri Poincaré :

The scientist does not study nature because it is useful; he studies it because he delights in it, and he delights in it because it is beautiful. If nature were not beautiful, it would not be worth knowing, and if nature were not worth knowing, life would not be worth living.



6. While phenomenal consciousness may be present in other species, humans have built on it in ways none others have.





William Blake, 1810:

“When the sun rises do you not see a round disc of fire somewhat like a penny?” O no, no. I see an innumerable company of the heavenly host crying, "Holy, holy, holy is the Lord God Almighty".



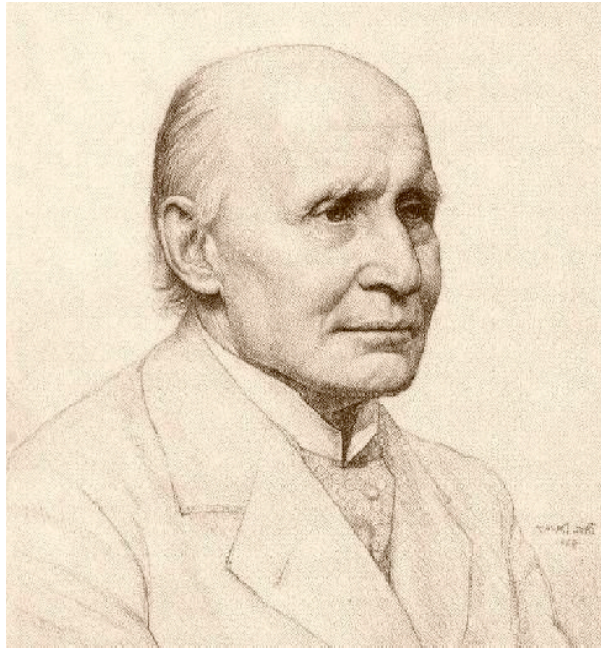


Thomas Traherne, 1670:

By the very right of your  
senses you enjoy the world.

.

*Doth not the glory of the  
sun pay tribute to your  
sight?*



A.N. Whitehead, 1910:

Nature gets credit which should in truth be reserved for ourselves: the rose for its scent: the nightingale for his song: and the sun for his radiance. The poets are entirely mistaken. They should address their lyrics to themselves, and should turn them into odes of self-congratulation on the excellency of the human mind. Nature is a dull affair, soundless, scentless, colourless; merely the hurrying of material, endlessly, meaninglessly.





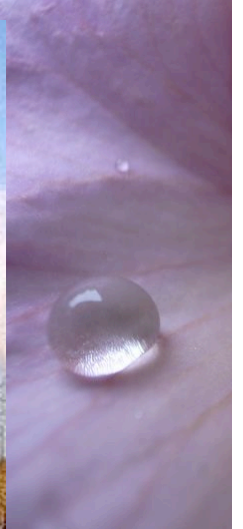
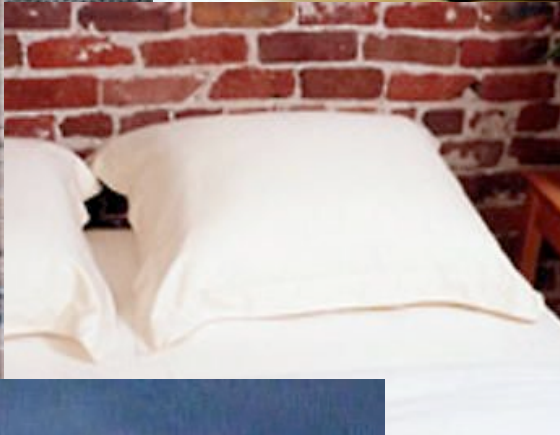
Rainer Maria Rilke:

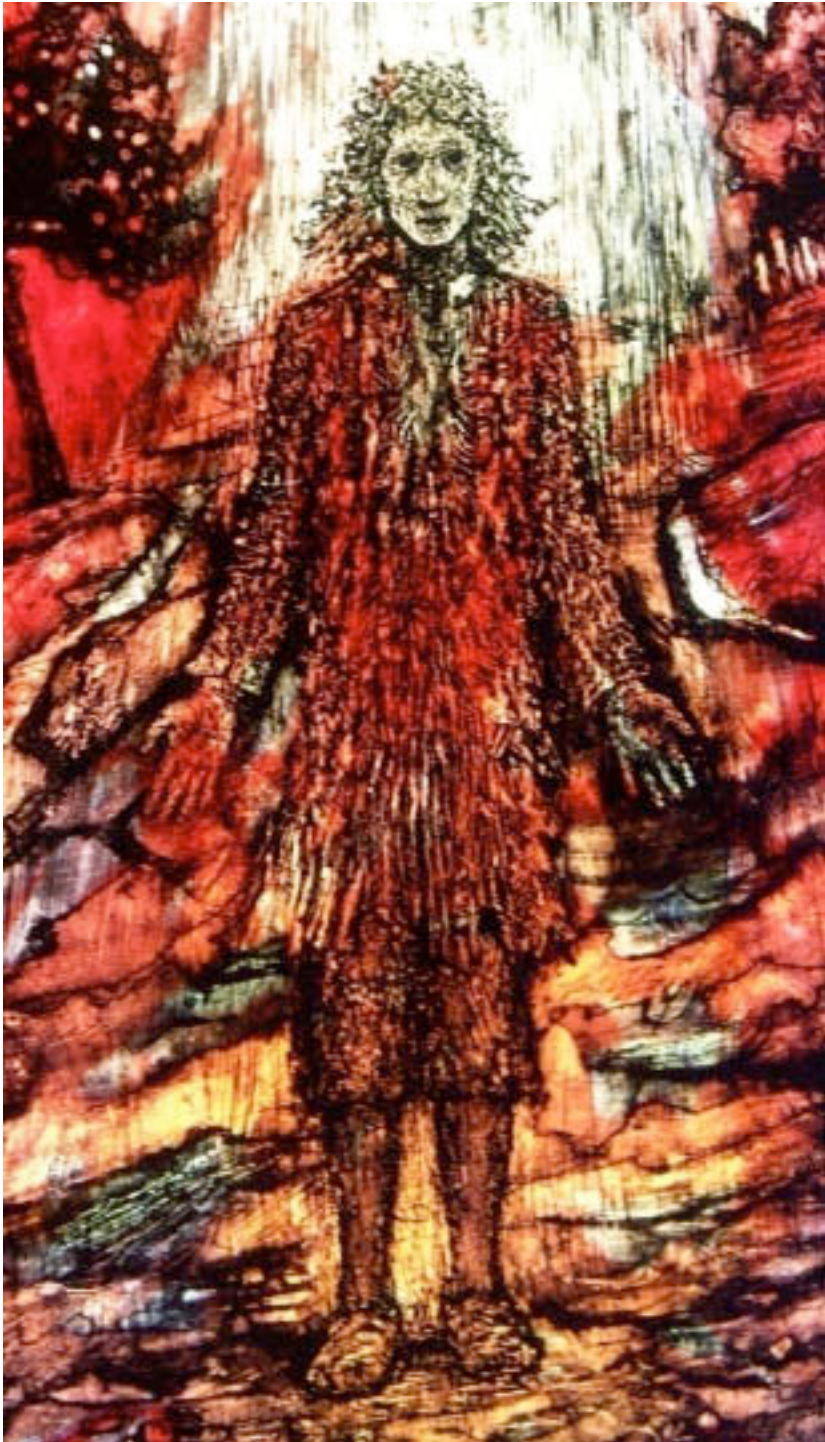
all this

that's here, so fleeting,  
seems to require us and strangely  
concerns us...

Are we, perhaps, *here* just for  
saying: House, Bridge, Fountain,  
Gate, Jug, Fruit tree, Window, -  
possibly: Pillar, Tower?... but  
for *saying*, remember,

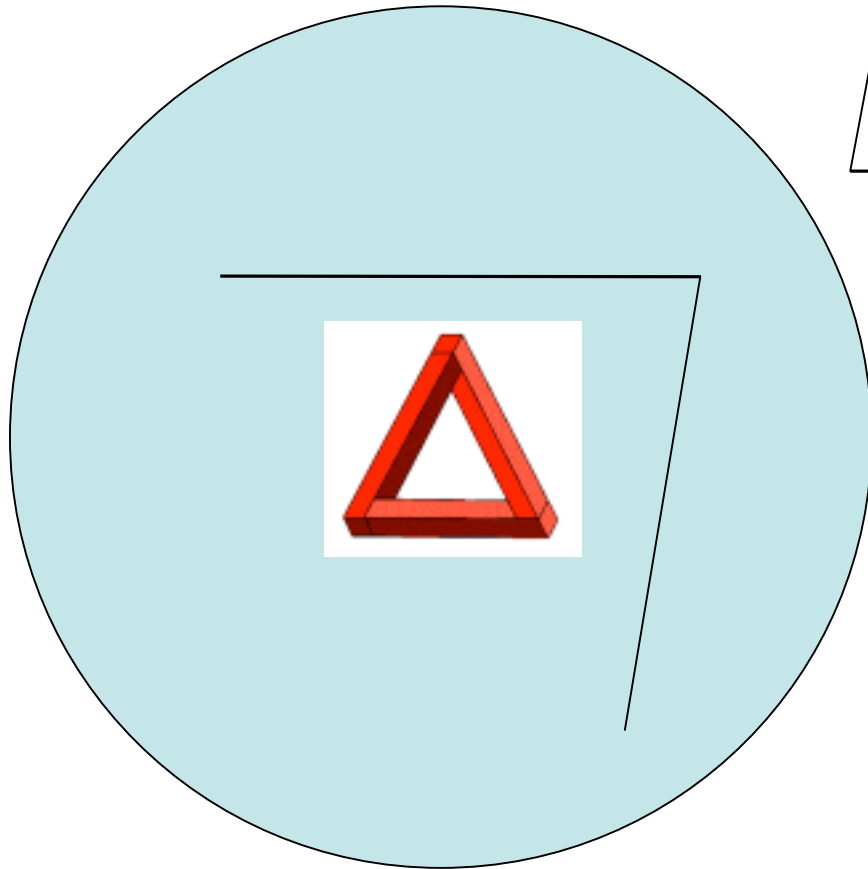
oh, for such saying as never  
the things themselves  
hoped so intensely to be.



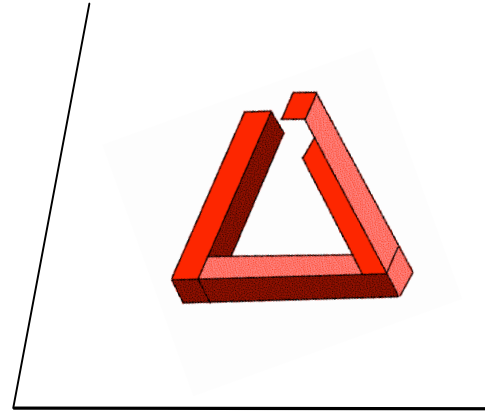


Thomas Traherne, 1670:

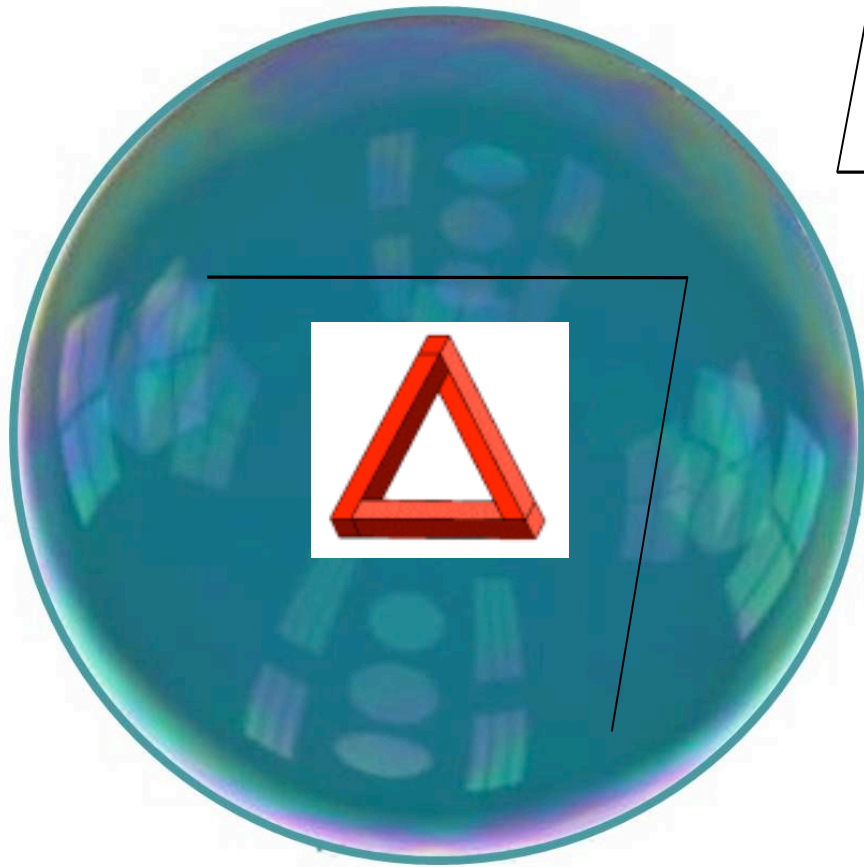
The streets were *mine*, the temple was *mine*, the people were *mine*, their clothes and gold and silver were *mine*, as much as their sparkling eyes, fair skins and ruddy faces. The skies were *mine*, and so were the sun and moon and stars; and all the World was *mine*, and *I* the only spectator and enjoyer of it.



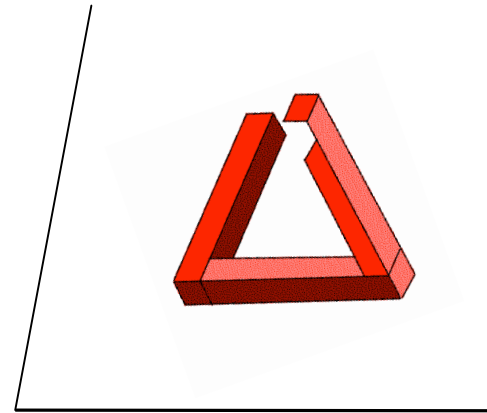
First person perspective



Third person perspective



First person perspective



Third person perspective



William James, 1890:

Absolute insulation, irreducible pluralism, is the law. It seems as if the elementary psychic fact were not thought or this thought or that thought, but my thought, every thought being owned. Neither contemporaneity, nor proximity in space, nor similarity of quality and content are able to fuse thoughts together which are sundered by this barrier of belonging to different personal minds. The breaches between such thoughts are the most absolute breaches in nature







William James, 1890:

The altogether unique kind of interest which each human mind feels in those parts of creation which it can call *me* or *mine* may be a moral riddle, but it is a fundamental psychological fact. No mind can take the same interest in his neighbor's me as in his own. The neighbor's me falls together with all the rest of things in one foreign mass against which his own me stands cut in startling relief.



Oscar Wilde:

The aim of life is self-development. To realize one's nature perfectly - that is what each of us is here for.

To love oneself is the beginning of a lifelong romance.







Keith Ward, 1998:

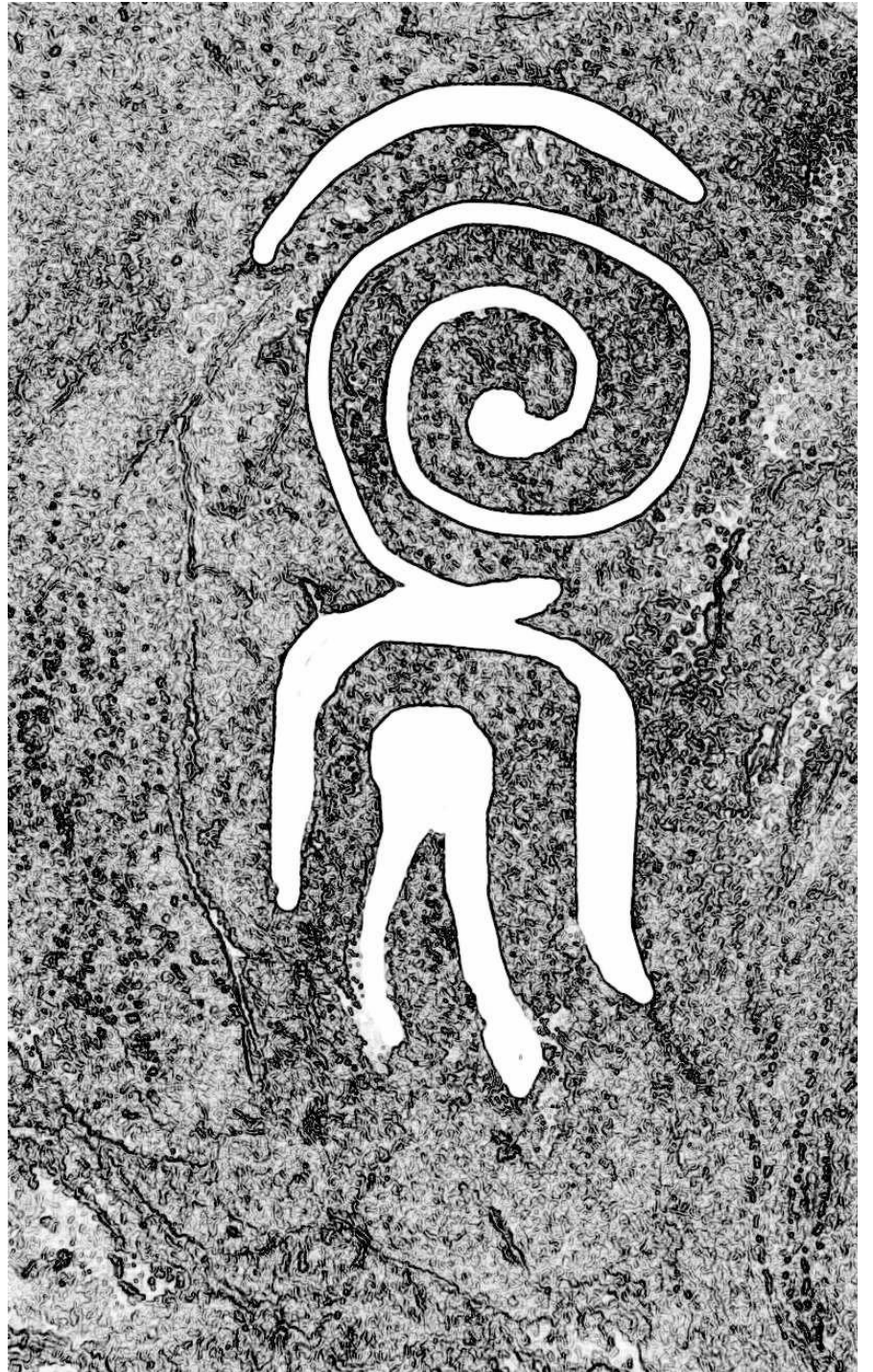
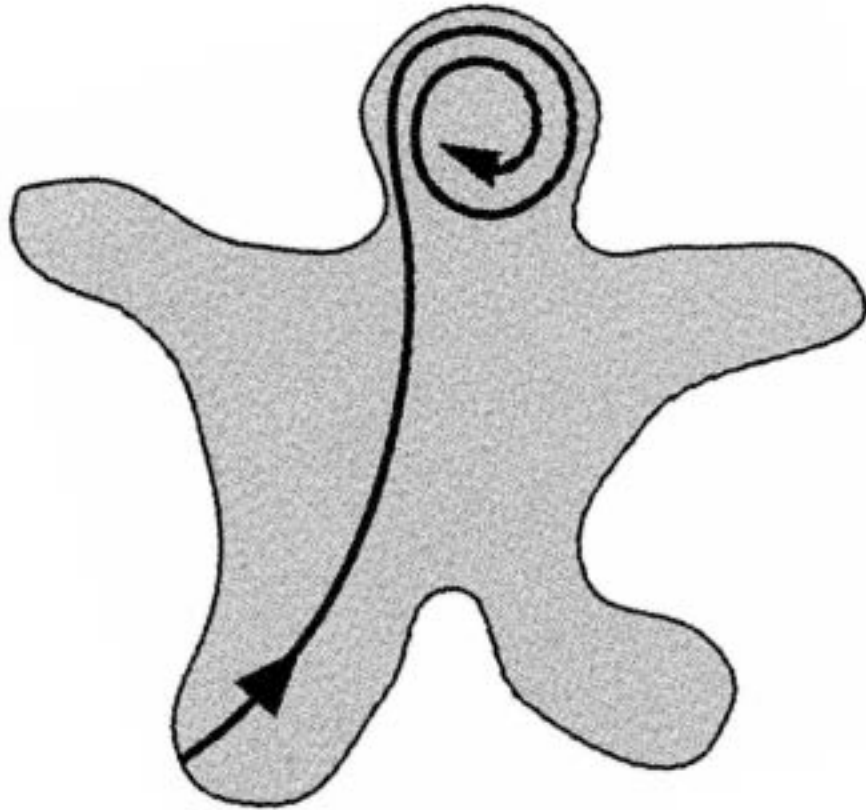
The whole point of talking of the soul is to remind ourselves constantly that we transcend all the conditions of our material existence. We transcend them precisely in being indefinable, always more than can be seen or described, subjects of experience and action, unique and irreplaceable.



Vilafames

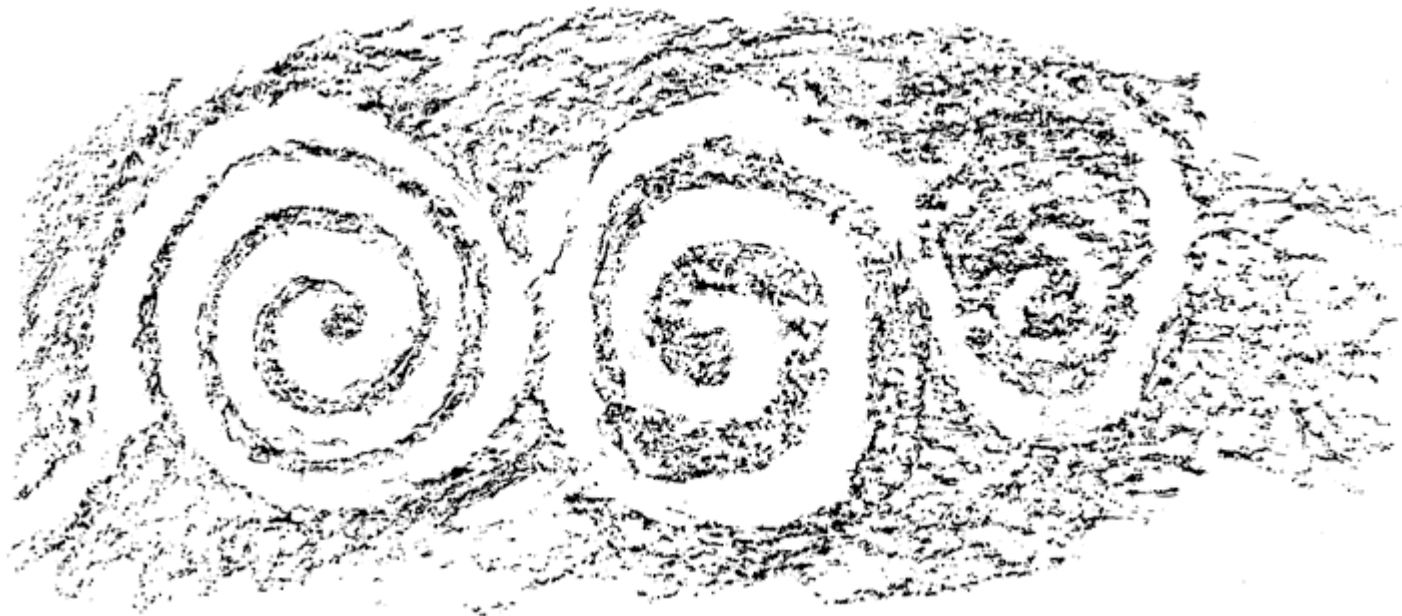








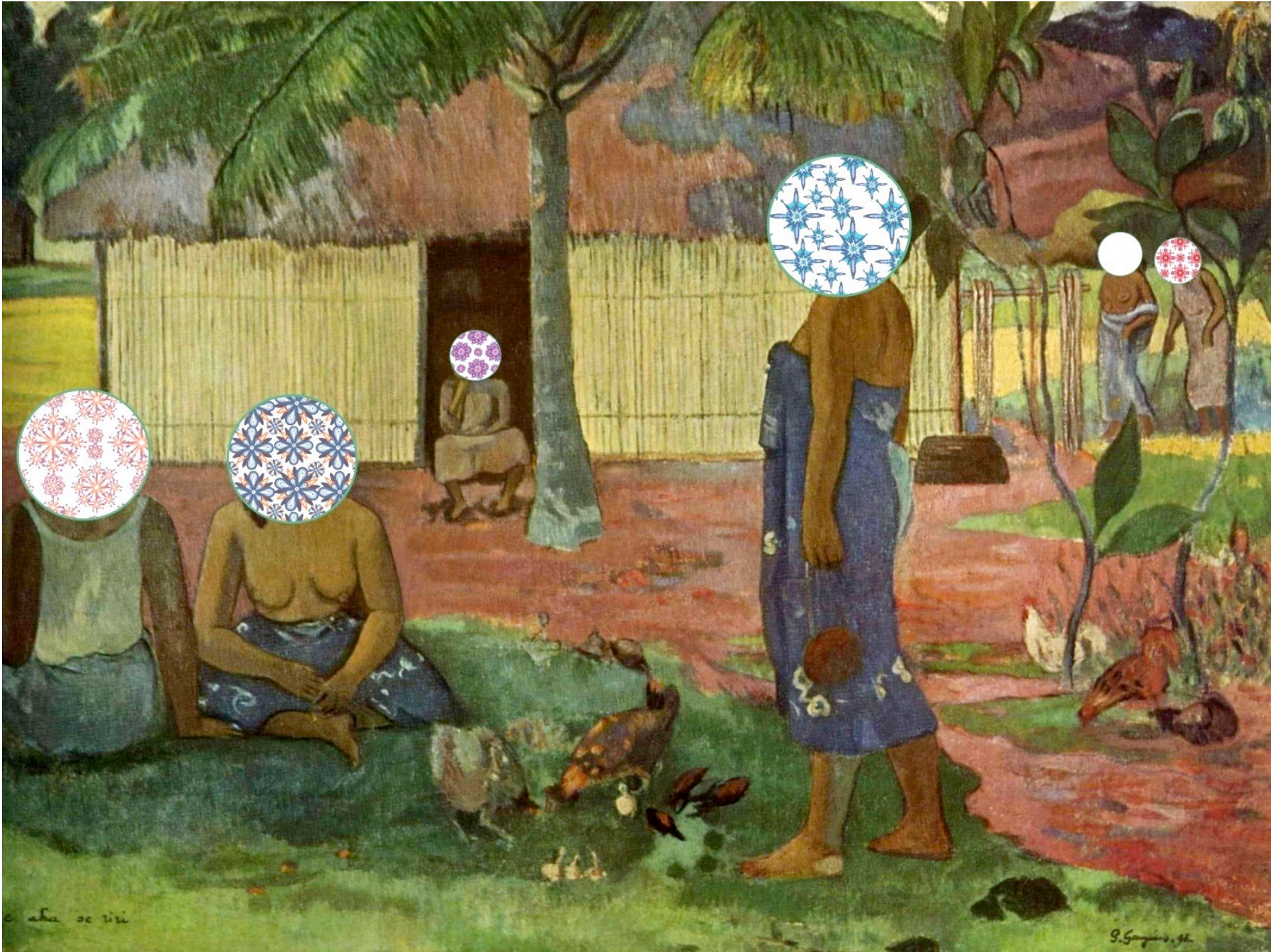
Utah, USA



Northumberland, England



Queensland, Australia





New Grange, Ireland

Cosmological anthropic principle:

The universe necessarily has the physical constants and laws that human scientists observe it to have, because otherwise there could be no life and no observers.

Psychological anthropic principle:

The mind necessarily has the phenomenal features that humans believe it to have, because without these beliefs our ancestors could not have become human.







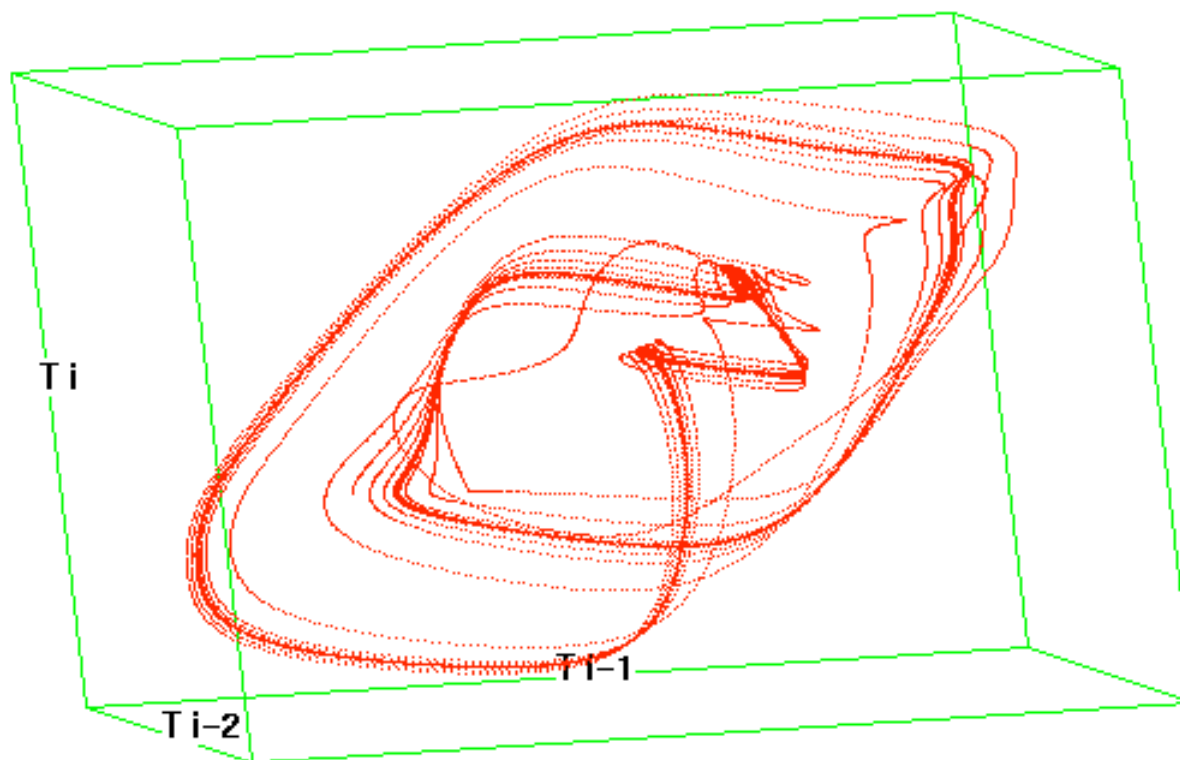


## DELAY DIFFERENTIAL EQUATIONS

In mathematics, delay differential equations (DDEs) are a type of differential equation in which the derivative of the unknown function at a certain time is given in terms of the values of the function at previous times.

When a system that is evolving according to a DDE settles into an attractor state, this state will typically occupy a higher-dimensional – even *infinite-dimensional* – landscape.

Mackey - Glass DDE



QUIT(q)

A(a)

B(b)

DELTA(d)

TAU(t)

CLEAR(c)

2D/3D(R)

PLOTWIN

PAUSE(p)

SAVE(s)

Mackey-Glass :Delay Differential Equation

3-D Delay Embedding

TAU = 17    DELTA = 6    A = 0.250    B = 0.100



New Grange, Ireland