

Notes on *The Act of Creation* by Arthur Koestler

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1 Introduction

Arthur Koestler's *The Act of Creation* (Koestler, 1964) is an attempt to develop a general theory of human creativity covering both the similarities and the differences between creativity in humour, science and the arts. Section 2 summarises his idea of creativity as the “bisociation of previously unrelated matrices” while Section 3 considers his analysis of the differences between humorous, scientific and artistic creativity. Sections 4, 5 and 6 cover important details of his analysis of creativity in humour, science and the arts respectively.

2 The Bisociation of Matrices

Koestler argues that the essence of creativity lies in:

“the perceiving of a situation or idea . . . in two self-consistent but habitually incompatible frames of reference.”

He coins the expression “bisociation” to characterise this act and uses the term “matrices of thought” to describe “any pattern of activity governed by a set of rules - its ‘code’” (see Figure 1). Countless examples of this act are given in humorous, scientific and artistic creativity.

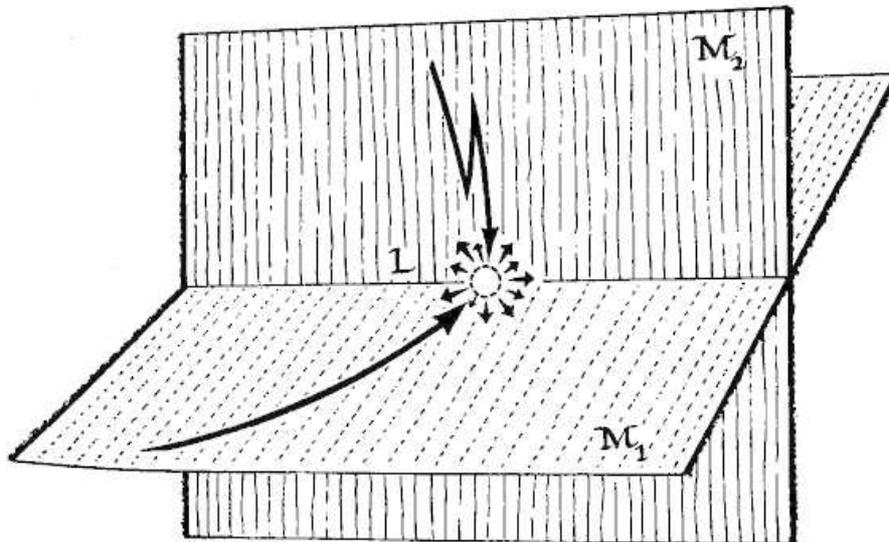


Figure 1: The bisociation of two previously unrelated matrices of thought

First, we review some other feature of creative thought that Koestler considered to be universal across domains.

3 Originality, Emphasis and Economy

Koestler also suggests that originality, emphasis and economy are universal features of creative thought.

Emphasis: Koestler considers that the process of emphasis can be subdivided into three components: *selection* of the relevant stimuli; *simplification* through the removal of non-essential elements; and *exaggeration* of the important elements. Taken together these techniques serve to establish the desired matrix of thought. As examples of emphasis Koestler discusses caricature in humour, the development of theoretical models in science and the selection of those features of the world which the artist (consciously or unconsciously) considers important to represent (and which “determines to a large extent what we call an artist’s individual style”).

Originality: Although most important in scientific discovery, originality may also play a part in humour and artistic creativity. Regarding the former, Koestler suggests that “one measure of originality is its surprise effect.” Thus the Marquis’ reply in the story quoted above is truly unexpected, surprising and original. In the arts “the measure of an artist’s originality . . . is the extent to which his selective emphasis deviates from the conventional norm and establishes new standards of relevance.”

Economy: The exercise of economy is the opposite of emphasis and involves the use of implication. Koestler cites Picasso’s “I often paint fakes” as a prime example of humorous implication. Furthermore, he notes that there exist three ways in which the recipient may have to “bridge” the gap and get the joke: *interpolation* - insertion of the missing links; *extrapolation* - an extension of the series; *transformation* - reinterpretation of the data into some analogous terms. In science Koestler suggests that:

“*economy* enters in various ways – from Occam’s razor and the satisfaction derived from an ‘elegant’ solution to various techniques of enticing the audience . . . into an imaginative, re-creative effort.”

Considering economy in artistic creativity, Koestler cites Manarmé:

“. . . to *name* the thing means forsaking three quarter’s of a poems enjoyment – which is derived from unraveling it gradually, by happy guesswork: to *suggest* the thing creates the dream.”

and Hemingway:

“The more bloody good stuff you cut out the more bloody good your novel will be.”

and concludes that “economy demands that the stepping-stones of the narrative should be spaced wide enough apart to require a significant effort from the reader.”

4 The Emotional Context of Creative Work

It is one of Koestler’s basic contentions that what differentiates creativity in comedy, science and the arts is the emotional context of the creative act. He argues that “self-assertive, aggressive-defensive” emotions underlie humorous creativity and these “are based on the sympathico-adrenal system and tend to beget bodily activity.” Thus a joke results in an explosive relief of tension which is released as laughter (see Figure 2-b).

In the arts, however, the underlying emotions are of the participatory or self-transcending variety which are passive, cathartic and dominated by parasympathetic reactions – they tend towards immobility and weeping. Examples include sympathy, mourning, relief and raptness. Therefore, in the arts the bisociative act tends to lead the audience into a self-transcendent state (see Figure 2-a).

Although science is emotionally neutral, Koestler argues that it can be characterised as an activity in which the aggressive-defensive and participatory emotions are balanced. The motivations of the scientist consist of a balanced blend of the two: competitiveness and ambition forming the self-assertive side and the self-transcendental quest for understanding forming the participatory side.

5 Humour

In Koestler’s view, laughter is provoked by the *collision* of two matrices and, particularly, when the self-assertive aggressive-defensive emotions are involved. These emotions tend to beget bodily activity since “due to their greater inertia and persistence” cannot keep up with the swift bisociative act.

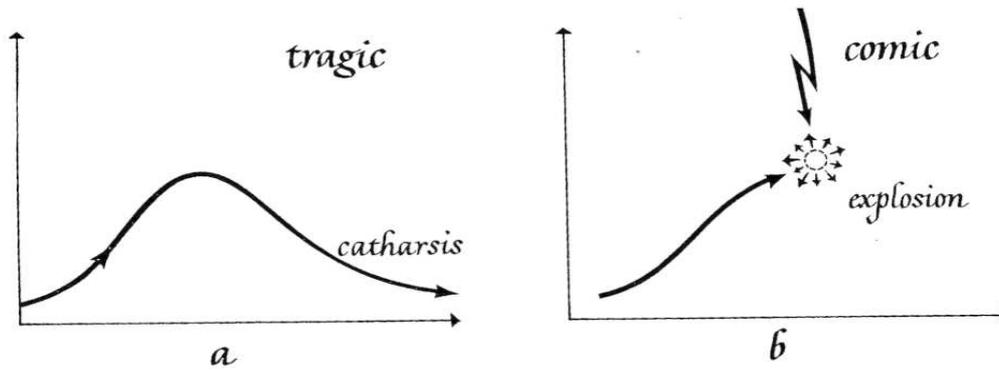


Figure 2: The emotional contexts of (a) artistic and (b) humorous creativity

“Laughter is a luxury reflex which could arise only in a creature whose reason has gained a degree of autonomy from the urges of emotion, and enables him to perceive his own emotions as redundant – to realise that he has been fooled.” (pp. 96).

As an example consider the following joke cited by Koestler:

“Chamfort tells a story of a Marquis at the court of Louis XIV who, on entering his wife’s boudoir and finding her in the arms of a Bishop, walked calmly to the window and went through the motions of blessing the people in the street. ‘What are you doing?’ cried the anguished wife. ‘Monseigneur is performing my functions,’ replied the Marquis, ‘so I am performing his.’” (pp. 96).

He argues that in this anecdote the context of adultery is suddenly bisociated with that of “the division of labour, the *quid pro quo*”. In terms of creativity, “the crucial point about the Marquis’ behaviour is that it is both unexpected and perfectly logical - but of a logic of usually applied to this type of situation.”

Koestler proceeds to present a catalogue of different varieties of humour illustrating the bisociation involved in each of these. He considers, for example: puns; impersonation; parody; caricature; satire; paradox; displacement; and nonsense. Finally, Koestler notes that humour varies in its sophistication denoted by the degree to which the self-assertive tendencies are involved. This variety is reflected in the development, in both individual and cultures, from primitive and infantile forms of humour to mature varieties.

6 Science

In Koestler’s view, scientific discovery results from the *integration* of two matrices. As an example, Koestler (pp. 105) cites Archimedes’ discovery of the measurement of the volume of non-regular solids by the displacement of water (the original *Eureka!*).

“No doubt he had observed many times that the level of the [bath] water rose whenever he got into it; but this fact, and the distance between the two levels, was totally irrelevant to him – until it suddenly became bisociated with his problem. At that instant he realised that the amount of rise of the water-level was a simple measure of the volume of his own complicated body.”

His discussion of scientific discovery raises many interesting issues which are discussed below.

Ripeness. Koestler describes situations in which new discoveries show some relation to previous knowledge which suggests that they may be understood using familiar ideas. However, when such a situation contains new complexities which make the use concepts drawn from the traditional matrix impossible, he describes the situation as *blocked*. This is when the old matrix must be bisociated with a new one in order for a new understanding to arise. This bisociative act requires a certain amount of cultural preparation: the displacement of attention to a new concept which was not relevant in the old matrix but is fundamental in the new one; the discovery of hidden analogies; and the bringing into consciousness of tacit axioms and habits of thought implied in the

old matrix. All this must occur before the bisociative discovery may be made and Koestler suggests that when these conditions have been satisfied the situation is *ripe* for the new integration. This is reflected in the recurrent phenomenon of multiple simultaneous discoveries in the history of science. As an example, Koestler cites the simultaneous development of the theory of evolution by natural selection by Darwin and Wallace, and quotes Samuel Butler:

“Buffon planted, Erasmus Darwin and Lamarck watered, but it was Mr. Darwin who said ‘that fruit is ripe’ and shook it into his lap.”

The Unconscious. Koestler discusses evidence suggesting that conscious thought plays only a subordinate part in the decisive (bisociative) phase of creative discovery. Scientists seem to almost unanimously emphasise the role of spontaneous intuitions, unconscious guidance and inexplicable leaps of the imagination. However, Koestler goes to great lengths to distinguish what he calls “downward traffic” from “upward traffic” when discussing the role of the unconscious. The former involves the progressive automatisation of frequently performed actions and results in the formation of unconsciously performed habits, which are inflexible and stereotyped. The upward stream, on the other hand, describes the transfer of thoughts from the unconscious to the conscious mind: such thoughts have the advantages of being more fluid and versatile and less perturbed by imprecision, inconsistencies and contradictions. The period of incubation involves, in Koestler’s view, the activation of many different matrices of thought in a flexible manner on many different levels of consciousness. Inspiration occurs through the transfer, via the upward stream, of such matrices into fully conscious thought.

New Integrations. Various processes by which new integrations may arise are discussed by Koestler. These may be arranged in a series:

- faulty or premature integrations;
- partial blindness towards the meaning and significance of one’s own discoveries;
- the gradual blending of matrices due to repetitive experiences increasing the links between them;
- sudden illumination sparked off by an unconscious intuition, a chance observation or both.

The purity of the bisociative act increases down this list.

The Evolution of Ideas. Koestler argues that just as ontogeny reproduces phylogeny, the historical progress of science mirrors on a large scale the characteristic stages of individual discovery. In the history of any research programme, we see periods of preparation, in which new data are collected and interpreted; incubation, in which alternative matrices ripen; discovery, which involves the cross-fertilisation of previously separate branches of science, mental disciplines or experimental techniques; and verification and elaboration, in the synthesis is hardened into a new collective orthodoxy.

Science and Emotion. While the scientist is motivated by a blend of the self-asserting and self-transcending tendencies, the former can “enter the service of creativity only through indirect channels” while the latter must undergo a:

“process of sublimation from mystic immersion in the harmony of the spheres to the scrupulous attention paid to eight minutes arc.” (pp. 267).

The use of technical jargon and antiquated teaching methods, however, accentuates the artificial frontiers between science and the more entertaining areas of humour and art. Koestler views all three as “continuous domains of creativity.”

7 The Arts

In Koestler’s view, an aesthetic experience is provoked by the *juxtaposition* of two matrices. Participatory emotions, and the weeping that provides an “overflow reflex” for them, result from such juxtapositions and lead to

passive and cathartic states. These emotions vary along several dimensions: the degree to which they emphasise the whole and the part; their sophistication; and the pleasure accompanying them.

Koestler presents several examples of bisociation in the arts. The first concerns the bisociation of two planes of existence in which one is aware that events in the play are not real but is also inevitably drawn to vicariously experience emotions on behalf of the characters. He suggests that such escapism facilitates the participatory emotions and inhibits the self-asserting emotions. Second, Koestler argues that rhythm, rhyme and assonance allow the poet to create “by bisociating sound and sense, metre and meaning”. The third example presented by Koestler is metaphor and imagery in which “The aesthetic satisfaction derived . . . depends on the emotive potential of the matrices which participate in it.” (pp. 343), in particular when:

“the flash of spontaneous illumination is followed by emotional catharsis: ‘truth’ and ‘beauty’ appear as complementary aspects of the indivisible experience.” (pp. 344).

Considering the aesthetic experience in more depth, Koestler argues that it involves a series of bisociative experiences which depend on *illusion*: the subject must be drawn into the imaginary world created by the artist where “something can be itself and something else at the same time” (pp. 383). While the artist must exploit the unconscious perceptual processes of the audience, this can lead to the crystallisation of conventions or “rules of the game”. The originality of the artist:

“consists in shifts of attention to aspects previously ignored; in seeing appearances in a new light; in discovering new relations and correspondences between motif and medium. . . . the emotive potentials matrices participating in [the aesthetic experience] should . . . provide a hint, however tentative or teasing, of some hidden form in the play of forms and colours.” (pp. 392).

Finally, Koestler suggests that, just as in the case of science, the historical progress of art mirrors the creative act of a particular artist. Historically we also find “bisociations in grand style”.

8 Conclusion

According to Koestler “the principal mark of genius is not perfection but originality” (pp. 402). He argues that, while the emotional context changes, the psychological processes supported the generation of original results is ultimately the same in humour, science and art and involves the bisociation of previously unrelated matrices of thought. The importance of creative thought, and Koestler’s ultimate motivation in studying it, is eloquently described:

“Habits . . . reduce man to the status of a conditioned automaton. The creative act, by connected previously unrelated dimensions of experience, enables him to attain a higher level of mental evolution. It is an act of liberation – the defeat of habit by originality.” (pp. 96).

References

Koestler, A. (1964). *The Act of Creation*. London: Hutchinson & Co.