



## Janusian, Homospatial and Sepconic Articulation Processes

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This article is a revision of the previous edition article by Albert Rothenberg, volume 2, pp. 103–109, © 1999, Elsevier Inc.

### Glossary

**Analogic reasoning** Drawing of inferences or conclusions based on likenesses and comparisons.

**Catharsis** Purging or discharge of unacceptable or unpleasant emotions.

**Condensation** The representation of two or more ideas, memories, feelings, or impulses by one construct or image as in a person's humor, accidental slips, and dreams.

**Deductive reasoning** Making inferences or conclusions based on predetermined premises.

**Dialectical reasoning** Practice of weighing and reconciling juxtaposed or contradictory arguments for the purpose of arriving at the truth.

**Gestalt** Term used for an organizational whole, therefore the perceptual organization of a whole visual space into foreground and background features. The term is used for a psychological theory and movement based on principles of the whole in mental processes.

**Inductive reasoning** The process of drawing out or making inferences or conclusions based on facts and observations.

**Kent–Rosanoff word association test** Psychological test usually composed of 100 stimulus words requiring a response, usually timed, of the first word that comes to mind on exposure to each stimulus word. Developed by psychologists Kent and Rosanoff in the early 1900s and standardized on over 1000 subjects.

**Oxymoron** A figure of speech in which incongruous or contradictory terms are brought together.

**Semistructured research interviews** Use of prepared questions and categories for eliciting interview information relevant to specific preconstructed hypotheses. These questions and categories are not presented in a set sequence but according to the flow and logic of the interview interaction.

**Statistical significance** Method for assessing the operation of nonchance factors in an event or series of events.

**Unconscious** Mental aspect containing psychic material that is not accessible to awareness but has a pronounced effect on conscious thought and behavior.

Creativity consists of the capacity or state of bringing into being entities that are both new and valuable. Three cognitive functions responsible for creative constructions and effects are the Janusian, homospatial, and sepconic articulation processes. During the course of creative activity, these processes operate both independently and in conjunction with each other. Dynamic interactions within and among the three processes produce emergent creative integration.

### Empirical Studies

The creative cognitive processes were discovered through long-term empirical investigations consisting of extensive semi-structured research interview procedures (*Int=verbatim* quotations used) with consensually recognized highly creative achievers in the arts and sciences. Subjects have been: in literature – Nobel laureates (*IntNL*), Pulitzer (*IntP*) and other notable literary prizewinners; in science – Nobel laureates in physics, chemistry, and medicine or physiology (*IntNLS*)

in both the United States and Europe. Interview procedures were carried out over the course of the subjects' both long- and short-term creative projects and consisted of detailed objective examination of psychological processes in ongoing work and, where appropriate, past creative breakthroughs. Experimental assessments, as reported below, were also done with these and other creative subjects and noncreative controls. Additionally, comparison control research interviews, carried out in the same semistructured manner as with the creative subjects, were performed with less creative matching cohorts.

Documented accounts of breakthroughs and other creative productions of outstanding art and science creators of the past were also systematically analyzed. The large body of evidence collected indicates that the three conscious and intentional processes, Janusian, homospatial, and sepconic articulation, are used for creative work and thought in literature, art and science and, by extension, in various degrees in fields such as business, education, politics as well as general creative problem solving and everyday creative activities.

## Janusian Process

The Janusian process, most commonly operative in the early or inspiration phase of creative production, consists of actively conceiving multiple opposites or antitheses simultaneously. The term, based on the multifaced (variously possessing two, four, or six faces) Roman god Janus looking always in diametrically opposed directions, denotes conscious conceptualization during the creative process of simultaneously coexisting and operative opposite or antithetical ideas, propositions, or actions. Although seemingly illogical and self-contradictory, creators construct these conceptualizations in rational states of mind in order to produce creative effects. In art and literature they are responsible for early conceptions of plot, character, metaphor, organization, and design; in music for compositional construction; in science for creative breakthroughs, theorizing, and experiments. Depending on the level of development of a creative product, the Janusian process also operates at later critical junctures and with practical solutions in a wide variety of fields.

Simultaneity of the multiple opposites or antitheses is a cardinal feature of the Janusian process. Creators conceive firmly held propositions about the laws of nature, the functioning of individuals and groups, or the aesthetic properties of visual and sound patterns as simultaneously true and not-true; harmonious and non-harmonious or, both opposite and antithetical propositions are entertained as concurrently operative. A person running is both in motion and not in motion at the same time, a chemical is both boiling and freezing, or kindness and sadism operate simultaneously. Previously held beliefs or laws are still considered valid but opposite or antithetical beliefs and laws are formulated as equally operative or valid as well.

These formulations within the Janusian process are waystations to creative effects and outcomes. They interact and join with other cognitive and affective developments to produce new and valuable products. Homospacial and sepconic articulation particularly operate as later unifying processes. Analogical, dialectic, inductive, and deductive reasoning are applied also in the development of theories, inventions, and artworks.

The Janusian process initially disrupts preexisting contexts and conceptions. Highly surprising, even incredible and inconceivable, are propositions that the contradiction or opposite of well-grounded fact, theory, or actuality is simultaneously valid. Previously held ideas and systems of ideas are split apart and broken, even essentially destroyed. This disruption engenders the development of something new.

## Janusian Process in Science

While working on an essay for the *Yearbook of Radioactivity and Electronics* in 1907, Albert Einstein had what he called “the happiest thought of my life.” This happy thought was the key to one of the most far-reaching scientific breakthroughs of the twentieth century: the general theory of relativity. The circumstances producing it were revealed in a document by Einstein himself which was unpublished during his lifetime, titled, “Fundamental Ideas and Methods of Relativity Theory, Presented in Their Development.”

Einstein had already developed the special theory of relativity, which holds that since the speed of light is constant for all frames of reference, perceptions of time and motion depend upon the relative position of the observer. He had been forced to postulate the theory, he said, to explain the seeming contradictions in electromagnetic phenomena:

[that] one is dealing here with two fundamentally different cases was, for me, unbearable. (Translations, Gerald Holton)

He felt strongly that he had to come up with a new and meaningful solution. For many years, he struggled to modify Newton’s classical theory of gravitation so that it could be encompassed within a broad relativity principle, but he lacked a specific physical basis for bringing together the seemingly different or antithetical choices of Newton’s theory and his own special theory.

All at once, Albert Einstein conceived his happiest thought. It was:

For an observer in free fall from the roof of a house, there exists, during his fall, no gravitational field . . . in his immediate vicinity. If the observer releases any objects, they will remain, relative to him, in a state of rest. The [falling] observer is therefore justified in considering his state as one of ‘rest.’

Development of the general theory itself was highly complex, but the specific structure of the key step is clear. Einstein had consciously formulated the simultaneously antithetical construct that a person falling from the roof of a house was both in motion and at rest at the same time.

(IntNL) Physicist Edwin McMillan’s formulation of critical phase stability leading to his development of the synchrocyclotron (later called the synchrotron) was derived from a sudden formulation involving simultaneous opposition of too high and too low energy. The synchrotron is a high energy particle accelerator that has allowed for the discovery of a number of new particles and other nuclear effects.

‘I was lying awake in bed and thinking of a way of getting high energy,’ he said, and I was thinking of the cyclotron and the particle going around and encountering the accelerator field. . . . It’s going to oscillate back and forth, be going at too high and too low energy. Once I realized that, then the rest was easy. . . . Once you have an oscillation, you have the element of stability. The things will stay put. They will wiggle around but they won’t get away from you. Then all you have to do is to vary your frequency, or vary the magnetic field, either one or both, slowly, and you can push this thing anywhere you want. That all happened one night and the next day I started to write down the equations for that and proved that it would work.

In physicist Niels Bohr’s (1927) first formulation of his theory of complementarity, the theory that has been a foundation for modern quantum physics, he stated that wave or else particle states of light and electrons, widely believed at the time to be completely conflicting alternatives, involved:

no question of a choice between two different concepts but rather of the description of two complementary sides of the same phenomenon.

He then went on to formulate the full blown complementarity theory stated as follows:

two descriptions or sets of concepts, though mutually exclusive, are both necessary for an exhaustive description of the physical situation.

His key initial formulation of the complementarity idea was a Janusian process construct that both light and electrons were phenomena with simultaneously antithetical wave and particle aspects.

### Janusian Process in Literature, Art, and Music

(IntPP) Novelist William Styron reported that he developed the initial idea for his Pulitzer Prize winning novel *The Confessions of Nat Turner* as he sat in a lawn chair reading Erik Erikson's book on Martin Luther's rebellion. He thought, in a Janusian process construction of simultaneous opposition, of creating a novel about another rebel, a revolutionary hero who, he said:

was responsible for the deaths of hundreds of people, but he himself would kill only one person with his own hand – and this was the one person who had been very kind to him and the one person he loved.

(IntPP) Playwright Arthur Miller disclosed that he had come up with the specific idea for the play "Incident at Vichy" while traveling through Germany:

Driving on the autobahn, I suddenly felt amazed and overwhelmed at how beautiful Germany had become.

He conceived of writing a play that would simultaneously express the opposites of the beauty of modern Germany and Hitler's destructiveness.

And then, I remembered a story I'd been told about a sacrifice made by an Austrian nobleman for a Jew in a Nazi official's waiting room.

He developed the story of the political simultaneously antithetical sacrifice in his play.

(IntPP) Poet Richard Wilbur related that he had been walking on a beach and became interested in the quality of some rocks along the sand. As he touched the surface of the rocks, he noted that they seemed to feel like human skin. They were, however, also hard, heavy objects – violent weapons. The idea that the rocks were at once sensual objects and weapons led to a conception of the simultaneous operation of sex and violence in the world, and Wilbur elaborated those aspects separately into the final version of a poem.

(IntPP) Poet James Merrill (1972a) had been home thinking about a past incident in which a horse had appeared at a lonely desert site, when it occurred to him that horses are animals who "renounce their own kind in order to live our lives." The idea that horses live human lives, that they are antithetically both beast and not-beast and human and not-human simultaneously, generated the poem, "In Monument Valley," with the central image and theme of a happy and

intense relationship between a young person and a horse, followed by a sad, resigned separation.

(IntPP) Poet and novelist Robert Penn Warren recounted that he was doing his morning exercises when he thought of a series of poetic lines that, as he described them, would use the last word of each line as the first word of the next – a juxtaposition that sets one word to simultaneously opposite functions, both ending and beginning a poetic thought. In the end, his poem implicitly retained that structure.

Artist Jackson Pollock's early drawings and paintings were strongly based on the styles of Thomas Hart Benton, Diego Rivera, and Jose Clement Orosco. During the summer of 1939, when he was improving from alcoholism and mental illness, he created his first abstract expressionist paintings, becoming the so-called father of that style. These revolutionary artworks, he later explained, were based on his conception of both obscuring an image and expressing it at the same time, a Janusian process formulation.

In music, the writings of composers from early to more recent modern times have stipulated simultaneous oppositions regarding germinal aspects of their compositions. Renaissance composer Claudio Monteverdi (1956) described his method of producing slow and fast tempos simultaneously as a means of conveying the "contrary passions aroused by war, prayer, and death." Modern composer and conductor Leonard Bernstein (1976) wrote of the use of "contradictory forces, chromaticism and diatonicism, operating at the same time." Composer Arnold Schoenberg conceived the simultaneous use of the opposites of consonance and dissonance in his musical creations and compositional instructions to disciples.

### Homospacial Process

Mental representation of space is potentially more far reaching, extreme, and diverse than any physical actuality. The homospacial process responsible for many types of creative results involves mental representations that defy or go beyond actual physical space. This process consists of actively conceiving two or more discrete entities occupying the same space or spatial location, a conception leading to the articulation of new identities and integrations. In conscious mental space, creators superimpose, interpose or otherwise bring together shapes, patterns, written words, dimensions, distances, and other concrete entities. Subjectively, eyes closed or open, other physical receptors attentive or inattentive, the resulting mental image totally fills the conceptualized perceptual space. Any sensory modality may be involved: visual, auditory, tactile, kinaesthetic, olfactory, and gustatory. The imaginary image location may be considered to be the 'mind's eye,' 'mind's ear,' 'mind's taste,' etc.

Once the discrete entities in the homospacial process are consciously brought together, the mental conception is a rapid, fleeting one. In the creator's mind, the superimposed and interposed elements begin immediately to interact and produce new identities, including new ideas. These ideas constitute solutions to scientific and other problems and in the arts, they consist of created metaphors, plots, visual themes and constructions, musical passages, and other integrations.

Not a matter of simple combination, unconscious condensation, or of the discrete entities considered in stepwise or

analytic fashion, the homospatial process involves unstably related entities that interact. Ordinarily used later than the Janusian process but, as in an oxymoronic metaphor such as Hart Crane's 'penniless rich palms' from his *Voyages II*, both processes may operate early and concurrently. Newness in the created results produced by the homospatial process begins with creators breaching the physical percept that two or more discrete entities cannot in actuality occupy the same space. The valuable aspect emerges from rapid or delayed interactions among the superimposed and interposed elements.

### Homospatial Process in Science

Mathematician Jacques Hadamard (1949) described the conception leading to the important 1892 discovery of the valuation of a determinant as a schematic diagram consisting of:

a square whose sides only the verticals are drawn and, inside of it, four points being the vertices of a rectangle and joined by (hardly apparent) diagonals.

He visualized a rectangle occupying the inside of a square, two discrete entities within the same spatial location.

Mathematician Henri Poincaré (1952) described the mental conception of a coalescing spatial superimposition of mathematical formulations which led to the discovery of a crucial aspect of his famous Fuchsian functions:

One night, I took some black coffee, contrary to my custom, and was unable to sleep. A host of ideas kept surging in my head; I could almost feel them jostling one another, until two of them coalesced, so to speak, to form a stable combination. When morning came, I had established the existence of one class of Fuchsian geometric series. I had only to verify the results, which only took a few hours.

(IntNLS) Microbiologist Joshua Lederberg reported that he arrived at an important new idea regarding enzyme replication after consciously visualizing himself superimposed upon a living cell.

Similarly, (IntNLS) chemist William Lipscomb described one of his Nobel Prize discoveries in boron chemistry as arising from a superimposed image of a hydrogen atom and a three center chemical bonding:

What I mean by the superimposition ... this hydrogen comes over here [points to formula], and interchanges with this vacancy. I saw the previous three center bond there, and then it came loose and twisted around. I did that in my head and it became perfectly clear in the nuclear resonance study I published. I had the right structure.

### Homospatial Process in Literature, Art, and Music

The homospatial process is a prime factor in the production of poetic metaphors. To produce what was to be a central metaphor in a lyrical poem, 'the branches were handles of stars,' an author had become attracted early to the words 'handle' and 'branch' because of their shared sound qualities – the assonance or shared 'an' sound in the center of each – as well as the

shared shapes of the wooden objects themselves. He then superimposed these words and their concrete images in his mind's eye; he brought them together because he felt they ought to be together. In the next fleeting moments, he asked himself when in reality they were the same, and also fleetingly experienced a vivid impression of the letter 'a' overlapping in the two words. At that point the idea of stars was generated. Associational or analogical ideas of the country (or park) at night did not generate the metaphor; it was derived directly from the homospatial process conception that provided both the real scene and sound qualities that unified the words and their meanings.

In the creation of another type of metaphor, 'the tarantula rays of the lamp spread across the conference room,' this author was thinking about writing a poem about a vacation in the tropics and, among the various thoughts and words that came to mind, he became interested in the sound similarity between the words 'tarantula' and 'lamp.' He then actively superimposed images of the spider and a light source together, along with images of the letters in the words, because he felt these ought to be together. After mentally visualizing spidery light radiating out from a central source in the superimposed images, he thought of the metaphor, 'tarantula rays of the lamp.' Deciding to elaborate that fragment with a suggestive context, he next conceived of 'conference room.' Once the entire creation was constructed, he thought of overtones such as wars in the tropics, the idea of the slow crawl of a tarantula in contrast with the dazzling speed of light, and experiencing an awesome type of beauty, he was pleased. With both poetic creations, the author visualized a vague scene as well as found the answer in words. Later, he visualized more fully developed and vivid scenes similar to the ones experienced by a reader or audience, and he (sepconically, see below) articulated the metaphors as well as descriptions of the scenes into poems. The fully visualized scenes did not, however, produce the metaphors, they mainly added to the poet's feeling of the aptness of his creation.

Sculptor Henry Moore (1937) indicated the crucial role of a homospatial process in the creation of sculptural works of art as follows:

This is what the sculptor must do. He must strive continually to think of, and use, form in its full spatial completeness. He gets the solid shape, as it were, inside his head – he thinks of it, whatever its size, as if he were holding it completely enclosed in the hollow of his hand. He mentally visualizes a complex form from all round itself; he knows while he looks at one side what the other side is like.

In music, auditory metaphors and new musical patterns and themes develop from homospatial process constructions. Ludwig van Beethoven (1952) described that:

the underlying idea [of a musical work] ... rises ... grows, I hear and see the image in front of me from every angle, as if it had been cast.

Robert Schumann (1922) said regarding his composing process:

certain outlines amid all the sounds and tones ... form and condense into clear shapes.

## Interaction Between Janusian and Homospatial Processes

(IntPP) James Merrill's previously described Janusian formulation of a horse as both beast and human simultaneously for the poem, 'In Monument Valley,' was subsequently integrated into a particular central poetic metaphor by a homospatial process conception. A horse and human being were conceived as occupying the same space; that led to the construction of the following poetic image:

Stillnesses were swarming inward from the evening star/ Or outward from the buoyant sorrel mare/ Who moved as if not displeased by the weight upon her./ Meadows received us, heady with unseen lilac./ Brief, polyphonic lives abounded everywhere. With one accord we circled the small lake.

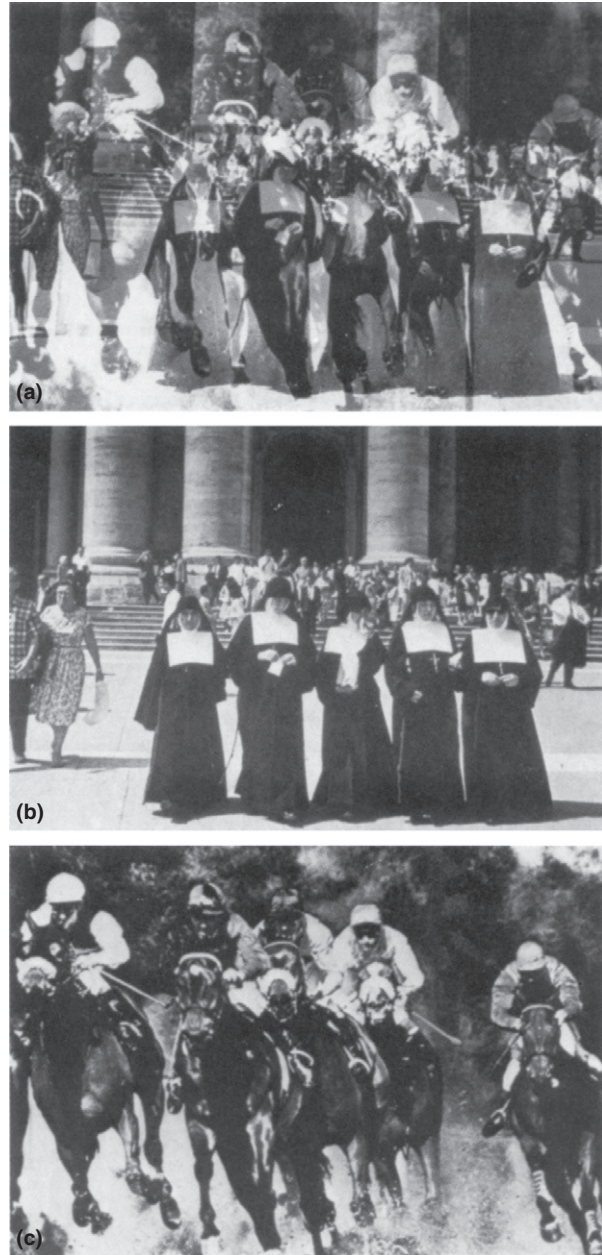
The resulting image was neither a centaur, a mythical entity that is part human and part horse, nor was it some other mixture or combination of horse and man.

## Experimental Evidence for Janusian and Homospatial Processes

A tendency or capacity for the use of the Janusian process among proven and potentially creative persons, manifested by very rapid opposite responding on word association tasks, was experimentally identified. Standard Kent-Rosanoff word association tests were individually administered to 22 Nobel laureates in science (physics, chemistry, medicine or physiology) and to rated-as-creative Yale College students. Control groups consisted of matched but rated-less-creative students and high IQ psychiatric patients. Test instructions were to give the first word that came to mind in response to a standardized list of word stimuli and both speed and content of response were electronically recorded. Results signified, for the most creative subjects, formulation of simultaneous or virtually simultaneous opposite associations. The statistically significant highest number of extremely rapid opposite responses (averaging 1.1–1.2 seconds) were given by proven creative subjects, the Nobel laureate group, and the next highest by the rated-as-creative Yale students.

Experimental assessment of the creative effect of the homospatial process, using the stimulus effects of ten concrete representations of such mental conceptions consisting of a series of ten transilluminated superimposed component slide images, were carried out with artist and writer subjects. Controlled side-by-side slide presentations of each of the individual component images were shown to half of each group. Results were the statistically significant greater production of both creative literary metaphors by writer groups and creative pastel drawings by artist groups in response to the superimposed images in comparison with the side-by-side controls. An example of a test superimposed stimulus image, consisting of nuns in front of St Peter's and racing jockeys is shown in [Figure 1](#). An experiment using shorter stimulus exposure times to facilitate more rapid mental superimposition and manipulation produced similar results.

With highly talented award winning artists, another experiment was carried out to assess whether the results of the



**Figure 1** The first slide pair, superimposed and separate. (a) Photograph of colored slides as projected superimposed onto the viewing screen. (b) and (c) Photographs of individual color slides.

previous experiments could have been due to stimulus presentation effects. Results indicated that presentation of test superimposed images in controlled comparison with foreground-background (gestalt) displays of the same subject matter yielded significantly higher rated creative products.

## Sepconic Articulation

The sepconic articulation process consists of conceiving or constructing separation and connection concomitantly. The term derives from the root meaning of articulation as joining,

joint, to join, and the commonly applied phrases, 'being articulate' or 'an articulate speaker.' Speaking smoothly and continuously, the articulate speaker joins words and ideas together and keeps them clearly separate at once. In creative work and activity, the creator uses such concomitant separation (SEP) and connection (CON), the process of sepconic articulation, in many different dimensions – conceptual, perceptual, affective, and physical. It differs from blending, fusion, combining, connecting or connectivism alone, in that the creator brings together separate component elements that retain their individual characteristics.

Integration characterizes created works and is a crucial factor in their positive value. The process of sepconic articulation, because of discordance of concomitant separation and connection, leads, as with conflicting elements of the Janusian and homospacial processes, to dynamic interaction and the emergence of integration. Separate individual elements retaining their identities contribute to the functioning of a large or small whole connected system. This integrated whole has qualities not present in any individual element or factor; it is greater than the sum of its parts.

When creators produce new ideas, procedures, experiments, neologisms, plot themes, artistic or musical patterns, they integrate them into a created result by means of the process of sepconic articulation. Integration, contingent organicity, and usefulness produce the value aspect of creations in all fields, science and art as well as the products of everyday ingeniousness. Newness or originality alone does not guarantee successful application or appreciation. New elements, forms, or mechanisms must have articulating concomitance with previously existing elements, forms, or mechanisms in order to become creations. New factors must have connections with comparable past ones. Creative new theories and experiments, for example, are always connected to some degree with existing canons of scientific knowledge, creative new postmodern sculptural or painting styles are in some part connected with realism, op and pop art, action painting and many other previous approaches. Joyce's and Shakespeare's literary creations are connected both in subject matter and form with previous works of literature and life events. New factors, therefore, which are clearly distinct and separate are at the same time connected in some measure with the past. Creations are articulating concomitants of new ideas, objects, and structures with aspects, sometimes totalities, of the past.

### Sepconic Articulation in Science

(IntNLS) Physicist Norman Ramsey conceived the 'Separated Oscillatory Field Method' which provided critically important high resolution in atomic and molecular spectroscopy for the production of the most precise atomic clocks. He disclosed that he had been working on making a connection between a short and longer magnetic field apparatus and had first conceived that the nature of the field was crucial and also that it would have to be uniform. Then, deciding later all at once that the uniformity of the field itself was less important than the separated beginning and ending, he conceived a solution in which the distinctly separated 'bits,' were concomitantly connected through oscillations. The interactions between the

concomitant separations and connections produced mutual modifications and a creative outcome. He said:

[the connecting oscillations produce] a short, much stronger field at the beginning and a short, much stronger field at the end, and then the middle part averages out.

(IntNLS) Chemist Jean-Marie Lehn is responsible for the creation of the field of supramolecular chemistry, developments in which have made important contributions to nanotechnology, work with catalysts and catalysis, pharmaceutical therapies, and drug delivery. 'Supramolecular chemistry,' he said:

has to do with the designed manipulation and use of weaker interactions, weaker forces, compared to intramolecular ones, which glue molecules together and allow you to construct large architectures.

He developed supramolecule structures from conceiving concomitant separation and connection:

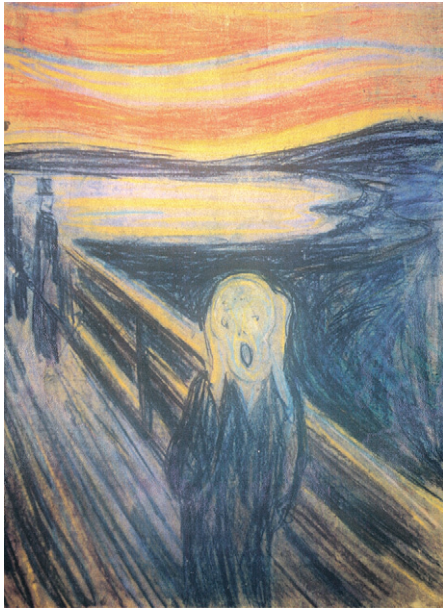
What one wanted was building a three dimensional negative image in space. . . . This is a cavity, a "crypt"; so there are "cryptands," "cryptates," and so on. . . . The hidden aspect is important because the interactions of the outside species with what is hidden determines both the properties of what is inside . . . and also what's outside.

### Sepconic Articulation in Art, Literature, and Music

In literature, the development of characters results from the process of the author's sepconic articulation of self. Created literary characters are neither simply representations of the writer's personality or life history nor combinations of these factors with those of other persons, real or imaginary. Throughout the course of writing a novel, play, or poem, the author concomitantly connects and separates his own emotions, personality characteristics, and experiences with the fictional characters being created. There is continual interaction of features of the author's self and the developing portrayal.

The sepconic articulation process also operates in the creation of poetic form. (IntPP) James Merrill (1972b) created a central metaphor, 'a mastermind kept track above the mantel' of the poem entitled, '18 West 11th Street' through concomitant separation and connection of words pertaining to his self and the destruction of the eponymic house. It was the street address of a brownstone house in Greenwich Village that Merrill lived in as a child. The house much later was actually accidentally blown up by a revolutionary group called 'The Weather Underground' during a project of making bombs in the basement.

The 'mastermind' mirror in the poem allows a passing through in imagination of both the poet's childhood images and the world of the Weather Underground. During the process of creation, he wrote more than twenty-five different versions of these lines. Before the final step, he focused on an off-rhymed word-pair, 'mental' and 'mantel.' Then, in the process of sepconic articulation, he conceived the metaphoric word 'mastermind' by separating out from 'mental' the idea of mind and connecting it concomitantly with the idea of plotting



**Figure 2** Edvard Munch, *The Scream* 1893. Oil, pastel and casein on cardboard. Oslo National Gallery, Oslo.

'saboteurs' from another portion of the poem. He was aware at the same time of continuing to separate out the initial consonants and vowels of the word pair 'mental' and 'mantel' and connecting them into an effective alliterative sound similarity: both alliteration (m) and assonance (en/an). The mastermind metaphor, effective in both structure and meaning, became an aesthetic integration in the poem.

In his diary, in 1892, expressionist artist Edvard Munch described a visual hallucination of a bloody red sky that provided the inspiration of emotionally charged elements that he integrated by means of the sepconic articulation process and, to a lesser extent, the homospacial process, into the famous artwork, 'The Screech' or 'The Scream' (Figure 2). Over a period of more than a year, he several times progressively connected and separated himself and his hallucination, as represented by a human subject viewing the sky, with nature.

He first did a drawing showing a solitary man far at the back leaning in profile over a bridge and looking at the sky and a boat on a small lake, then later a painting depicting the leaning still-profiled man located right at the front of the scene. In the next two charcoal drawing versions, he put a round bowler hat on this profiled spectator. After that, in an ink sketch much later in that year, he depicted the then bowler-hatted man facing fully forward and matched the rounded shape of the hat with the curved lines of both the sky and the contours of the man's body, a probable result of conceived superimpositions of the homospacial process. In the final version, first done as a lithograph and later as a painting, he developed critical aspects of the image by presenting the man concomitantly separated and connected with the nature scene. The forward-facing man was portrayed with no hat but with an oval screaming mouth. Both the red sky and man's body contained differently oriented ovoid types of curves. Mouth, sky, and body all were in this way separated and connected concomitantly. He thereby

produced a universal pictorial metaphor, a metaphor verbally described as 'the scream of nature,' that provides much of the integrated aesthetic power of this painting.

The process of sepconic articulation operates throughout musical creation. Just as the articulate and creative speaker brings phrases and ideas together smoothly and in continuous flow while concomitantly separating these phrases and ideas clearly, created music brings rhythms, themes, instrumental effects, and other sonorities together smoothly while clearly separating these elements. It produces the organic integration of created music. Classical composer Paul Hindemith (1961), using the analogy of seeing a heavy flash of lightning in the night, described the musical operation of both the homospacial and sepconic articulation processes together as follows:

Within a second's time we see a broad landscape, not only in its general outlines but with every detail. . . . We feel that not even the smallest leaf of grass escapes our attention. We examine a view, immensely comprehensive and at the same time immensely detailed. . . . Compositions must be conceived the same way. If we cannot in the flash of a single moment, see a composition in its absolute [connected] entirety, with every pertinent detail in its proper place, we are not genuine creators.

### Phases of Janusian, Homospacial and Sepconic Articulation Processes

All three processes function in creation individually as well as in conjunction with each other. There are four phases in the creative process that occur over extended periods of time or else condensed into a very short span such as sometimes occurs with sudden breakthroughs and insights. Ordinarily, the creative thinker uses the Janusian process earlier than both homospacial and sepconic articulation processes. All three begin with a first phase consisting of the deliberate motivation to create; nothing new and valuable is created without the intention to do so. Both the intentional goal and the area chosen for creation have emotional (including aesthetic) importance for creators themselves. Combined emotional and ideational motivation provides the drive to conceive the inconceivable and use other daring and unusual cognitive modes in the next phases.

In the second phase for each of the three processes there is a deviation from the customary. The creator using the Janusian process focuses on seemingly unreconcilable poles of opposition or antithesis. Scientific creators, highly knowledgeable about their fields, at this time begin to break away from widely held precepts of approach and content. In art, literature, and music, knowledgeable creators' choices of particular opposing elements of form or content in their works differ in some fashion from those of previous writers, artists, or composers. This is the beginning of a small or large departure from the known and accepted that ultimately produces newness in the created product. Creators' gradual and continuing development of specific thematic poles and aspects serves to separate and isolate critical factors in the area of investigation, technology, or aesthetic production.

In both the homospacial and sepconic articulation processes, in the second phase, creative thinkers choose entities that, while they differ both singly or in multiples from the

usual, have functional or structural similarities with each other. For the visual artist it may be repetitions, juxtapositions, contraries, or oppositions in shape and color, for the writer (especially the poet) and musician it may be sound and physical relationships, and for the scientist it is functional, conceptual, or physical relationships within the problem being worked on.

In the third phase of the Janusian process, creative thinkers conceive multiple opposites or antitheses as operating simultaneously. It is here that ideas constructed sometimes seem surprising to the creators themselves. At first unthinkable, even disjunctive, are postulates that antithetical factors co-exist or operate together, or that something that has existed or was known previously continues to operate together with its diametric opposite. Also, one pole or portion of an opposite or set of opposites may up to then have been in conscious focus while others have been dimly held at the periphery. Conscious positing of the simultaneous validity of these opposites may become a sudden and enthralling experience, producing a sense that is sometimes described as 'something coming out of the blue.' With respect to newness, the simultaneity of opposition is a phenomenon experienced as being out of time. As it is out of time, or out of temporal succession, it appears as discontinuous with previous factors and therefore new.

Distinct cognitive abilities and proclivities are involved in the Janusian process and emotional underpinnings interlock with these. When emotional involvement involves meaningful conflict, it especially jibes with the cognitive tendency in the Janusian process to focus on opposites and antitheses and bring these together simultaneously. The simultaneous opposition and antithesis with its retained conflict among composing elements is isomorphic with emotional conflicts in all types of creators.

In the third phase of the homospacial and sepconic articulation processes, creators bring together the functionally or structurally similar elements. In the homospacial process, they are superimposed or interposed in the same mental space; in the sepconic articulation process they continue to be separate identities while they are connected. Creators bring together these entities because they conceive that they ought to be together. The conception deviates from previously known composite structures in similar fashion to the types of deviations of the Janusian process. There are several reasons for this conscious act of volition, many of which are emotionally driven and may be unique to the particular thinker.

In the fourth phase, both the homospacial and sepconic articulation processes lead individually to partial or complete integrations. Also, they operate together with the Janusian process, modifying it and integrating the simultaneous opposites into the full dimensions of the artwork, theory or discovery. Stepwise logical and synthesizing mental processes operate in this phase as well. Not to be minimized in any way, specific skills are critically important, such as, in science, high intellect and intelligence, observational and deductive capacities, and knowledgeable attention to canons of empirical validation. In art, music, and literature, high level skills with language, sound and pictorial relationships are necessary to produce the fully developed aesthetic product. Other specific skills are necessary for creativity in various other fields.

Aspects of both Janusian and homospacial processes have features in common with sepconic articulation. Opposites and antitheses in the Janusian process are both separated and connected when simultaneously posited. In the homospacial process, discrete separate entities become connected within the same space. Sepconic articulation is used conjunctively throughout all phases of the creative process, interacting and interlocking with the various phases of both Janusian and homospacial operations. Creators use it independently primarily in the fourth phase construction of the completed work. Overall, the sepconic articulation process has a biphasic configuration. In the early aspect, the person who is motivated or 'inspired' to create takes in emotionally laden stimuli, experiences, and concepts. Analogous with the literal meaning of the term inspiration in breathing or respiration, the taken-in contents are, like elements in inspired air, modified and mentally interact both consciously and unconsciously. Not simply expelled or expired, through such postulated mechanisms as unconscious breakthrough or as catharsis, the elements are sepconically and consciously articulated. Similar to the everyday creation of human utterance in which inspired air is articulated by the voice apparatus and the brain to construct words and language, the sepconic articulation process modifies initially taken-in inspirations in an extended final phase.

*See also:* James Joyce 1882–1941.

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