Imaginary numbers "*i* " in Arts

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Location: Kao Yuan Art Center, Kaohsiung
Curator: Hsu Su-chen
Artists: Channel A, SoiiZen Art Lab, Wang Hsiu-ju, Lin U-sheng,
Lin Pey-chwen , Lo Wa-yi, Liu Shih-fen

The Para-Paradoxical Relationship between Mathematics and Art: Before Embracing and Abandoning

By Hsu Su-Chen

The publication of the article "Transgressing the Boundaries: Toward a Transformative Hermeneutics of Quantum Gravity"[1] in the May 1996 issue of the prominent cultural research journal *Social Text* ignited a noisy "Science War." Quantum physicist Alan Sokal of New York University After the article was published, Sokal immediately announced that the article was a fraud, and that in it he had deliberately written about links between post-modernism and contemporary science that the editors would find plausible, but that in fact were purposely laden with elementary scientific errors. The article concluded with the statement: "Thus, a liberatory science cannot be complete without a profound revision of the canon of mathematics."

1.

A rhetorical battle engulfed scientists and post-modernist thinkers soon after this incident. From the point of view of science, Alan Sokal and Jean Bricmont asserted in their 1997 book *Fashionable Nonsense*[2] that post-modernist thinkers abuse science and use scientific terminology indiscriminately. Jacques Derrida responded in the article Sokal and "Jean Bricmont Aren't Serious"[3] with ways that scientific concepts have great metaphorical importance in other fields. Perhaps the most interesting aspect about this war of words[4] is the phenomena that it reveals. Another issue worthy of thought is how this controversy played out in contemporary art, which has drawn on large amounts of post-modernist thinking. What clues can we find in art?

Is contemporary art, which draws on so many other fields, really "fashionable nonsense" or like the emperor who doesn't know he is wearing no clothes? Or can art use ideas from other areas to induce sensory awareness? The key difference here is encapsulated by Sokal's words: "When a thinker changes incomprehensibility into an advantage of a theory, obscurity, metaphor, or puns have taken the place of evidence

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[2] "*Fashionable Nonsense,*" by Alan Sokal and Jean Bricmont. First published in French by Éditions Odile Jacob, October 1997.
[3] "*Sokal et Bricmont ne sont pas sérieux,*" by Jacques Derrida (*Le Monde*, 20 November 1997).
[4] Relevant articles concerning this "Science War" can be found on the New York University Physics Department website: http://www.physics.nyu.edu/faculty/sokal/#papers

and logic." What Sokal is attacking is something that many artists see as an important value. This is a reality of art that cannot be obscured. As an example, imaginary numbers were invented to serve as the roots of negative numbers as early as the 17th century. Since that time imaginary numbers have produced creative inspiration to many writers. For instance, in the short story *The Imaginary* (1942) by Isaac Asimov, the strange psychologist Tan Porus uses equations involving imaginary numbers to explain the behavior and psychology of a mysterious squid species. Furthermore, *Imaginary Numbers: An Anthology of Marvelous Mathematical Stories, Diversions, Poems, and Musings* (2000) contained many works concerning imaginary numbers. In the contemporary best-selling novel the *Da Vinci Code*, the leading character Robert Langdon sarcastically tells Sophie Neveu, " No more false than that of a mathematical cryptographer who believes in the imaginary number 'i' because it helps her break codes."

Neither positive nor negative, imaginary numbers were once unsettling even for mathematicians, who therefore decided to assign these numbers the special symbol *i* (imaginary). Even though it was obviously then thought that these numbers could not exist, we can now find them along the axes of the complex number plane, and, what's more, can apply them to all kinds of tangible applications in science and other related fields; for example, imaginary numbers are widely used in electromagnetism, quantum dynamics, and cartography. Farther afield, imaginary numbers are even applied in non-linguistic psychology.

After having started out from the imagination, this concept, in its application to real networks, possesses great powers of communication when used in art. Our everyday experiences have shaped the architecture of our brain and nerves, and our habits of thought and action make it hard for us to detach ourselves from everyday phenomena. The concept of imaginary numbers can seemingly provide us with a portrait that closely approaches the artistic state. This isn't meant to be another salvo in the Science War, but rather a continued attempt at communication and dialog. In any case, there is no doubt that science (mathematics) will remain entangled with creative and artistic thinking. We are therefore trying to see what kind of art artists produce when we pose the topic of the imaginary number i at an art space at a university specializing in science and technology. This is not simply an exposition of the synthesis/antithesis of rationality and perception; instead, it is, first, an exhibition of an old scientific concept, and of how artists can use their transcendent interpretations of this concept to perform unusual connection and communication.

2.

In this seven-artist exhibition, Channel A led by Hongjohn Lin contributed " Iha Formosa: On Language." This work uses fraudulent information from the fabulous An Historical and Geographical Description of Formosa (1704) by the British missionary George Psalmanaazaar, and brings Psalmanaazaar back to life in contemporary Taiwan, where he is the director of a foreign language school. A series of real literary and artistic hypotheses are unclear; fabrication, imagining, fiction, and truth and falsehood mixed together: Are these the characteristics of a novel (or of a work of art)? Or is the distinction between truth and falsehood no longer so important? Perhaps the truly important thing is understanding these symbols and metaphors reflecting history and culture, because they portray the historical truth of a powerful culture exerting invisible violence against a weak culture

Explanations are boundless and endless. They have their own inherent value; one explanation is never more true or false than another explanation. Whether we see a myth explained in its mythical context, or whether the myth is explained in a historical context, we are able to understand many obscure matters much better when there is not any surprising difference. Wang Hsiu-ju's work "Invisible Chance" employs a story inspired by the "The Hanged Man" tarot card, and uses these mysterious legend-steeped symbolic images--which are systematized Western religious elements--to get people to think about a dialog between Robert Langdon and Sophie Neveu: "…all of the world's beliefs are founded on fabricated lies. This is the definition of belief." What will we believe in? What these symbols and symbol systems express are creations of people and their spirits'; this is the real subject.

The pictures in Liu Shih-fen's work "Encapsulation of Earth" are by no means direct metaphors for history and culture. Rather, they are finely-drawn pencil sketches created by the artist while imitating the posture of a yolk sac, combined with pictures of hallucinogenic and therapeutic plants. The work's intention is to portray the spiritual state experienced by people facing confrontational magical illusion. Lo Wa-yi's "In My In It" expresses consciousness under anesthesia, exaggerated odor of bleach, the many sounds of a deformed surgical room, and fragmentary graphical memories of life. It is like a dream journey in a darkroom, and reveals an anesthesia that cannot be described in written words while in a conscious state. The dazed quality of the work brings to mind the main character of Wim Wenders' road movie "Twelve Miles to Trona"; the scenes viewed by this character after he eats poisoned biscuits could not be encountered while in an ordinary conscious state.

Lin U-sheng's works "Trace" and "Aspect" create a new scenic sensory mode in digital frames. The artist has used an animation-like montage effect to create a collage of familiar scenery. In this form of image manipulation and conceptual expression, the image space is composed of discontinuous slices of time. This discards our long-held familiarity with images. In fact this image mode is our persistent recognition of scenes, and precedes the scenes themselves. The image scenes in Soiizen Art Lab's work "Flow" consist of blurry news pictures that flow by on the network. Viewers can use a light source to capture clear news pictures and voice reports from the real-time information field. The simulated news reports are in fact floating on the cyberspace information flow, and are digitally converted into new combinations of information topics. This strange noise screened from the incessant chatter of new media has become a perceptual field with which we are increasingly familiar. Tricia Lin Pey-chwen's work "Virtual Creation" puts viewers in a surreal digital marine quasi-ecology. Viewers can draw new species of butterfly with their fingers, and the computer serves as a creative search engine providing the satisfying thrill of creating new organisms. Perhaps the most interesting thing about this work, however, is that the new species of butterfly seem to be flying in a vacuum-like sea, and the marine ecology still continues to exist without any change. This work presents the ambiguous state of the new media or biotechnology age.

3.

The fictional entity of imaginary numbers was invented by mathematicians to assist them in their mathematical operations. Imaginary numbers are not anything at all outside the linguistic context of the equations they are used in. Because imaginary

numbers are nominal linguistic constructions, and are products of language, their true meaning does not lie in scientists' understanding of them, but rather in their inherent unceasing conceptual creation. The possibility of forming these concepts transcends what we are able to control. People organize their activities via customs, beliefs, systems, traditions, and education, and change their activities via art, invention, and error. Taken as an aesthetic concept, "imaginary numbers" encompasses (or blurs) illusion and reality, and expresses infinitely many possibilities.

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