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Newton's Third Law in Karmic Warfare

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Abstract

A work entitled "Newton's Third Law in Karmic Warfare" is a mathematical visual poem which is a perfect example of a technique, that I call The Paradigm Poem. This piece makes a direct connection with the concept of *karma* and *Newton's Third Law of motion.* I will introduce the concept of "The Mathematical Paradigm Poem" to illuminate an example of how metaphor is used in mathematical visual poetry. I will also discuss much of the process in making this aesthetic expression.

Author/Artist Bio

Kaz Maslanka In 1980 Kaz Maslanka received his BFA in Sculpture from Wichita State University where he also studied music, mathematics and physics. He has been involved in the arts for more than 35 years and has been pioneering mathematical poetry since the early 1980's. He has a strong international presence not only on his blog "Mathematical Poetry" but also with exhibitions of his work. He currently lives in San Diego California and works as an artist as well as an aerospace engineering consultant for a technology company where he leads a group of engineers creating leading edge computer modeling techniques for aerospace manufacturing. He is on the board of directors for the San Diego based "Sonic Arts Studio" a group of composers and musicians devoted to the development and proliferation of microtonal music. He also serves on the advisory board of the Bronowski Art and Science Forum in Del Mar, California.

Keywords

Mathematical poetry, metaphor, visual poetry

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Mathematical Visual Poetry

As a mathematical visual poet, my interest in correlating experience through language spawned my desire to study mathematics and physics. Over the last 34 years I have been pursuing my interest in using mathematics as a language for poetry. Mixing poetics in the structure of mathematics equations as well as visual poetry/art enables me to blend the aesthetics of art, poetry, science and mathematics. With phrases embedded in the mathematics equations, one can construct relationships between those phrases that can bring a linguistic richness to subjects that normally not use mathematics as a language, e.g. political, cultural, spiritual, etc. Most of my work from the last seven years are expressions inspired by my practice of Korean Seon (Zen).

The Paradigm Poem

The "Paradigm Poem" is a mathematical poetry technique whereby a poetic expression borrows its structure from an existing equation of scientific or cultural significance. The "Paradigm Poem" has a plethora of versions (or types) which are as numerous as there are categories for applied mathematics. Examples that we can consider are: "Physics Paradigm Poem", "Chemistry Paradigm Poem", "Business Accounting Paradigm Poem", "Psychophysical Paradigm Poem" etc. All of them borrowing equations from their respective fields. If we think in terms of metaphor using the cognitive scientific language of George Lakoff then we would

classify the language of the variables *inside the equation structure* as the metaphor's "target domain" and the context or traditional meaning of the equation as the "source domain".

Let me show an example of a "Physics Paradigm Poem" using Newton's second law of motion. For this example I am going to use an excerpt from my essay on "Polyaesthetics and Mathematical Poetry" taken from the "Journal of Mathematics and the Arts." The bottom line concerning the 'paradigm poem' is that we borrow an equation from the past which inherently contains historical significance and serves as a paradigm or mathematical model that seems "a vessel" to carry the mathematical poem. The paradigm poem always borrows an existing mathematical structure to serve as a source domain in our metaphor" (Maślanka, 2007).

My personal view is that almost all mathematic applications rely on using equations with the intent similar to simile. The variables in the equation are compared explicitly with the result for uses in denotation. For example, in the case of an application of Newton's second law $F = ma$, or Force equals Mass times Acceleration, we are comparing the variables m (Mass) and a (Acceleration) explicitly to F (Force). I can now make a mathematical poem based on the latter example by expressing the 'Force' of 'yesterday's freedom' as being equal to the 'mass' of 'a lush clover patch' multiplied by "acceleration" of 'the swelling sweet summer breeze traversing the morning'(Figure 1.). We can then put this in the form of a mathematical equation as; Yesterday's freedom = (a lush clover patch) (the swelling sweet summer breeze traversing the morning). In other words, I map the Force to 'Yesterday's freedom', the mass to 'a lush clover patch', and we accelerated the mass by 'the swelling sweet summer breeze traversing the morning'. All of these phrases relate back to the original equation from physics $F = ma$. I want to emphasize that I was very careful when I made my choice for acceleration so that the phrase is evocative of the mathematical description of acceleration as defined by physics. Acceleration is

the change in velocity of an object per unit of elapsed time during that acceleration. Here, the change in velocity is implied by *swelling* and the change in time is implied by *traversing.* In the above example we are using the words, 'Yesterday's freedom; a lush clover patch; the swelling sweet summer breeze traversing the morning' as the variables of the equations which supply us with the target domain and then we are using the equation from physics F = ma, its scientific meaning and historical significance as the source domain. The bottom line concerning the 'paradigm poem' is that we borrow an equation from the past which inherently contains historical significance and serves as a paradigm or mathematical model that seems to be *a vessel* to carry the mathematical poem. The paradigm poem always borrows an existing mathematical structure to serve as a source domain in our metaphor." function is to allow us to reason about relatively abstract domains using the inferential structure of relatively concrete domains" (Maślanka, 2007).

$$F = ma$$

Force (mass) multiplied by (acceleration)

$$\text{Yesterday's Freedom} = \left(\text{A Lush Clover Patch} \right)\left(\begin{array}{l}\text{The Swelling Sweet} \\ \text{Summer Breeze} \\ \text{Traversing The Morning}\end{array} \right)$$

Figure 1: *Equation from Yesterday's Freedom.*

To illuminate how the nomenclature works for analyzing conceptual metaphor, Lakoff and Turner (1939) describe the process as "aspects of one concept, the target, are understood in terms of non-metaphoric aspects of another concept. A metaphor with the name A IS B is a mapping of part of the structure of our knowledge of source domain B onto target domain A". In another words, when we map one domain to the next, we describe it in terms of mapping the 'target domain' to the 'source domain' .Using this nomenclature helps us to see the mechanics of how poems work.
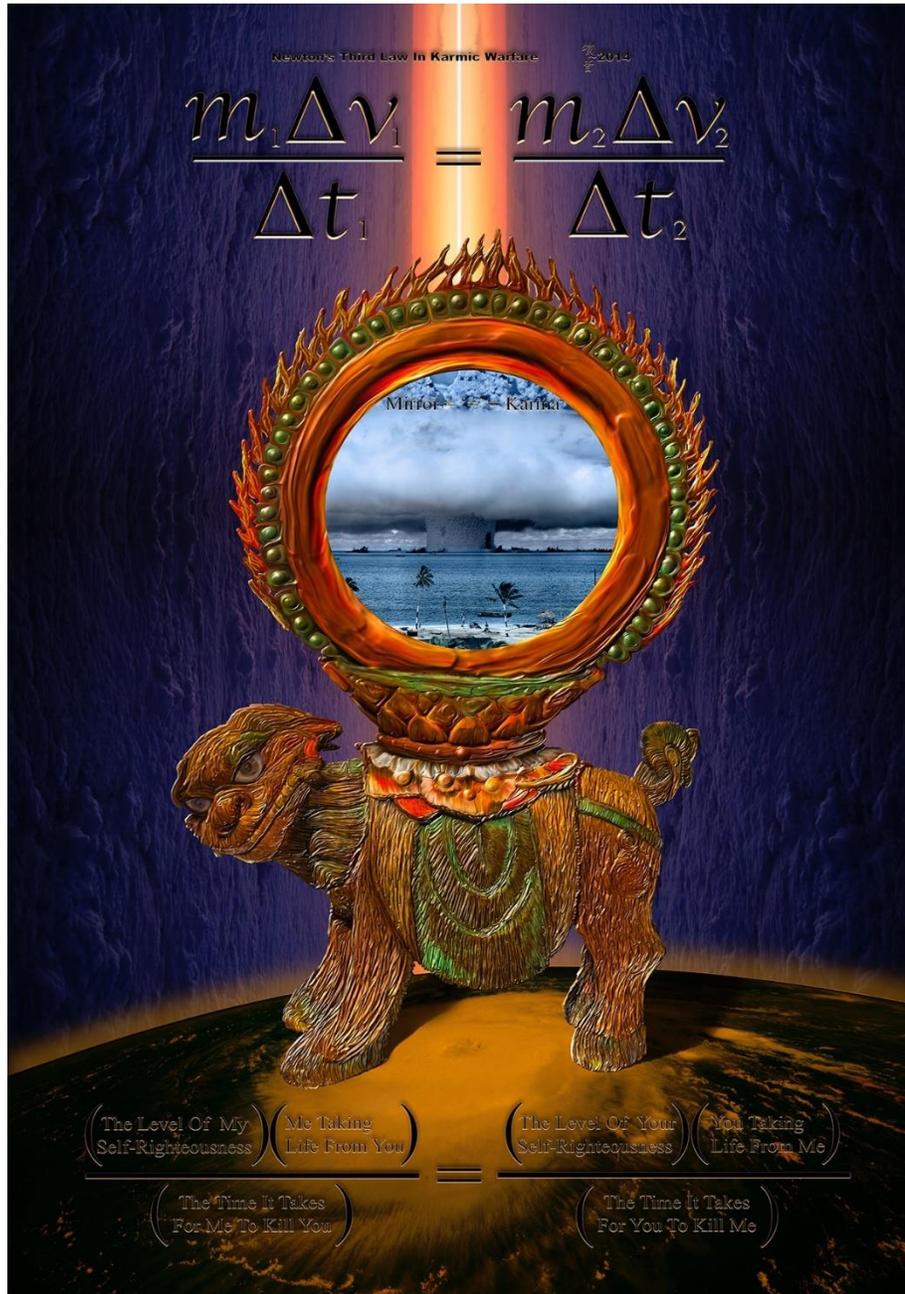
Newton's Third Law in Karmic Warfare

In Figures 2 and 3 there is a poetic expression pointing to a karmic aspect of war. Understanding karmic relationships is how we learn about the dynamics of our actions. These

$$\frac{\left(\begin{array}{c}\text{The Level Of My}\\\text{Self-Righteousness}\end{array}\right)\left(\begin{array}{c}\text{Me Taking}\\\text{Life From You}\end{array}\right)}{\left(\begin{array}{c}\text{The Time It Takes}\\\text{For Me To Kill You}\end{array}\right)} = \frac{\left(\begin{array}{c}\text{The Level Of Your}\\\text{Self-Righteousness}\end{array}\right)\left(\begin{array}{c}\text{You Taking}\\\text{Life From Me}\end{array}\right)}{\left(\begin{array}{c}\text{The Time It Takes}\\\text{For You To Kill Me}\end{array}\right)}$$

Figure 2: *Detail for the Equation from Newton's Third Law in Karmic Warfare.*

dynamics are expressed as poetic concepts mapped into Newton's Third Law of Motion which states that for every action there is an opposite reaction. This is much like the way we describe Karma in our contemporary American culture as in, "What goes around comes around". In the center of the piece is an image of an Asian mythological lion with a *Karma Mirror* on its back. According to some mythologies in the far East, when one dies they first go to a hell that has demons who show the newly deceased all of the Karma that they have accumulated over their life and if the karma is full of bad things then a price has to be paid. We never learn by others

mistakes, we learn by making and assimilating our own. Even in the western mythology, Jesus descended first into hell to provide salvation for the sinners (Bad Karma). So by looking at the mirror we see our own nuclear karma looking back at us.

Figure 3: *Newton's Third Law in Karmic Warfare*

The equation at the top of the piece shows Newton's third law expressing the force of one object striking another object and in its reaction, creating an equal and opposite force. The equation is repeated at the bottom of the piece with the poetic concepts substituted for the mass (m), the acceleration —which can be depicted as a change in velocity (Dv) divided by a change in time (Dt) — The poetic substitutions take place on both sides of the equation. For the mass in the expression; we see that I have a massive ego and express that my mass for this equation is, *the level of my self-righteousness*. For the change in velocity, I map an expression which points to a change in movement, a movement of "life force" and further pointing to the concept of, *me taking life from you*. And for the "change in time concept" for this expression I expound, *the time it takes for me to kill you*. For the equal and opposite reaction in this equation we have the same expressions only they are expounded equally toward me by *you*

The central image of this piece utilizes a digitally painted rendition of a photo that I shot of a karma mirror sculpture created during the Korean Joseon dynasty. This sculpture is part of the permanent collection at the Los Angeles County Museum of Art. I used the photo as a substrate and hand painted the final image digitally using a stylus pen and digital tablet. Inside the karma mirror, I have appropriated a public domain photo from the U.S. government archives showing an image of the atomic detonation at Bikini Atoll. I also appropriated a NASA satellite photo of a hurricane that I modified to depict a hellish planet. The work has many *mirror* concepts embedded in it, one of which is the background. While flying to California from Korea, I shot a photo of a summer sunrise over the Pacific Ocean. I modified the image by rotating it 90 degrees and vertically mirroring it to create a shaft of orange light emanating deep between two curtains of violet clouds and directing energy in the direction of the karma mirror. While working on this piece I had a realization that the mirror is a reflection of image, an equal sign is a

reflection of value, and Karma is a reflection of action. Thus I added a little equation in the

clouds of the Bikini Atol image. It states that the mirror is equal to an equal sign which is equal

to the concept of Karma.

References

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