



Research Paper

Interdisciplinary Deployment of Analogies: A Glance at Science and Literature

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ABSTRACT: *Although the quest for truth in science is almost opposite in nature to that in literature, these two domains of human knowledge often borrow analogies from each other with a view to putting their points conveniently and succinctly. The object of this short paper is to make an exposé of such borrowings and see what they tell us. It becomes clear that scientific analogies in literature and literary analogies in science may be useful at superficial levels but they often run the risk of problematizing the points made.*

KEYWORDS: *analogy, vehicle, tenor, metaphorical use, blindspots/aporia*

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As far as the quest for ‘truth’ or ‘reality’ is concerned, science and literature (or for that matter, the arts in general) follow almost diametrically opposite routes. Science looks for an objective truth while literature appreciates truth subjectively. The Keatsian chiasmic formula ‘Beauty is Truth, Truth Beauty’ does by no means work on the same logical level as Einstein’s $E = mc^2$. Science will object to Shelley’s attribution of blueness to the moss deep submerged in the blue Mediterranean – “all outgrown with azure moss and flowers” (Palgrave, 296), in his famous “Ode to the West Wind”. Rabindranath Tagore, on the other hand, would not accept the reasons given by a man of science for the ruby’s being red and the emerald’s being green in colour. He would instead adamantly claim, as he does in his much recited and quoted poem “I”, that

It’s the tinge of my mind
That makes the emerald green,
And gives the ruby its reddish hue [. . .]

I looked at the rose and said ‘Beauty’ –
And beautiful she became !

(Tagore, 2003: 594, our translation)

Even so, the two fields, despite the disparate nature of their quest, often fall back on each other – one trespassing, so to say, into the other’s garden – for tropes that would conveniently and succinctly epitomize their points. Each, as it were, sometimes needed a ‘vehicle’ from the other’s domain for its own ‘tenor’ (Abrams, 67).

The object of this short paper is to make an exposé of the occasional interdisciplinary exercise that takes place between these two dominant but apparently mutually exclusive domains of human knowledge.

Let us first turn to physics for a couple of examples of its ‘borrowing’ from literature. In what is known as ultra-low temperature physics, laser cooling is a “technique for producing extremely low temperatures using lasers to slow down and trap atoms” (Daintith, 282). In its extremity and further to Doppler cooling, the technique can display what has been termed ‘The Sisyphus effect’ which “involves the use of specially selected laser light, hitting atoms from various angles, effectively ‘rolling’ the atom down a hill of potential energy until it has lost its kinetic energy” (Wikipedia). In other words, “[...] the atom moves through a standing wave created by the laser. As it moves to the top of each ‘hill’ it loses energy and at the top it is optically pumped to a state at the bottom of the valley” (Daintith, 282). In calling the mechanism/event ‘Sisyphus effect’ (or ‘Sisyphus cooling’), physicists are actually making use of a piece of Greek mythology as has Albert Camus philosophically done in his *The Myth of Sisyphus*: “[...] Sisyphus [...] was condemned by the Gods continuously to push a boulder to the top of a hill, only for it to roll back down again when he reached the summit” (ibid.).

The elementary particle ‘quark’, theorized in 1964 and proven in 1968, owes its name to James Joyce’s *Finnegans Wake* with which the scientist who discovered the particle was acquainted. Of course, the line “Three quarks for Muster Mark” (Joyce, 383) chimed well with the need of the science as the number three indicates the way quarks occur in nature.

What is the mathematical term for the number in which there are 100 zeros after 1? It is ‘googol’, and it originated almost out of a caprice that had to do less with science and more with a kind of surrealistic imagination often found in early childhood. Arguably, the phonetics of the word, rather than its semantics, and its attending three ‘o’s fascinated the mathematician. Similarly, the term ‘black hole’ can be traced to the physicist Robert H. Dicke, who in the early 1960s reportedly compared the phenomenon superficially to the ‘Black hole of Calcutta’, the infamous late 18th century prison where people entered but never left alive. Science is here at the door of history for a convenient analogy.

Literature, of course, goes a-begging for analogies from other domains more than science does. Let us first turn to Rabindranath Tagore. In his essay “The Life of Literature”, he is drawing on biology with a view to making a point about what is known as the part-whole relationship:

The first fact in the world of living beings is protoplasm, but the ultimate fact is the human being. Protoplasm is present in man, but man is not present in protoplasm. Now, on one count, protoplasm can be regarded as the protean of life while, on the other man is the model for life.

(Tagore, 1961: 848-9, our translation)

And, again, this is how he is ‘humanizing’ the number zero in his essay titled “Shoonya” [Zero]:

There are some who are nothing but zeros (0) when they stand alone, but become ten (10) as soon as they are connected with one (1) [...]. The great vice of these ‘zeros’ is that they can turn 1 into 10 when followed by 1, but if placed before 1 the rule of decimal reduces the sum to ‘point zero one’.

(Tagore, 1983: 67-89, our translation)

Tagore is not afraid even to borrow from atomic physics – “Vishwatanute, anute, anute, / Kanpe nrityari chaya” (1941, 543) which can be translated as “The shadow of the dance of atoms vibrate in the body of the universe”. The dance of electrons around protons and neutrons captivated Tagore’s romantic mind so much so that he could ask Einstein a question, almost like a trespasser: “Is there any possible way of identifying which electron will fly out of its orbit?” (Mehra, 527). Einstein’s reply of course was categorical: “No, absolutely no [...]. It is entirely unknown” (ibid.). We can easily guess that Tagore was planning to explore metaphorical use of the atomic structure rather than getting into physics proper.

While talking about depersonalization in art, T.S. Eliot, in his essay “Tradition and the Individual Talent”, embarks upon a chemical analogy quite solemnly:

The analogy [is] that of the catalyst. When the two gases [oxygen and sulphur dioxide] are mixed in the presence of a filament of platinum, they form sulphurous acid [...] the newly formed acid contains no trace of platinum, and the platinum itself is apparently unaffected [...]. The mind of the poet is the shred of platinum.

(Eliot, 48)

In spite of the error in Eliot’s ‘Chemistry’ the fact remain that the great 20th century poet had to fall back on chemistry in order to bring his point home!

Matters may become problematized if scientific borrowings are used erroneously. In this respect William Golding’s *Lord of the Flies* is a clear case at hand. The school boys marooned in a desolate island need to send SOS by creating a smoke. As they do not have matches with them, they propose to make a fire by using Piggy’s spectacles as ‘burning glass’ or what is commonly known as magnifying glass:

For the first time on the island, Piggy himself removed his one glass, knelt down and focused the sun on tinder. Soon there was a ceiling of smoke and a bush of yellow flame.

(Golding, 161)

Piggy, however, has myopia as Golding elsewhere categorically says: “[...] Piggy sat expressionless behind the luminous wall of his myopia” (208). To combat myopia, patients need to wear glasses of concave lens which do not converge sun rays to produce heat or fire. Now, every serious reader of *Lord of the Flies* knows that Piggy’s glasses, the fire and the smoke are important tropes in the overall symbolic structure of the novel. This apparently small scientific mistake indeed breaks down the structure of the intended trope. For Golding’s right figurative use of optics, Piggy should have been diagnosed hypermetropia which requires the wearing of glasses of convex lens. Anyway, Golding’s interest in scientific analogies can further be traced in the title of his novel *Free Fall* (1959) as also in the following passage from *The Pyramid* (1967) :

Crypton is inert, they say. But if one teased it sufficiently, a matter of temperature and pressure, a spark gap in sufficiently dense cloud of crypton and another element – one might produce entirely unnatural substances.

(quoted in Tiger, 360)

At superficial levels many of the borrowings by science and literature from each other's domain stand as convenient ways of putting things. But if viewed from the appositeness of figurative representation they may run the risk of falling into blindspots or aporia, as Derrida would call them.

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