



Poetical Mathematics and Mathematical Poetics:

Reflections on the Romanian Poetic Language

1. Introduction

Mathematics and poetry are the extremes of language: if mathematics is, through its density and precision, the supreme form of science, poetry represents “the supreme modality of concentrating and essentializing the language of suggestion”¹. The interplay between the two poles of language, prominent within the Romanian culture since Romanticism, will be examined bearing in mind two aspects:

- a) the lyrical phenomenon as object of scientific language (mathematical poetics);
- b) the scientific phenomenon as object of lyrical language (poetical mathematics).

If considering: the cosmological model of Mihai Eminescu, the humanism of mathematician/poet Dan Barbilian/Ion Barbu, the symbolism of numbers and letters of neo-modern Nichita Stănescu, it becomes noticeable the integrative (and not opposite) nature of Romanian poetic language². For illustrating the chiasmus within this paper’s title, we have selected from the current context of cognitive globalization, two Romanian authors: scholar Solomon Marcus and poet Nichita Stănescu³.

2. “Cold” art and “hot” science

Is communication possible between far-off domains, by means of fundamental, mutually shared concepts? Are there mathematicians that invent and poets that discover?

a) The first affirmative answer was formulated by Ion Barbu, often compared to Omar Khayam. Convinced that “poetry reminds of geometry”, he asserted that: “however contradictory these terms would seem at a first glance, there is, at a certain point, within the high domain of geometry, a bright place where it encounters poetry. [...] As with geometry, I understand poetry as a certain symbology for representing possible forms of existence”⁴. The wedding myth, central in his poetics, symbolizes an unifying principle: the synthesis between intellect and emotion, between mathematical universal reason and Balkan sensuality⁵. Theorist of transdisciplinarity⁶, Basarab Nicolescu demonstrated the profound links between *The Axiomatic Algebra* and *Second Play*, the two masterworks of Dan Barbilian/Ion Barbu.

b) The extremes frame an oximoronic space which privileges Stănescu’s self-reflection: “The angel came and told me: I’ve been watching upon you for hell of a long time for you to become a scientist and up to this point you haven’t invented a thing! I certainly have; I have invented, only that the science I’ve created is so subtle, that at times is mistaken for the natural. It is called hemography, that is writing with yourself”⁷.

If the intersection of mathematics and poetry generates “the restricted polyhedral perfections” of Barbu’s hermetic poetry, in Stănescu’s case mathematics transcends its status as science, turning into an universal, symbolical language. Fascinated by Euclid

and Cantor, Stănescu practiced a “poetical mathematics”, a qualitative one:

“mathematics is not a science. Mathematics is, in some way or another, present in our every act of thinking. Letters are one and the same as cyphers. Mathematics presented in our century as the science of sciences, is actually a religion. The religion of all religions. It is in fact hard poetry. The poetry of poetry’s poetry”⁸.

c) The connections between art and science represent a fundamental topic of Marcus’ thought, based on the hypothesis that the scientific vision and the poetical one share a common aesthetic root. Euclidian geometry displays aesthetic features, the philosophy designed by the pre-Socratic philosophers is poetical, the mathematician is a discoverer as well as an inventor. Being a mathematician or a poet means making analogies. Self referentiality, “narcissism” and freedom are hallmarks of both poetical and mathematical language.

3. Solomon Marcus: *Mathematical Poetics*

Published in 1970, translated in various languages, *Mathematical Poetics* is the first approach of poetical language making use of determinist mathematical methods. Set theory, graphs theory and topology have been used to model: (1) the differences between poetical and scientific language; (2) the figurative propensities of poetic language; (3) the global mathematical model of the dramatic work. Mathematical modelling represents the ineffable of poetics as limit of a series of abstract approximations. The perspective is not an inner one, but an outer one, by relating to the “zero degree” represented by the scientific language in its supreme hypostasis – as mathematical language. The core

dichotomies assume the structuralist hypothesis that the poetic language is a deviant one. The analysis highlights the contrast between the discreet, algebraic structure of scientific significance, and the continuous, topologic structure of lyrical significance. However different they might seem, mathematics and poetry are alike, as both transgress the three principles of Aristotle's binary logics: the principle of identity, of noncontradiction and of the excluded third. Shaded logics, in accordance with the obsession of time's flow, lay the foundations for the disarticulation of concepts in Nichita Stănescu's poetics.

4 Nichita Stănescu: *Poetical Mathematics*

The mathematical substratum present in the poet's work is a psychological, qualitative mathematics, named "poetical mathematics". Concepts such as: *Aleph*, *cube*, *cypher*, *straight line*, *number*, *point*, *sphere* are freely exploited, as a metaphorical basis for the inner reality: "Poetry can be translated neither in notions, nor in cyphers, as it does not bear a mathematical analysis. Paradoxically, poetry is so far-off from mathematics, that it can create a communication space with mathematical thought"⁹.

4.1 Numbers and operations with numbers

The number is one of the most disputed concepts in Stănescu's poetry and theoretical texts. The poet was fascinated during high school by the poetical/philosophical potential of the set theory elaborated by Georg Cantor. The notion of "cardinal number", introduced by the German mathematician is an abstraction, thus ignoring nature. The systematic extension of numbers leads to the transfinite number theory, relevant not only for mathematicians, but also for philosophy and religion. Cantor expressed his faith in the freedom of mathematicians to create concepts separated from physical phenomena: "The

essence of mathematics is its freedom”¹⁰. The Romanian poet’s reply consists in “the reintegration of numbers in their native concreteness”¹¹. The consequence - the suppression of elementary operations with numbers and their replacement with qualitative operations:

“We do know one time one is one, / But one unicorn time a pear /we don’t know what that equals. / We know five minus four is one / but a cloud minus a vessel / we don’t know what that equals. [...] Only you and me / multiplied and divided / added and subtracted / we stay the same...” (*Some other mathematics*); „Noi știm că unu ori unu fac unu, / Dar un inorog ori o pară / nu știm cât face. / Știm că cinci fără patru fac unu / dar un nor fără o corabie / nu știm cât face [...] Numai tu și cu mine / înmulțiți și împărțiți / adunați și scăzuți /rămânem aceiași...” (*Altă matematică*, II, 105-106).

Individuals, not being measurable, the factualness cannot be generalized without it being mutilated. Sensitive to particular hues, the poem *Poetical mathematics* (dedicated to Solomon Marcus), reconverts cyphers in singular, unrepeatable beings, and preserves the peculiarity of entities:

“One plus one is two, / One plus one is three / or four or five.../ A hard one and a soft one / is a hard one and a soft one / or a camel / seventeen minus one / is twenty one, / five plus four / is a horse / eight minus three / is what you desire to be” (the volume *The Greatness of Cold*); „Unu și cu unu fac doi, / Unu și cu unu fac trei / sau patru sau cinci.../ Unu tare și cu unu moale / fac unu tare și cu unu moale / sau o cămilă / șaptesprezece fără unu / fac douăzeci și unu, / cinci și cu patru / fac un cal / opt fără trei / fac cât vrei” (*Măreția frigului*, 90).

In volume *Breathings*, Stănescu dissociates quantitative operations from qualitative ones:

“I loathe the arithmetics I learned because it assumes a truth. The true truth seems to me of a qualitative nature, that is unique, that is thrilling”¹².

4.2 Aleph to the power Aleph

In Cantor’s set theory, the first letter of the Hebrew alphabet designates various transfinite cardinal numbers. Aleph is defined as “power” or as the “cardinal number” of a set of objects. Starting with aleph zero and repeating the operation of raising to power leads to cardinal numbers that are bigger and bigger, without any limitation. The poet intuited in this theorem “a terse expression of exponential escalate with which time assaults us, escalate which surpasses the human dimension of the perception of reality”¹³.

In Hebrew tradition aleph was the esoteric naming of deity; Stănescu updates it also as metaphor of the Great Whole, within which the infinite diversity of phenomena is being compressed¹⁴:

„All of a sudden we saw the triangular eye, / all and alone”; “It is inside. Oh, there is nothing / outside. Everything is inside. / The Cosmos itself does only exist / in its inside” (*Aleph to the power Aleph*); „Deodată văzum ochiul triunghiular, / toți și singur”; „El e înlăuntru. O, nimic nu e / în afară. Totul e înlăuntru. / Însuși Cosmosul nu există decât / înlăuntru său” (*Aleph la puterea Aleph*, I, 313; 315).

Aleph is a symbol of the center, a kind of Delphi, a point of optimal visibility. But the maximum overview of the universe stays a dream, an illusion: “Aleph to the power Aleph / is beyond possibility”; „Aleph la puterea Aleph / nu e cu putință” (I: 316). At the poem’s end, Cantor himself is being invoked, as personifying lucidity and the creative dream:

„All of a sudden Georg Cantor appeared to me / who told me: / - Oh, poor me, three times / poor me. / After/ having given numbers the highest / lucidity / that a number can have, / after having given watchfulness to points, / the highest watchfulness,/ look, now, / myself I can barely / show up in the dream / of somebody sleeping.../ - What, I shouted, am I sleeping? / - Yes, he answered to me, you are!”; „Deodată mi se arată Georg Cantor / care-mi zise: / - Vai mie, de trei ori / vai mie. / După ce-am dat numerelor cea mai înaltă / luciditate / pe care-ar putea s-o aibă un număr, / după ce / am dat trezie punctelor, / cea mai înaltă trezie, / iată, acum, / eu însumi dacă mai pot / să mă arăt în visul / vreunuia care doarme.../ - Cum, strigai, dorm? / - Da, mi-a răspuns, dormi!” (I, 316).

4.3 The Euclidean space and the simultaneous worlds

Nichita Stănescu confessed in *The re-reading book* his appreciation for Euclid – the Greek who, 23 centuries ago, created mathematics. The poem *Scolding Euclid* has as motto this *False quote from Euclid*: “Nothing can occupy the same space at the same time as another thing”. The author of *The Elements* is scolded for having created a safe world, with “unhuman postulates”, a world suffering from the reducibility of geometry. On the sphere on which the poet lives: “Everything’s based on economy, / Maximum of content / minimum of form”; „Totul este bazat pe economie, / Maximum de conținut, / minimum de formă” (I, 339). The poet contradicts the postulate attributed to Euclid, invoking the openness towards the simultaneity of reality: “What about the soul and the body?”; „Dar sufletul și trupul?” (I, 338).

Euclid is counterweighted by Ptolemaeus, representative of the common sense. Under the condition of simultaneity, existential levels do not overlap anymore, but are being placed one along the others, as spheres in a row. The “universe-honeycomb” of simultaneous worlds is owed to the principle of individualization: “the entire cycle *Scolding Euclid* is an escape from the Euclidean space, spherical and economical, into parallel spaces”¹⁵. Simultaneous worlds are arrangements in space of the succession in time. Every thing exists as a row of doubles in parallel spaces:

„I can’t believe the leaf is green and only that. / In the simultaneous world it is *ahov* / and in the other simultaneous world it is *sirip* / and in the other world it is

ep / in the other *up* / and in all the others it is as it is / in order for it to gather along with all the others / and give birth to a sphere”; „Nu pot să cred că frunza e verde și atât. / În lumea simultană ea este *ahov* / și-n cealaltă lume simultană ea este *sirip* / și-n cealaltă lume este *ep* / în cealaltă *up* / și-n toate celelalte este cum este / ca să se adune, cu toate la un loc / și să nască o sferă” (I, 340).

4.4 The symbolism of numerical oppositions: 0 vs. 1 vs. multiple

Isomorphic to cypher **zero**, Stănescu’s cosmic egg is an image of primitive wholeness, a microcenter in which the archetypes of a future universe are snoozing. Within the poetic arithmology, the egg is a divine chronotop, a self-sufficient cosmogonic deity, and a symbol of the onirical unconscious: “Before, there was absolutely nothing. / Suddenly, the nothing fell asleep, / and began dreaming. / Thus cypher zero was born. / The nothing dreamt of cypher zero” (*Confession of the evil dreamer*); „Înainte, nu a fost absolut nimic. / Deodată nimicul a adormit / și a început să viseze. /Astfel s-a născut cifra zero. / Nimicul a visat cifra zero” (*Confesiunea răului visător*, 77). Detached from the chaos’ darkness, the cypher zero generates the first cosmical dimension: the **point** or **One**: “Numbers are points’ names. / They are the names of the tiniest beings / The points. // That’s why they can be the names of all things, / as all things are made of points” (*Aleph to the power Aleph*); „Numerele sunt numele punctelor. / Ele sunt numele celor mai mici existențe, / Punctele. // De aceea ele pot fi numele tuturor lucrurilor, / căci toate lucrurile sunt făcute din puncte” (*Aleph la puterea Alep*, I, 315).

The identification of cypher 1 with “the first born” separates this symbolical number from the rest of the cyphers. The indivisibility of cypher 1, as suffering of the unity, has as analogous the solitude of mankind: “I’m suffering from number one / because it cannot divide itself anymore” (*The tenth elegy*); „De numărul unu sunt bolnav / că nu se mai poate împarte” (*Elegia a zecea*, I, 198). Being’s solitude can only be lost through the reintegration in the general existential cycle: “There’s only one big life, / even cypher one belongs to it” (*Metamorphoses*); „Există o singură viață mare, / chiar și cifra unu face parte din ea” (*Metamorfozele*, II,142).

Two symbolizes the double - the couple, the eye’s pair: “and your eyes, as two green spiders”; „și ochii tăi, ca doi păianjeni verzi” (*Joc de unu*, I, 93), the binary opposition: “And two feelings were crushing inside of me / one coming on a horseback / the other carried on palanquins (*Upper move*); „Și se loveau în mine două sentimente, / unul venind călare, celălalt purtat în lectici” (*Mișcare în sus*, I, 115).

Three is the symbol of enunciation: “My word turned into three” (*Song*); “Cuvântul meu s-a făcut trei” (*Cântec*, II: 172), **four** is the even number, **five** and **six** – divisions of the number **eleven** “I’m crying in front of cypher five / the Last Supper / with no six / I’m kissed by who kisses me / I stay with you, eleven (*Ritual*); „plâng în fața cifrei cinci - / cina cea de taină fără șase. // Mă sărută cine mă sărută. / Eu rămân cu voi cei unsprezece” (*Ritual*, II, 66). **Seven** signifies: “destiny”, “poetic work”: “My song turned into seven” (*Song*); „Cântecul meu s-a făcut șapte” (*Cântec*, II: 172), and “the cyclical migration”:

“Sovereignty suffers from seven / Like the wheel suffers from seven” (*The Triumph*);
„Suveranitatea suferă de șapte / cum e roata care suferă de șapte” (*Triumful*, II, 226).

Like Pythagorean numbers, Stănescu’s cyphers symbolize essences, the cosmogony being represented by a mathematical row. However, the symbolism of cyphers is nothing but a poetical convention. Amplified at the level of the poetical system, the paradigm of cyphers is reducible to the formula: *[chaos] vs. 0 [the nothingness] vs. 1 [the creation] vs. 2 [the pair] vs. 3,4,5,7, 11 [the multiple]*. The recurrence of these cyphers represents a constant which singles out the poetics of Nichita Stănescu. That might be tributary to the fact that: “All existential adventure results from the combination of the cyphers, as if the cypher would represent the number, as if the letter would represent the word”¹⁶.

5. Conclusion

Poets have intuited the mystery gist of scientific theories and their artistic potential, relativizing and prolonging science thus. While mathematician Lewis Carroll questioned the common logic as sole solution in the assignment of meaning, Stănescu praised the common sense, the concreteness, and the relativism of simultaneous worlds. The mathematics-poetry coexistence is not, in his poetry, as peaceful as imagined by his predecessor, Ion Barbu. With a remarkable creativity, Stănescu deconstructed famous mathematic theories, transferring them in a human context, on the spatial-temporal coordinates of the becoming. His poetical mathematics defines itself offensively as a qualitative alternative to quantitative, mathematic cognition.

Emilia Parpală & Rimona Afana

University of Craiova - Faculty of Letters

Craiova, Al. I. Cuza, 13

România

Email: parpala_afana@yahoo.com

Email: rimona.afana@yahoo.com

¹ Solomon, Marcus, *Poetica matematică* (București: Editura Academiei, 1970), 17.

² Eugen, Coșeriu, "Limbajul poetic", *Prelegeri și conferințe* (Iași: 1994), 153.

³ Solomon Marcus - professor of mathematics at the University of Bucharest, poetician, semiotician of international prestige; Nichita Stănescu – poet, Herder Prize winner, nominee of the Nobel Prize for literature in 1980.

⁴ Ion, Barbu, *Poezii* (București: Editura Albatros, 1970), 407.

⁵ Basarab, Nicolescu 1963, *Ion Barbu. Cosmologia „Jocului secund”* (București: Editura pentru Literatură, 1963).

⁶ Idem, *Transdisciplinaritatea. Un manifest* (Iași: Polirom, 1999).

⁷ Nichita Stănescu, *Ordinea cuvintelor. Versuri*, vol I-II (București: Cartea Românească, 1985), 5.

⁸ Idem, *Respirări* (București: Editura Sport-Turism, 1982), 314.

⁹ Idem, *Cartea de recitare* (București: Cartea Românească, 1972), 23.

¹⁰ http://en.wikipedia.org/wiki/Georg_Cantor

¹¹ Solomon Marcus, *Întâlnirea extremelor. Scriitori – în orizontul științei* (Pitești: Editura Paralela 45), 177.

¹² Stănescu, *Respirări*, 176.

¹³ Marcus, *Întâlnirea extremelor*, 180.

¹⁴ Corin Braga, *Nichita Stănescu. Orizontul imaginar* (Sibiu: Editura Imago, 1993), 162.

¹⁵ Idem, 250.

¹⁶ Stănescu, *Respirări*, 306.