Open Peer Commentaries

on Diana Gasparyan's "Semiosis as Eigenform and Observation as Recursive Interpretation"

Creatio Ex Nihilo, or the Emergence of Signs

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> Abstract • In order to capitalize on the self-referentiality of interpretation, as marked by Gasparyan, I suggest considering semiosis – the process of signification – as a systemic consequence of interacting agents with a need to act under uncertainty.

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« 1 » I wholeheartedly subscribe to Diana Gasparyan's view that semiosis, i.e., the process of sign formation, can be understood as the emergence of eigenforms in the sense of Heinz von Foerster (1977). And I agree with her that we humans, as emergent eigenforms in our own right, are epistemologically incapable of understanding the world beyond signs. A little more sweepingly, I would say that our world and our language is a construct from the interaction of interpreters (i.e., observers) who cope with irritations (i.e., currently unmanageable complexities). They do this, as I shall show in the following, by reducing their possibility spaces with symmetry breaks, which then in continued iteration may evolve into signs, i.e., into temporarily stable eigenforms that in a continued interplay of designation and interpretation are put to the test for their potential to reduce complexity.

« 2 » Let me start with a caveat. I am not entirely sure whether I follow Gasparyan in all terminological details of her expositions. Although I consider my background – systems sciences – not infinitely far from linguistic philosophy, I do not feel prepared well enough to fully comprehend all aspects of the argumentation of an analytic philosopher proficient in linguistic semiosis and conceptual argumentation. Therefore, I would like to bring certain aspects of this conception into a picture that is more easily accessible to me. My hope is that this will irritate (in a systemic sense), and at the same time be connectable enough to trigger further attempts of interpretation, in the course of which we – the scientific community – can proceed further on the path towards understanding language. With this motive, I will sketch a small model situation in the following, which, in my opinion, depicts a basic sign-formation process – i.e., semiosis – as I understand it to be described in Gasparyan's target article. I would be interested in whether this model, in all its difference from the original conception, can be endorsed by the author in most of its aspects. Q1

« 3 » The model situation is about the well-known "double contingency" problem of two pedestrians having met head-on on a narrow pathway and thus blocking each other from pursuing their way. Consequently, they have to decide whether to move one step to the right or to the left in order to pass the other. If both move to the same side, both will block each other again. Only if both move to an opposite side on the pathway will a socially viable situation expand (Parsons 1951; Luhmann 1995; Füllsack 2018).

« 4 » In order to generalize and to continuate this situation, imagine such pedestrians as generic agents on a circular path, one moving in one and the other in the other direction, thus meeting each other two times on each circular round (see Figure 1). The robots cannot change direction, but have the option of evading oncoming traffic by stepping either to the right or to the left of the path. Initially, both options, left and right, have the same probabilities. However, assuming that the robots suffer from collisions (or from blocking each other), a penalty is considered for each encounter where both robots step to the same side and thus block each other. This accumulating penalty affects the probabilities of deciding on one of the two evading options. Statistically, only two of the four combinatorial options (both step left; both step right; one steps left, one right; one steps right, one left) end in collisions, implying that the ratio of probabilities should stay the same. Just from chance however, sooner or later an imbalance may accumulate, a symmetry break, which when feeding back on the probability (like in the well-known Pólya-urn model), provides one of the robots with a predisposition to one of the options, which initially, of course, may be very weak. However, since collisions are costly, the other robot will have to react and, in the ensuing interaction, will develop a predisposition in its own right, most probably for the other side, therewith in the long run generating a "convention," for example, to step to the right, when encountering oncoming traffic (see Füllsack 2018).

« 5 » Note that this convention emerges from initial randomness. A socially viable equilibrium – one could call it a sort of "social norm" – emerges not from any complex communicated agreement, but from a kind of bootstrapping *creatio ex nihilo* of interacting entities that try to come to terms with irritations – a variant of the "order from noise" principle (Foerster 1960).

« 6 » Analogously, I suggest, semiosis comes about, albeit on a slightly more complex level of interaction. Signs and their meaning are bootstrapped in iterated interactions of randomly emerging saliences and irritated entities that try to use these salienc-

es to come to terms with their irritations. To see this through and thus to get to the central topic of Gasparyan's article, we need to assume some additional uncertainties plus efficiency aspects in the situation above. These uncertainties may arise from newly arriving robots, for example, who do not know about conventions, but, like the others, are keen to prevent suffering from collisions. One option for them is – as strange as it may sound – to assign meaning to meaningless observables, that is, through interpretation. The robots may just, by chance, for example, have slightly different shapes, some a bit more triangular and the others rather square. In no way do these differences have to be what one would call a meaningful sign. They can be absolutely random features, perhaps from a somewhat sloppy production of the robots. However, as in the convention emergence above, in ongoing iteration a random, and at first perhaps only slight imbalance may accumulate around these features – triangles seem rather to step to the right, squares to the left. And through positive feedback of mutual interpretation and reactions to these interpretations the imbalance could run up to a (temporarily) stable eigenform. As Thomas Schelling's (1960) well-known experiments on focal points show, this may happen to features that are not at all meant as signs. It suffices to stand out just a little from the environment, to have salience, and with this to attract the attention of agents who need to act under uncertainty.

« 7 » Without signifying anything, these features can be "misunderstood" and thus read as a sign. In the course of continued iterated (mis-)interpretations by a multitude of uncertain agents, which, in attempting to come to terms with their irritations can do nothing else but continuously adjust their internal ("onboard") means,[1] a symmetry break may arise – a symmetry break again, with which an initially random feature may stabilize into some kind of temporal regularity, which eventually, through further interpretation and reaction to it, gets meaning assigned.[2] In mutual reinforcement of meaning, the initially random feature may eventually emerge as a sign: "yes definitely, triangles step to the right, squares to the left" (Figure 2).

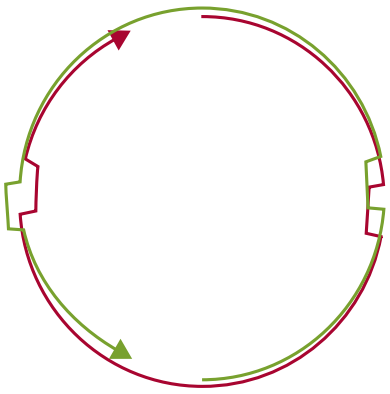

Figure 1 • Circularly moving agents (arrows) after two encounters, one on the right, where both tried to evade to the same side and thus collided, and one on the left, where evasion worked out and no collision occurred.

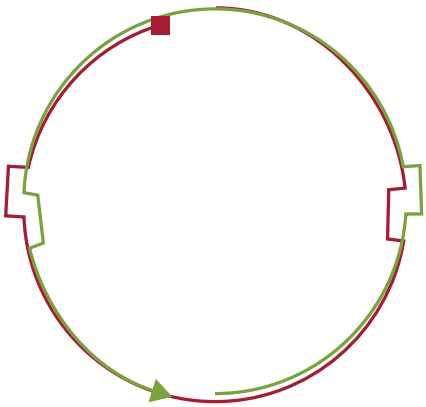

Figure 2 • Circularly moving agents (triangle and square), who found an agreement of interpreting shape as a sign for evasion direction, and consequently avoid collisions.

« 8 » In this way, I understand it, when Gasparyan (§52) writes that "semiosis is an eigenform that creates the world in itself and through itself." And that "by means of enclosure of interpretations into one another we move toward understanding." I hope that my interpretation of her article provides a sufficiently connectable irritation for her and for others to proceed with interpretations and thus to further progress towards a better understanding of how our language and our world come about.

References

Foerster H. von (1960) On self-organizing systems and their environments. In: Yovits M. C. & Cameron S. (eds.) Self-organizing systems. Pergamon Press, London: 31–50. ▸ https://cepa.info/1593

Foerster H. von (1976) Objects: Tokens for (eigen-)behaviors. ASC Cybernetics Forum 8(3–4): 91–96. ▸ https://cepa.info/1270

Füllsack M. (2012) Communication emerging? On simulating structural coupling in multiple contingency. Constructivist Foundations 8(1): 103–110. ▸ https://constructivist.info/8/1/103

Füllsack M. (2018) Plasticity, granularity and multiple contingency: Essentials for conceiving an artificial constructivist agent. Constructivist Foundations 13(2): 282–291. ▸ https://constructivist.info/13/2/282

Luhmann N. (1995) Social systems. Stanford University Press, Stanford. German original published in 1984.

Parsons T. (1951) The social system. Free Press, Glencoe IL.

Schelling T. C. (1960) The strategy of conflict. First edition. Harvard University Press, Cambridge.

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1| See my discussion in Füllsack (2012).

2| This amounts to a sort of irrefutable argumentation. Even if I completely misunderstood Gasparyan's article, this understanding of semiosis would imply room for hope for an eventually productive debate. Such is science, I suppose, an ongoing interpretation of misunderstandings rather than understandings.