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"The Possible And The Actual" Endeavour(s) Through Dynamic And Semiotic Model Of Meaning

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In spite of achieving a great and very significant deal of work by elaborating a field and a dynamic model of meaning, the paper of Salvatore & Venuleo (2013) solicits some remarks; on the one hand, they are about the potential (but not yet achieved) contributions of the model to the social representations field of studies, especially understanding semiotically the "meaning of meaning" process; on the other hand, they are about the link between its data analysis framework (Geometric Data Analysis) and some epistemological considerations (logic of discovery). Some recommendations and orientations are discussed.

Keywords: Geometrical data analysis, Logic of discovery, Situated sensemaking, Illustrative variables, Abductive reasoning**.**

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Before starting, I would like to briefly embed the origin of this title [The Possible and the Actual[1]], stemming from one of Bergson's conference (1930)[2], since in many respects some of its insights are echoed in the model presented by Salvatore & Venuleo (2013): 1) modeling sense-making between the possible meaning and the actual one (an allusion to the saussurian dyad *langue* vs. *parole*); 2) the undeniable, but not explicitly and directly addressed, potential contribution to Social Representations Field (SRF); 3) possible/actual methodological contributions to the logic of discovery in human and social sciences; 4) possible/actual convergence between discourse analysis and SRF (De Rosa, 2006). However, this short comment will not do justice to all these points.

Reading and commenting Salvatore & Venuleo's paper (2013) who thoroughly develop a richly elaborated model of sense-making has been a stimulating experience even if in some respects I slightly disagree on specific theoretical, epistemological and technical aspects. In the following commentary, divided into two main sections – the relevance of the model to the SRF and its relation to the Geometric Data Analysis (GDA) – agreements and disagreements will be interconnected.

DSMM AND SOCIAL REPRESENTATIONS FIELD

Most probably, the Dynamic and Semiotic Model of Meaning (DSMM) pertains to the so-called narrative approaches (De Rosa, 2012) within the SRF; more specifically, it falls under the semiotic mediational approaches (Valsiner & Rosa, 2007).

Up to now, several attempts (see Grize, 1993; Potter & Edwards, 1999; Van Dijk, 1990) from associated fields (rhetoric/argumentation, discourse analysis, discursive psychology, etc.) have been carried out to examine the relationship between discourse/language use and social representations [SR]. However, except for the differences observed on the methodological and epistemological levels, these attempts have received scarce attention and were not integrated into the SRF. Even if the paper of Salvatore & Venuleo results in a thin integration in what already exists in the SRF (merely some references to Abric, Codol, Lahlou, etc.), to my opinion the

[1] "Actual" is the nearest translation I found for what *"réel*" stands for in Bergson' work, i.e. very realizable but not yet realized.
[2] Bergson, H. (2011) [1930]. *Le possible et le réel*. Paris: Presses universitaires de France.

DSMM may give rise to promising future contributions to this field due to its epistemological foundations, i.e. idiographic science, and more thoroughly to the richness and cohesion of its theoretical elements, i.e. temporality of semiotic process and micro/macro levels of meaning. Henceforth, this model provides a generic semiotic formalism for describing the evolution of the relations between SR's signs (or following Codol (1969) "cognèmes") that is more sophisticated than the versions proposed by the cognitivist approach (Fodor, 1981; 1994), where meaning is instituted exclusively on a referential or mentalist form. Although the effort to integrate Peirce, Saussure and Wittgenstein is always very tempting, this rarely ends up in an operative product for empirical sciences. Yet, I believe that DSMM constitutes an excellent synthesis of some of these works, namely Peirce (abduction, micro/ macro levels of meaning, object/ representamen/ interpretamen) and Saussure (*in absentia* / *in presentia*, *langue* vs *parole*, syntagmatic and paradigmatic dimensions) – in addition to offering specific methodological implications, and as such is a valuable contribution to a scientific community/debate because this latter aspect provides means of refutability . Of course, as we will see later, to reach this synthesis, it requires some (over)use of analogies, metaphorical images, and farfetched examples.

Still, with its generic and specific scope (situativity of sensemaking) DSMM can be useful not only to narrative approaches but also to the structural approach (Abric, 1994) and even to the socio-dynamic one (Doise, 2005). Discussing only these last two approaches, it has to be recognized that, besides the anchoring process in SRT - a concept more exploited by the Geneva School model – both of them lack of a genuine and comprehensive semiotic framework[3]. Regarding the structural approach, when one gets down to the task of describing the organization of a SR, it often happens that the interpretation (i.e. sense-making) of elements proceeds "cognème by cognème", as if a cognème by itself was normative, descriptive or otherwise, while the notion of structure necessarily implies that no sole cognème has a meaning (Lahlou & Abric, 2011). Of course, the DSMM does not provide a predefined model (e.g. core v/s periphery), but at least permits to understand that meaning of an element depends on its association with other elements within a specific semiotic background. Moreover, the temporal (dynamic) dimension of DMSS permits to study the semiotic transformation of meaning in a SR structure, and thus

[3] The dyad of system and metasystem used by Doise and derived from Moscovici, is also excluded because it can also be applied to non-semiotic phenomena.

enriches the analysis by going beyond the sole nature, behavior or belongingness of each element to the SR core or periphery. As to the socio-dynamic approach, where the use of principal axes techniques is quasi-canonical (Doise, Clémence, & Lorenzi-Cioldi, 1992) to establish organizing principles (i.e. technically, the principal axes), the tenets of DSMM, inspired by Andersen (2001), can add a semiotic dimension to the interpretation of the relations between the principal axes:

> *"the first dimensions are the ones associated with generalised components of sense. This is so because the more generalized component is, the more it spreads to the field of experience and therefore is able to affect (to polarize) the whole set of signs involved" (p. 39)*[4].

Thus, using the DMSS, analysts can enrich their interpretations by relying on a kind of "internal semiotic process" of anchoring, namely the SIA/SIP[5] and on its background/foreground inter-signs relations, beyond the mere recognition/misrecognition logic[6] (Doise, 1990; Viaud, 2000).
Speaking of anchoringand recognition/misrecognition logic, it seems to me that the model proposed by Salvatore & Venuleo fails to fully account for the social and relational nature of social representing – the social thinking dimension – a meta-individual level at the very heart of SR studies, which tries to conceptualize the interface between individual and collective phenomena. In fact, social representations, unlike shared beliefs or cultural models, emerge and change through controversies and conflicts, yet the DSMM, a part of the reference to the all-encompassing *situativity of sensemaking,* does not seem to take into account these specific interactive socio-historical utterings. It seems as if all happens in a semiotic realm where it is always a matter of possible scenarios, i.e. "a meaningful unit of subjective experience of the

[4] All quotations in the text are from the paper of Salvatore & Venuleo (2013). Therefore, to ease the reading of the text, I will not mention the source, only the pages.
[5] Significance in Presentia (SIP) and Significance in Absentia (SIA)
[6] As Viaud specifies that "anchoring is based on a recognition/misrecognition logic that causes to guide both perceptions and evaluations of our environment and, at the same time, according to which the representations clearly indicate the place of those who express them in the system of positions involved in the field [bourdieu's meaning]. However, the knowledge that provide social representations is also marked by ignorance or misrecognition, ignorance of the principle by which knowledge is expressed and ignorance of the social order that is immanent and guide perceptions" (Author's translation) (Viaud, 2000, p.99).

world" (p.10). In other words, it seems that anchoring (or symbolic coping to Wagner) remains an internal process: "meaning is inherently local, consisting of the ongoing shape of the trajectory of signs - more precisely, of the ongoing backward transformation of the semiotic landscape produced by the incoming sign" (p.18). In such a perspective, no wonder that the Authors bring culture to be the "redundancy of the symbolic environment" (p.18). Alternatively, recognition/misrecognition logic entail a psycho-socially dialogical process that would go beyond the aggregation viewpoint that I could grasp in the DSMM[7]. Hence, despite the Authors' emphasis on the fact that sense-making is not only a matter of progressive constraints, dialogical assumptions of this approach are still to be explained since the Authors tend more to remain in a position of not misinterpreting them rather than elucidating such an issue.

DSMM AND GEOMETRIC DATA ANALYSIS (GDA): THEORETICAL AND EPISTEMOLOGICAL INTERROGATIONS.

Most of the illustrations, examples and data analysis implementations in Salvatore & Venuleo's paper refer in some way or another to the geometric data analysis[8] (see Fénelon, 1981; Le Roux & Rouanet, 2004; Lebart, Piron, & Morineau, 2006) a set of techniques that are mainly derived from the School of Jean-Paul Benzécri (1992), whose famous witticism "the model must follow the data and not the opposite!" is still being discussed (in e.g. Bressoux, 2008). Since the time this School exists and struggles to assert its methodological legitimacy within highly rated English-speaking journals, there has been very little effort, like the one presented in the Authors' paper, to avow such a legitimacy through epistemological arguments. Indeed, Salvatore & Venuleo mainly refer to 1) the reduction of the dimensionality as a metaphor for meaning emergence and representation 2) the "thematic analysis of elementary contexts" for most pattern-matching illustrations; 3) the opposition of active/illustrative variables for adductive inferences. I will sketch few observations on these three components according to the semantics of the DSMM and of its epistemological implications.

[7] Indeed, in most cases intra *and* inter-individual sense-making experiences are treated equivalently in Salvatore & Venuleo's paper.

[8] I must admit that I heavily defend this kind of exploratory data analysis in my teachings, my research and supervision of student's theses.

Reduction Of The Dimensionality As A Metaphor

It has to be recalled that Salvatore & Venuleo rely mainly on the work of Andersen (2001) who states that meaning is the *result* of an *intuitive* factor analysis, and consequently, latent factors are interpreted in DSMM as an enacted Significance in Absentia (SIA) according to a Significance in Presentia (SIP). Moreover, as the *singular value decomposition* (SVD, Abdi, 2007) is the matrix operation involved in the majority of the statistical techniques mentioned as illustrations by the Authors (i.e. Principal Components Analysis, Single and Multiple Correspondence Analysis), and as, according to SVD's result, points are projected on an Euclidian space, SVD and its geometrical representation are used metaphorically in DSMM to represent meaning as a reduction of dimensionality, where "a subset of the components (i.e. a slice of the whole distribution) is magnified and in so doing a specific distribution of probability is made to work" (p.9). This however leads to question the relation between the dimensionality of meaning in DSMM and its interpretation.

Given that the Authors assign importance to the bipolarity of the principal axes for researchers' investigation of sense-making and mention only axial interpretations (i.e. the first 2 or 3 axes maximum), questions arise about the semantic status of the axes that are not bipolar. In fact, in document-term matrices such as those ones presented by the Authors, one can quite often get a Guttmann effect, where points in a biplot space draw a U letter, or even have the third axis only heavily loaded by one or two points from the same side of the axis. It cannot only be a matter of a mere artifact, because the same question can be asked about semantic status of the major and prevalent problem of sparse matrix (i.e. overrepresentation of absence) particularly relevant in Multiple Correspondence Analysis. In short, what is meant here is that a metaphor (i.e. meaning as a reduction of dimensionality) can be very rich, but as soon one begins to apply it, some heuristic (i.e. non-bipolarity) limits inevitably appear.

Besides the semantic relationship underpinned by the Authors between points in relation to the background of an enacted SIA, there are reasons to wonder about the *type* of relationship that occurs between points in the same space (i.e. SIP), regardless of the role (representamen or intepretamen) of each sign in the semiotic process. In fact, one must recall that in an Euclidean

space the relationship between any points X and Y is symmetric (Fénelon, 1981), i.e. each sign is connected with all the other signs in the same way and in both directions. Subsequently, such a geometrical representation of relationships, or even more of local relationships such as "probability of interconnection among signs" (p.11), as described by Authors will miss to account for those that are oriented, transitive, or of entailment, not to mention chains of relations (e.g. ordered sets). This is not a limit in itself, as other techniques such as social networks analysis (Scott & Carrington, 2011) or statistical implicative analysis (Gras, Suzuki, Guillet, & Spagnolo, 2008) enable the representation and analysis of these kind of relationships; it's just a possible path for completing data analysis strategies in accordance with the richness of DSMM.

Pattern Matching

Regarding pattern matching techniques, Authors mainly refer, without naming it, to Thematic Analysis of Elementary Contexts implemented in the T-Lab suite (Lancia, 2012)[9]. Let's briefly outline this technique. After segmenting each document into context units (usually sentences or paragraphs), a clustering technique is applied on the matrix crossing context units x lexical units[10] in order to reorganize it and categorize the maximum of contexts in different clusters containing the most similar lexical profiles (paradigmatic and syntagmatic). However, according to such a matrix, some incongruities between the DSMM and the above mentioned technique may appear. To limit my remarks, I will focus on the fact that the division into context units is arbitrary and not exhaustive, especially that all the interpretations of the outputs will depend on this division, and thus will vary accordingly (Lebart, 2012). Indeed, if I follow the DSMM, where "meaning can be defined in the final analysis as the domain of relevance of the representamen, as established (selected) by the following sign (the interpretant)" (p.4), it is quite doubtful that the division into sentences or paragraphs (i.e. arbitrary chunks) will fully respect the domain of relevance. In fact, many signs gain also their meaningfulness *between* – e.g. sequence of sentences (Adam, 2005) – and *within* – e.g. synepsie (Benveniste, 1966) or synthème (Martinet, 1968) – these arbitrary chunks. By arbitrary context units I mean that another type of division is

[9] Other software like Alceste or Iramuteq enable analogous data processing sequences.
[10] The clustering technique is sometimes followed or preceded by an SVD.

not only possible but is also more coherent with the tenets of DSMM. Moreover, using this type of analysis makes these contexts independent of each other, in fact they would be interdependent only through the co-occurrence of lexical units. As for the exhaustivity issue, if one wishes to comply with the paradigmatic dimension of meaning in the model, particularly "the property of any sign to be able to relate virtually with any other sign and therefore to participate to the emergence of an infinite set of meanings (i.e. of an infinite domain of pertinence)" (p. 8), the matrix should include all possible combinations between sets of signs (morphemes, multiword, repeated segments, etc.) within a unit of a corpus (interview, open-ended question, etc.). Of course, such matrix would neither be computable with the actual technical limitations nor its output easily interpretable, but the argument remains that sense-making cannot be supported only by formal structure of texts (Rastier, 1998), like a sentence or a paragraph.

Illustrative Variables, Abduction And Logic Of Discovery

One benefit of Geometric Data Analysis (GDA) multivariate techniques' is that it often consists in a visualization of the data analyzed. Before going further, a main point must be added here concerning the difference between active vs. illustrative variables. According to the practice of GDA, active variables (AV) are those who actively participate in the formation of variables' and individuals' space (Biplot) whereas illustrative variables (IV) are those projected afterwards in the preceding space to enrich its interpretation.

Even if to call on peircean abduction to justify an ideographic science is not new, its application to the geometric data analysis is epistemologically very insightful. In fact, it is always tricky to categorize the logical operations (i.e. inferences) that are at stake during a multidimensional exploratory data analysis, due to the fact that it cannot be viewed as a deduction nor as an induction. But is it therefore abduction? If one admits that abduction is an inference to the best explanation (Lipton, 1991) and that the predefined assumptions of Principal Axes Methods are extremely loose (not absent, as argued sometimes by Benzécri), then I totally agree with the Authors because they ultimately join the arguments of Norwood Russell Hanson (1958) where a key role is given to researcher's pre-conceptions, in this case the tenets of DSMM. In a sense, it is a very thoughtful manner to outline a logic of discovery where the

analysts deploy for themselves meaningful scenarios of interpretation (i.e. interpretive path in the sense of Rastier) about a set of signs represented through the lenses of a geometrical projection. It is unfortunate however that authors' illustrated data analysis strategies do not provide any mean to assess the quality of the obtained visualisations, not in the sense of the sacred p-value of inferential statistics but in a way adapted to geometric data analysis. In such a context, the bootstrap techniques (Lebart, 2007) could be very beneficial to strengthen the abductive inferences of analysts.

CONCLUSION

I would like to once again congratulate the Authors for their contribution. I also want to emphasise the fact that their contribution is so rich that it is necessary to make choices in the comments that it is plausible to address. Indeed, our comments referred primarily to the applied side of the model but also, to some extent, to some of its epistemological consequences according to its methodological implications. But I maintain that the model has many layers of illustrations that cannot be fully appreciated through the paper proposed. I hope that our comments are constructive enough for Authors so that they can go further in their endeavors, hopefully in a fruitful direction for the SRF.

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