lar reference to demand characteristics and their implications. American Psychologist 17(11): 776–786.

Petitmengin C., Remillieux A., Cahour B. & Carter-Thomas S. (2013) A gap in Nisbett and Wilson's findings? A first-person access to our cognitive processes. Consciousness and Cognition 22(2): 654–669. ▸ https://cepa.info/931

Petitmengin C., Remillieux A. & Valenzuela-Moguillansky C. (2018) Discovering the structures of lived experience. Phenomenology and the Cognitive Sciences, Online First.

Rouder J. N., Morey R. D., Morey C. C. & Cowan N. (2011) How to measure working memory in the change detection paradigm. Psychonomic Bulletin & Review 18(2): 324–330.

Smith J. A. & Osborn M. (2004) Interpretative phenomenological analysis. In: Breakwell G. M. (ed.) Doing social psychology research. The British Psychological Society and Blackwell Publishing, Cornwall: 229–254.

Valenzuela-Moguillansky C., O'Regan J. K. & Petitmengin C. (2013) Exploring the subjective experience of the "rubber hand" illusion. Frontiers in Human Neuroscience 7: 659. ▸ https://cepa.info/4444

Varela F. J. & Shear J. (eds.) (1999) View from within: First-person approaches to the study of consciousness. Imprint Academic, Exeter.

Varela F. J., Thompson E. & Rosch E. (1991) The embodied mind: Cognitive science and human experience. MIT Press, Cambridge MA.

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On The Linearity and Non-Linearity of Analysis

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> Abstract • I raise questions about the use of metaphor in the article as well as the linearity of the micro-phenomenological analysis process. Is there a way to represent a more accurate and complete overview of this process?

« 1 » I welcome the steps that are now being taken to reflect on and clarify the analysis process of the micro-phenomenological interview. Camila Valenzuela-Moguillansky and Alejandra Vásquez-Rosati's target article represents an essential contribution in this regard. That the authors build their account of the analysis process on a study that they have conducted is commendable, since this makes the article go beyond mere theory, but it could also be asked whether the account may be a product of reflection on the heartbeat detection task described. There are several further issues that can be raised, including to what extent the micro-phenomenological interview (MPI) is necessarily embedded within a framework of embodiment, and the issue of what epistemological and ontological presuppositions may be hidden behind the prescriptions made by the MPI procedure as a whole. However, I will focus on one issue that is more directly connected to the article and the aim of clarifying the analysis process of the MPI. This is related to the question of what the point of the concertina metaphor is and whether the analysis is linear or not. I will address these issues in that order, and it can be noted that the former issue is less substantial than the latter.

« 2 » The authors present the analysis process as having a concertina structure. It is unclear to me why this metaphor was chosen. It is mentioned or commented on in three places in the article (§12f, §98). In §12 the authors state that "in the present article we specified a fifteen-stage procedure that was organized into a concertina-shaped structure […]. Each surface of the concertina corresponds to one stage of the analysis." We learn that the analysis process proceeds in stages, but what is the reason for the concertina structure? In §13 they continue: "The concertina-shaped structure permits the tracing of the analysis process whenever necessary, allowing for the evaluation of the rigor and coherence of our procedure." So, it seems that the concertina structure may be related to evaluation – but how? §98 describes taking a "step back from the analysis" and returning to the interviews themselves so that it can be checked whether the analysis resonates with the accounts of the experiences. This is compared to closing "our concertina to listen to its music." It may be that I do not understand how a concertina works, but as far as I know, a closed concertina does not make a sound. Again, the metaphor is unclear. What exactly is the point of using the metaphor of a concertina? It seems to me that the metaphor does not help us understand the analysis process better. The idea that there are five stages and fifteen steps to the analysis can be presented without it.

« 3 » Furthermore, the analysis process is presented as consisting of a linear structure. From my experience in doing micro-phenomenological and other forms of qualitative research, there is both a linear and a non-linear aspect to analysis. The suggested linear structure fails to account for this. I do agree that there is a preliminary data-preparation stage consisting, for instance, of transcription. However, there can be cases where one goes back to check the original audio, for example, if the transcript seems inaccurate or erroneous, and this should, of course, lead to a revision of the transcripts, which means that the linear structure has been broken. Still, even though such cases may be pointed out, I agree that there is a general linear tendency proceeding from data preparation to analysis.

« 4 » However, I do not agree that the specific diachronic analysis (stage 2) necessarily comes before the specific synchronic analysis (stage 3). Although this is something one could claim by simply drawing on experience, it is, more importantly, something that arguably has to do with the nature of synchronic and diachronic structures, or simply experience. A diachronic structure cannot be identified before identifying a synchronic structure because for a diachronic structure to be constituted there need to be at least two synchronic elements that are connected in a

sequence. We can also say that, on a basic level, no synchronic structures can exist without relating to something diachronic. A synchronic element can be a simple sentence or a word. But both of these are time phenomena. If we continue this line of thought, it would seem that neither synchronic nor diachronic structures can be constituted. An answer to this is to say that synchronic and diachronic aspects are co-constituted, although we can also identify structures that emphasize one over the other. Still, both in practice and on a fundamental level, the analysis of diachronic and synchronic aspects run in parallel; when trying to find what belongs to which aspect, and trying to build an analysis of which processes are inherent in the material, one goes back and forth between diachronic and synchronic aspects. If we take a simple sentence such as "First I had a desire to accomplish a task," it should be easy to see that this element is ambiguous; it describes something happening at one moment in time, but the word "first" signals that it is part of a diachronic process. In other words, the material analysed cannot be neatly organized into that which is diachronic and that which is synchronic.

« 5 » A similar argument can be made for the identification of specific and generic structures; a specific structure cannot be identified without something generic being present and vice versa. For the sake of brevity, I will not spell out the details of the argument; it would follow the same form as the argument for the co-constitution of synchronic and diachronic dimensions. I would admit that in practice there is a flow from first focusing on specific experiences and then finding generic structures. But it is good practice to check whether a generic structure that has been identified changes our view of specific structures. It might, for instance, be tempting to leave out certain specific structures that do not fit with a generic one or we might have to check an earlier specific analysis with later generic structure to check whether we have missed or misidentified something.

« 6 » To sum up what I have tried to argue: There is a general linear flow from data preparation to specific and generic analysis, but there are important cases where this linear flow may be broken. The analysis of diachronic and synchronic aspects is, however, less linear, and can be found to run in parallel, both on the specific and generic level. In contrast, the transition from specific to generic aspects is more linear, but generic structures may be presupposed in the identification of the specific elements, and hence it would be good for an analyst to continue to go back and forth between text, specific and generic structures. Valenzuela-Moguillansky and Vásquez-Rosati do indicate that something like this takes place with their comments on the refinement of the structures (§§98–102). However, this means that Figure 1 is incomplete, if not misleading. A linear structure may be helpful as a guideline when doing analysis, but given that there are non-linear aspects to the analysis, as I have argued here, could there not be a way to graphically represent the whole process in a way that yields a more accurate and complete picture? (Q1)

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Problems of Categorization in Micro-Phenomenological Analysis

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> Abstract • The authors describe how the structures of experience unfold in the course of micro-phenomenological analysis step by step by suggesting iterative interrogation. The proposed abstraction operations ultimately deserve more thorough discussion concerning the categorization process, specifically as to the potential necessity of integrating more hierarchical steps.

« 1 » Since the publication of the now classic book *The Embodied Mind* by Francisco Varela, Evan Thompson and Eleanor Rosch (1993), there have been promising new methodological developments that attempt to overcome the gap between the natural sciences, as dealing with objective and third-personal observations, and the humanities, as dealing with subjective experience and meaning. Among these new methods is the *neurophenomenological research program* (NP). NP seeks to explore the possibility of mutual influence between experimental participants' neural activities and their subjective, first-person experiences (Lutz 2002). The so-called micro-phenomenological interview technique (Petitmengin 2006, 2007, 2011, 2017) offers access to ostensibly subjective experience correlated with neural activations. This allows, as an example, for the detection of symptoms preceding epileptic seizures according to first-person descriptions (Petitmengin, Baulac & Navarro 2006).

« 2 » The micro-phenomenological interview aims at producing a model for the generic structures of experience, accounting especially for its unfolding (Petitmengin, Remillieux & Valenzuela-Moguillansky 2018). This model is derived from the interview data, and the results of micro-phenomenological analysis are then incorporated into an analysis of the dynamic structures of the third-person data identified in neural activities. As such, NP promises to generate experiential data that can be used to inform and shape third-personal scientific investigation.

« 3 » However, developing a neurophenomenological method to investigate dynamic experience and its neurological correlates remains challenging. This is partly because, up to the present, most neuroscientific experiments have been carried out in a structure- and function-oriented manner, but the analysis of the temporal structures from neuroimaging data might be more efficient if using a neurodynamic approach (cf. Lutz et al. 2002; Lutz & Thompson 2003). Another problem is whether NP can effectively investigate the "how" of an experience (e.g., the pre-reflective bodily feel), rather than the "what" (e.g., the particular content). Micro-phenomenological *interview* techniques that have been developed to cope with this problem have been methodologically advanced, subsequently directing the focus of recent re-