



## Extending Gurwitsch's field theory of consciousness



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### ABSTRACT

Aron Gurwitsch's theory of the structure and dynamics of consciousness has much to offer contemporary theorizing about consciousness and its basis in the embodied brain. On Gurwitsch's account, as we develop it, the field of consciousness has a variable sized focus or "theme" of attention surrounded by a structured periphery of inattentional contents. As the field evolves, its contents change their status, sometimes smoothly, sometimes abruptly. Inner thoughts, a sense of one's body, and the physical environment are dominant field contents. These ideas can be linked with (and help unify) contemporary theories about the neural correlates of consciousness, inattention, the small world structure of the brain, meta-stable dynamics, embodied cognition, and predictive coding in the brain.

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### 1. Introduction

The phenomenologist and psychologist Aron Gurwitsch defined the field of consciousness as a "totality of co-present data" (Gurwitsch, 1964, p. 2). In contemporary terms a field of consciousness is a phenomenal conscious state (Block, 1995) at an instant or over a brief duration.<sup>1</sup> The reference to a "totality of data" suggests a rich view of consciousness (Block, 2008; Hurlburt & Schwitzgebel, 2007), whereby conscious states at times have multiple parts: a person might be aware of a computer, a cup of coffee, rustling in another room, a mild stomach ache, etc. The reference to "co-presence" emphasizes that all these parts are *unified* in a single conscious state (Bayne & Chalmers, 2003; Brook & Raymont, 2014).<sup>2</sup>

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<sup>1</sup> Dainton (2010) contrasts "retentionalist" and "extensionalist" models of temporal consciousness. On the retentionalist view, conscious states are instantaneous (though retained memories create an illusion of temporal extension) and so we can literally refer to a field of consciousness "at a time." On the extensionalist view conscious experiences actually spread out in time. In that case reference to a field of consciousness "at a time" is convenient shorthand for "over a brief duration." We are neutral on the issue.

<sup>2</sup> We use terms like "data", "content" and "constituent" to refer to mereological parts (Varzi, 2003) of conscious states. If a person is aware of both a computer and a coffee cup, then both are parts of her total conscious state and are in that sense "data", "contents", or "constituents". Two things should be noted. (1) This use of "content" is different from a standard contemporary philosophical usage, whereby a content of (for example) a perception is the *state of affairs represented* by that perception. We use "content" in the more literal sense of a mereological part. Siegel (2013) helpfully differentiates the "contents" of a bucket (a mereological part of the filled bucket; our sense); from the contents of a newspaper article (the things described by the article; the more standard contemporary usage). (2) In describing consciousness as having mereological parts, Gurwitsch endorses what has recently been called the "Experiential Parts Theory" (Brook & Raymont, 2014), though the contrary position, the "No Experiential Parts Theory" allows (for example) "aspects" of consciousness, which are themselves "parts" in Husserl's broad and fairly subtle sense.

We will argue that Gurwitsch's account, once it has been trimmed of its more excessive claims, can be extended and used to enrich contemporary consciousness studies.<sup>3</sup> Gurwitsch's main contribution is to develop a detailed account of the *totality* of conscious experience, and to delineate its structure and dynamics; to develop, in his words, a theory of the “the articulation of the total field of consciousness and . . . the patterns and forms in which co-present data are organized with respect to each other” (Gurwitsch, 1964, p. 2). Others have studied questions relating to particular types of experience, e.g. inattention (Mack & Rock, 1998), perceptual gist (Oliva, 2005), and non-sensory experience (Bayne & Montague, 2011), but few have asked the broader question of how these and other types of experiences are organized with respect to one another. Moreover those who do study the structure of consciousness tend to emphasize focal awareness. Gurwitsch's account of the structure of consciousness encompasses focus *and* periphery, and attributes specific organizational structures to each. In considering questions about the structure of the total field, Gurwitsch engages in a task that has long been considered central to scientific inquiry, “carving nature at its joints”,<sup>4</sup> but that has received little attention in consciousness studies. Gurwitsch also develops an account of the field's dynamics, of how the structures he identifies in the total field change their status over time.

Gurwitsch's theory of the field of consciousness and its organization into parts can be related to an equally rich theory of neural activity and *its* organization into parts. Thus we have two parallel fields, with parallel part-structures. Others have considered the neural correlates of focal consciousness, but there has been little discussion of the neural correlates of non-focal consciousness, or of how structure and dynamics are related in the two domains. Insofar as there has been work on these questions, we argue that it can be profitably organized around Gurwitsch's theory.<sup>5</sup> We will see that the holistic interconnectedness of the phenomenal field can be associated with the dense “small world” coupling of the neural circuits which support it, that the distinction between smooth and abrupt field transitions can be associated with degrees of prediction error in internal statistical models, and that the variable sized focus can be associated with degrees of neural enhancement of the activation supporting focal awareness. These and other parallels can be visualized in computer simulations.

In section (2) we describe the main events of Gurwitsch's intellectual development, including his early work in Germany and his flight from the Nazis, which brought him in contact with a wide range of Continental and American thinkers. We also clarify his relationship to previous theorists, and comment on his phenomenological method. In section (3) we summarize Gurwitsch's field theory, emphasizing those features of his account that are most relevant to contemporary discussions. In section (4) we show how Gurwitsch's theory can be revised and extended, and used to advance contemporary work on consciousness and its neural correlates.

## 2. Gurwitsch's life, influences, and method

### 2.1. Gurwitsch's life

Aron Gurwitsch (1901–1973) studied mathematics, physics, philosophy and psychology in Germany, fled the National Socialists to France in the 1930s, and then moved to America in 1940, where he helped establish phenomenology as a field of philosophical research.<sup>6</sup>

Gurwitsch began his studies at the University of Berlin under Carl Stumpf, an early experimental psychologist (Stumpf's first lab, consisting of disassembled piano parts in a closet and tower attic, was set up not long after Wundt's; Boring, 1929). Stumpf introduced Gurwitsch to the work of William James and later suggested he go to Freiburg to study with Husserl. At Freiburg, Husserl made a lasting impression on Gurwitsch. In fact, he decided to dedicate his life to Husserl's project, to become a “disciple forever”:

When the author made his first acquaintance with Husserl's philosophy. . . he was overwhelmed by the spirit of uncompromising integrity and radical philosophical responsibility, by the total devotedness which made the man disappear behind his work. . . It was the style of Husserl's philosophizing, painstaking analytical work on concrete problems and phenomena. . . that made the young student take the decision to devote his life and work to the continuation and expansion of Husserl's phenomenology—in a word, to remain a disciple forever, faithful to Husserl's spirit and general orientation, but at the same time prepared to depart from particular theories if compelled to do so by the nature of the problems and the logic of the theoretical situation

[Gurwitsch, 1979, pp. xv–xvi.]

<sup>3</sup> For a detailed interpretation and elaboration of Gurwitsch's theory, which (like us) considers it in relation to current empirical evidence, see (Arvidson, 2006).

<sup>4</sup> The phrase originates in Plato's *Phaedrus*. Plato compares the correct division of nature to a butcher properly carving meat. A similar theme occurs in Taoist lore: cut the meat “by the natural openings” and a knife won't need sharpening (Campbell, O'Rourke, & Slater, 2011).

<sup>5</sup> Some relevant lines of research we will not consider here include: (1) Tononi and Edelman's (1998) account of consciousness in terms of information integration, which (in Gurwitschean terms) associates degrees of field complexity with information-theoretic properties of the neural circuits supporting it, and (2) Escobar's account of “quantized awareness” (Escobar, 2013), which is consistent with the idea that the conscious field has a complex structure that to some degree mirrors the structure of the neural activity supporting it.

<sup>6</sup> This biographical material closely follows (Embree, 2010). Also see (Grathoff, 1989). On Gurwitsch's role in establishing American phenomenology see (Embree, 1989).

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