

Review

# Immune memory, immune oblivion: A lesson from Funes the memorious

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## Abstract

We commonly think of the immune system as having a memory. However, memory is always accompanied by a complementary process of oblivion. Is there immune oblivion? In this theoretical paper, I address this question and suggest that oblivion is an integral aspect of memorization. In this context, I suggest that immune memory is an orchestration of reversible and irreversible processes of biological computation through feedback loops. Drawing on the linguistic metaphor, I inquire into the implications of this idea for a better understanding of immune memory and immune deficiency among the elderly.

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**Keywords:** Immune system; Immune memory/oblivion; Biosemiotics; Interdisciplinary research; Linguistic metaphor

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## 1. Introduction: “linguaging” in context

The immune system has been discussed on a theoretical level from a variety of perspectives and with various metaphors (Tauber, 1996, 2002). One possible perspective is the biosemiotic one (Barbieri, 2002; Hoffmeyer, 1996; Markos, 2002; Neuman, 2004; Sercarz et al., 1988). This perspective suggests that we can gain insights into the behavior of the immune system by approaching it as a meaning-making system

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(Neuman, 2004) that is continuously involved in making sense out of a variety of signals. Far from being anthropomorphic, the biosemiotic perspective may offer us new ways of examining major issues in theoretical immunology.

The aim of the present paper is to offer a new perspective on immune memory. In order to present this perspective with its full complexity and meaning, I use the linguistic metaphor, introduce the idea of “*linguaging*” and weave a theoretical thread among language, context, memory and oblivion.

In one of his essays, the linguistic anthropologist Anton Becker (2000) discusses an insightful observation made by the Spanish philologist and philosopher José Ortega y Gasset. Ortega y Gasset noticed that in natural language we have a delicate balance between manifestation and silence and that “each people leaves some things unsaid *in order* to be able to say others” (Becker, 2000, p. 6). This statement indicates that the non-present, the hole in the bagel, is no less important than the present, i.e., the bagel itself. However, our inclination toward objects usually misleads us into underestimating the importance of the non-present, including silence in language and biology (Neuman, *in pressa*).

Becker examines this observation for better understanding translation between languages. He argues that if silence is an important part of language, or more accurately of the language activity that Becker, following Maturana and Varela (1987), calls *linguaging*, then we face a problem when translating. Not only do we have to translate what is said; we also have to translate what is unsaid! How can we translate the “unsaid”? How can we translate a silence? Becker’s answer is that a translation necessarily misses some things. In this sense, a complete translation is impossible. For example, the simple English expression “I am” is untranslatable into Burmese, which has no gender-neutral first-person pronoun, no tenses, and no copula (Becker, 2000). The difficulty of silencing led Ortega y Gasset to suggest that a “theory of saying, of languages,” would also have to be a theory of the particular silences observed by different people” (quoted in Becker, 2000, p. 285). This insightful observation draws our attention to the complementarity of speech and silence, the present and the non-present, memory and oblivion. This complementarity is highly relevant to the notion of memory and oblivion in biological systems, specifically the immune system. After all, what is oblivion if not silence? At this point, and armed with the idea of memory and oblivion as two complementary processes, I would like to turn to another aspect of linguaging.

Linguaging plays on the strings woven between a person and a context (Becker, 2000). It is an activity of “shaping old texts into new context” (Becker, 2000, p. 9). In other words, linguaging is the activity in which the abstract and general schemes of memory (i.e., the old texts) are sewn into the particularities of context—the “here and now” (to use psychoanalytic jargon).

Here we come to the point where context (the “here and now”) and memory (the “there and then”) meet. Linguaging involves enacting the past and attaching it to the concrete present. In this sense, linguaging is not denotational but *orientational* (Becker, 2000). It is “one means by which we continually attune ourselves to context” (Becker, 2000, p. 288). The same logic applies to sign-mediated-processes in biological systems. Signs in biological systems are not denotational but orientational too. For example, an antigen is not a pointer that establishes a correspondence with the “non-self” (Cohen, 2000). It is a trigger that in the appropriate context is interpreted in a way that re-orientates the behavior of the immune system (Cohen, 2000; Neuman, 2004).

From a wider perspective, any semiotic activity, such as human linguaging, may be considered a way in which an organism orients itself toward context, the particularities of the here and now. Therefore, context is not only the background of constraints that shape the behavior of the organism but also the particular circumstances toward which the organism attunes itself through semiotic mediation (i.e., linguaging). It is an activity in which the past is woven into the present—the here and now.

Bringing the past into the present through the semiotic mediation of linguaging is crucial for making sense out of texts. Without memorization of texts, we would have to make do with grammar and dictionaries (Becker, 2000, p. 287), which are insufficient for meaning making.

The poverty of dictionaries and grammar in terms of understanding meaning-making is also discussed in one of Borges’s essays (Borges, 2000). In “Ezra Pound as Translator: between matter and form,” Borges points out that in the middle ages dictionaries did not exist and the translator recreated the source text in his own way. This statement is made in the context of translating poetry. Borges says: “those who, like us, are devoted, with greater or lesser success, to the practice of poetry know that the essence of verse lies in its intonation, not in its abstracted meaning.” He then criticizes Pound’s critics by saying that “they

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