



## Generativity in language, cognition, and artificial intelligence: Theoretical convergences and emerging paradigms

Special issue of *Punctum*. International Journal of Semiotics 11:2 (2025)

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### TIMELINE:

Deadline  
for Abstracts:  
**May 31, 2025**

Notice of acceptance  
of the Abstract:  
**June 15, 2025**

Deadline  
for submission of  
full papers:  
**September 15, 2025**

Peer Review Due:  
**November 30, 2025**

Final Revised  
Papers Due:  
**December 30, 2025**

Publication Date:  
**January 2026**

This issue explores how different theoretical traditions have conceptualized the generative capacities of language and thought, and how these ideas intersect with contemporary developments in AI. We will focus on the frameworks of Noam Chomsky, Gustave Guillaume, Antoine Culioli, Algirdas Julien Greimas, and Joseph Courtés, each offering a distinct perspective on the generative processes underpinning meaning construction.

At the core of Noam Chomsky's transformational-generative grammar is the idea that a finite set of syntactic rules can generate infinite grammatically correct sentences. For Chomsky, generativity is a formal, combinatorial property of language grounded in human biology—specifically, the faculty of language. His focus is on linguistic competence, the internalized system of knowledge that enables speakers to produce and comprehend novel utterances. For him, syntactic structure is at the center of meaning construction. In this framework, generativity is not merely creative expression but a computational process driven by recursive operations like Merge. This perspective has profoundly influenced both theoretical linguistics and computational models of language, shaping approaches to natural language processing and AI systems designed to simulate syntactic productivity. However, Chomsky's model has been critiqued for its limited attention to language's semantic, pragmatic, and enunciative aspects – areas highlighted by Guillaume and Culioli.

Gustave Guillaume offers a distinct view of generativity through his theory of psychomechanics, which frames language as a dynamic unfolding of mental processes over time – a concept he calls *chronogenesis*. For Guillaume, generativity is not purely structural but involves a temporal and cognitive activity wherein thought is progressively actualized into language. Guillaume's concepts of discourse time and system time – the former representing the temporality of speech, and the latter the latent, organizing structure of language – provide a nuanced model for understanding how abstract linguistic categories (such as tense, aspect, or modality) are mentally constructed before being expressed. This perspective positions generativity within the mental representation and transformation of language forms, anticipating cognitive linguistics and aligning with modern, embodied, and predictive models of cognition. It also raises questions about whether and how AI systems could replicate such processes.

Antoine Culioli takes a different approach, defining generativity not as rule-following or temporal construction but as a series of mental gestures that structure meaning. Culioli emphasizes that language is not a fixed code but a procedure in which speakers perform operations of representation, predication, and validation to construct reference and value in context. These mental gestures are abstract, recursive, and combinatorial, yet they are fundamentally contextual - shaped by the specific situation of enunciation. For Culioli, generativity involves a constant negotiation of meaning through operations that are both cognitive and linguistic. The speaker is an agent of meaning, navigating virtual structures and adapting them to communicative goals. This view contrasts Chomsky's formalism and Guillaume's temporal psychomechanism by emphasizing variation, subjectivity, and the epistemic dimensions of language. Culioli's ideas have influenced both linguistic analysis and discourse theory, with implications for human-machine interaction – particularly regarding how AI could simulate inferential, context-sensitive language use.

In semiotics, Algirdas Julien Greimas and Joseph Courtés provide a structural account of generativity that shifts the focus from grammar or cognition to semiotic systems and narrative logic. In their *Semiotics and Language: An Analytical Dictionary*, they define generativity as a “generative trajectory” (*parcours génératif*) of meaning, structured through a series of transformational levels: deep structures, surface structures, and discursive manifestations. For Greimas and Courtés, generativity is not simply about producing linguistic forms or cognitive constructs but also about the systematic unfolding of meaning from abstract, actantial configurations to concrete textual expressions. The generative



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process involves semantic articulation (semic level), syntactic organization (actantial and narrative structures), and discursive realization (enunciative and stylistic forms). This approach highlights the transformation of meaning across multiple levels, balancing structural regularity with discursive variation. It provides a valuable framework for analyzing how AI systems generate coherent narratives or simulate storytelling, raising questions about whether these systems merely imitate surface structures or engage in deeper semiotic processes.

The rise of AI, especially large language models, raises fundamental questions about the nature of generativity. These models generate syntactically fluent text, semantically plausible and narratively coherent. But do they engage in the semiotic transformations described by Greimas and Courtés? Do they reflect the chronogenetic unfolding proposed by Guillaume or the inferential operations detailed by Culioli? Or are they simply statistical engines replicating surface patterns without access to the underlying cognitive or semiotic depths?

These questions invite a critical examination of what it means to generate meaning and whether AI systems participate in the same generative logics that characterize human language and cognition. We welcome submissions that explore these questions across both theoretical and applied contexts, including but not limited to:

- Comparative analyses of Chomsky, Guillaume, Culioli, and Greimas on generativity
- The role of narrative and semiotic structures in human and artificial meaning-making
- Generative grammars vs. generative trajectories: Formalism and semiotics
- Chronogenesis, mental gesture, and the modeling of cognition in AI
- Semiotic and enunciative dimensions of generativity in human-machine interaction
- Can AI produce narrative in a Greimasian sense?
- Epistemological and ontological questions surrounding meaning generation in humans and machines

This special issue aims to foster a truly transdisciplinary dialogue on generativity as a linguistic, cognitive, semiotic, and technological phenomenon. By bringing together theories from semiotics, enunciative linguistics, cognitive chronogenesis, and AI, we aim to shed light on both the continuities and ruptures in how meaning is created, transformed, and shared.

Prospective authors should submit an abstract of 250-300 words by email to the guest editors, Didier Tsala Effa ([didier.tsala-effa@unilim.fr](mailto:didier.tsala-effa@unilim.fr)) and Rossana De Angelis ([rossana.de-angelis@u-pec.fr](mailto:rossana.de-angelis@u-pec.fr)), including their institutional affiliation and contact information. Acceptance of the abstract does not guarantee publication, given that all research articles will be subjected to peer review.