Abstract, 2025-10-01
Symposium: Mathematical Language in Transitions – From Secondary to Tertiary

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Teachers' language for mathematical processes in an algebra lesson teaching with digital technology

In the transition from secondary to tertiary mathematics, it has been described how the mathematical language changes, and we hypothesize that this can also be true for language related to mathematical activities and processes. In this theoretical reflection, we explore the respective affordances and constraints of two theorisations of mathematics language: Systemic Functional Linguistics (SFL) and Commongition, for researching the language use in relation to mathematical processes. Where SFL approaches processes as the meaning expressed through the use of verbs in clauses, Commognition uses the metaphor of routines to describe how mathematical activities are part of constituting the mathematical discourse.

As an empirical basis, we present a re-analysis of a Sri Lankan secondary mathematics algebra lesson with digital tools, used by Ratnyake et al. (2023) in their previous research on instrumental orchestration. From this lesson, we explore how SFL can be used for a linguistic description of the meaning constituted in the mathematical language used by the teacher when referring to mathematical processes. Where SFL has little to say about the mathematical meaning in such processes, we engage in a theoretical reflection on how such linguistic analysis can be combined with commognitive theory, and in particular, the mathematical routines, to explain the mathematical meaning conveyed in the processes.