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Connected functional working spaces: a framework for the teaching and learning of functions at upper secondary level.

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Summary: This paper aims at contributing to remedy the narrow treatment of functions at upper secondary level. Assuming that students make sense of functions by working on functional situations in distinctive settings, we propose to consider functional working spaces inspired by geometrical working spaces. We analyse a classroom situation based on a geometric optimization problem pointing out that no working space has been prepared by the teacher for students' tasks outside algebra. We specify a dynamic geometry space, a measure space and an algebra space, with artefacts in each space and means for connecting these provided by Casyopée. The question at stake is then the functionality of this framework for implementing and analyzing classroom situations and for analyzing students' and teachers' evolution concerning functions, in terms of geneses relative to each space.

Classification: I40 G40 N60 U70 C70 D40

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