

# Regular languages of infinite pictures

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## Abstract

While the theory of regular languages for finite or infinite words is now well understood, a similar classification of languages of infinite pictures remains to be done. In fact, while problems about unidimensional regular languages can often be solved using automata or graph theory, the same questions on two-dimensional languages usually require tools from complexity (or computability) theory. We will focus here on the theory of sofic shifts, for which there are various equivalent definitions. While a characterization of regular languages is for now out of reach, we will give various criteria for soficness, based on previous works and a new approach based on communication complexity.

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