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**Tair Akhmejanov\***, Cornell University, Ithaca, NY 14850. *Growth Diagrams from Polygons in the Affine Grassmannian.*

We introduce a new type of growth diagram, arising from the geometry of the affine Grassmannian for  $GL_m$ . These affine growth diagrams are in bijection with the  $c_{\vec{\lambda}}$  many components of the polygon space  $\text{Poly}(\vec{\lambda})$  for  $\vec{\lambda}$  a sequence of minuscule weights and  $c_{\vec{\lambda}}$  the Littlewood–Richardson coefficient. Unlike Fomin growth diagrams, they are infinite periodic on a staircase shape, and each vertex is labeled by a dominant weight of  $GL_m$ . Letting  $m$  go to infinity, a dominant weight can be viewed as a pair of partitions, and we recover the RSK correspondence and Fomin growth diagrams within affine growth diagrams. The main combinatorial tool used in the proofs is the  $n$ -hive of Knutson–Tao–Woodward. (Received September 08, 2017)