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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. The local growth rule satisfied by the diagrams previously appeared in van Leeuwen’s work on Littelmann paths, so our results can be viewed as a geometric interpretation of this combinatorial rule. (Received February 05, 2018)