

DECOMPOSITION OF TROPICAL SKELETONS

LUCIA LÓPEZ DE MEDRANO

ABSTRACT.

In this work we propose to see the skeleton of some tropical varieties of dimension d as an arrangement of tropical varieties of dimension $d - 1$. Recursively, the skeleton of dimension i of some tropical varieties can be seen as an arrangement of tropical varieties of dimension i .

In particular, the skeleton of dimension i of a regular tropical linear space of dimension d in \mathbb{R}^n is an arrangement of k tropical linear spaces of dimension i , where $k \leq S(n - d, d - i)$ with $S(r, r')$ denoting the r th simplicial polytopic number in dimension r' .

With this point of view, to count (bounded or unbounded) cells of a given dimension of a regular tropical linear space translate in to count (bounded or unbounded) connected components of complements in tropical hyperplanes arrangements. This translation provides an alternative proof in the case of regular tropical linear spaces of the f -vector conjecture of D. Speyer.

UNIDAD CUERNAVACA DEL INSTITUTO DE MATEMÁTICAS, UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO. CUERNAVACA, MÉXICO

E-mail address: lucia.ldm@im.unam.mx

Date: April 23, 2015.

Key words and phrases. tropical geometry, f -vector conjecture.