Tropical geometry and mirror symmetry
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Batyrev--Borisov to tropical manifolds
1) Affine manifolds w. singularities
2) Examples (Batyrev--Borisov)
3) Monodromy ← detour?

Polyhedral decomposition \( B = \cup_v \sigma_v \) of \( B \)

What is a polytope?

Some homeomorphism \( G \rightarrow M \)

Fan structure
At each vertex \( \sigma \), we identify a neighborhood of \( 0 \)
of a fan \( \Sigma \in M \)

This induces a fan structure along each \( \sigma \) containing \( \Sigma \)

We require compatibility of these i.e.

for each \( \sigma, \nu \in \Sigma \), the induced fans from \( \nu \) and \( \nu \) on \( \sigma \) differ by a

transformation in \( GL(\mathbb{M}) \)

Choose discriminant locus \( \Delta \) satisfying

a) \( \Delta \) doesn't contain any vertex
b) \( \Delta \) doesn't intersect interior of maximal cell
c) If \( \sigma \in \mathcal{M} \), \( \Delta \) is a union of connected

components in one-to-one corres. to vertices of \( \sigma \)

We obtain a convex \( \mathcal{B}_0 \) by two types of convex

\( \{ u_\nu : v \in \nu \} \)

an affine structure from fan structure

\( \rightarrow \) obtain tropical manifold (w. singularities)

(Batyrev--Borisov)

Def: A reflexive polytope \( \Sigma \in M \) is a lattice polytope

where \( \Sigma = \{ v \in M \} \) is also a lattice polytope

E.g. trivial example: \( M \), \( \sigma \) = some points