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Segre classes of monomial schemes and Segre zeta functions

Several invariants of singularities may be expressed in terms of Segre classes, a key ingredient in Fulton-MacPherson intersection theory. We will quickly review several applications of Segre classes, and present a formula computing them for schemes that are "monomial" with respect to a collection of possibly singular hypersurfaces meeting along complete intersections. The formula is expressed as a formal integral over a Newton polytope associated with the scheme. For subschemes of projective space, this formula is a simple instance of a "Segre zeta function", defined for homogeneous ideals. This zeta function can be proven to be rational, with poles corresponding to the degrees of some of the ideal's generators.