On the Symmetry of b-Functions of Linear Free Divisors

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Résumé en anglais	We introduce the concept of a prehomogeneous determinant as a possibly nonreduced version of a linear free divisor. Both are special cases of prehomogeneous vector spaces. We show that the roots of the *b*-function are symmetric about –1 for reductive prehomogeneous determinants and for regular special linear free divisors. For general prehomogeneous determinants, we describe conditions under which this symmetry persists. Combined with Kashiwara's theorem on the roots of b-functions, our symmetry result shows that –1 is the only integer root of the *b*-function. This gives a positive answer to a problem posed by Castro-Jimenez and Ucha-Enrquez in the above cases. We study the condition of strong Euler homogeneity in terms of the action of the stabilizers on the normal spaces. As an application of our results, we show that the logarithmic comparison theorem holds for reductive linear Koszul free divisors exactly when they are strongly Euler homogeneous.
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