Title:	An integer sequence and standard monomials
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Abstract:	For an (oriented) graph G on the vertex set {0, 1, . . . ,n} (rooted at 0), Postnikov and Shapiro (Trans. Amer. Math. Soc. 356 (2004) 3109-3142) associated a monomial ideal MG in the polynomial ring R = k[x1, . . . ,xn] over a field k such that the number of standard monomials of R M G equals the number of (oriented) spanning trees of G and hence, dimk(R MG) = det(LG), where LG is the truncated Laplace matrix of G. The standard monomials of R M G correspond bijectively to the G-parking functions. In this paper, we study a monomial ideal Jn in R having rich combinatorial properties. We show that the minimal free resolution of the monomial ideal Jn is the cellular resolution supported on a subcomplex of the first barycentric subdivision Bd(n-1) of an n - 1 simplex n-1. The integer sequence {dimk(R Jn)}n=1 has many interesting properties. In particular, we obtain a formula, dimk(R Jn) = det([mij]n-n), with mij = 1 for i > j, mii = i and mij = i - j for i < j, similar to dimk(R MG) = det(LG) .
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