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Adela Vraciu* (vraciu@math.sc.edu). *Joint Hilbert-Kunz multiplicities and \mathfrak{a} -tight closure.*

The notion of \mathfrak{a} -tight closure was introduced by Hara and Yoshida as a generalization of tight closure, with the result of extending the correspondence between the test ideal of a ring and the multiplier ideal of a variety to situations involving pairs. Their notion is not a true closure, as it can get larger when iterated. We propose a new version, which is a true closure, and, in the case of a graded Gorenstein ring of dimension at least two, gives rise to the same test ideal. The joint Hilbert-Kunz multiplicity can be used in order to test for membership in the \mathfrak{a} -tight closure of an \mathfrak{m} -primary ideal. (Received September 17, 2007)