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Self-Similar Blowup Solutions to an Aggregation Equation.

Various self-similar blowup solutions of the aggregation equation is presented, depending on the power of the homogeneous kernel. As the power is large enough (>2), smooth solutions converge to a Delta-ring in space. Otherwise when the power is small, there are self-similar solutions of the second kind. These 2nd kind self-similar solutions are confirmed numerically. Though there is no explicit formula, the anomalous exponents characterizing these solutions can be calculated in a few special cases. (Received August 17, 2010)