1035-N1-1891 Douglas Dunham* (ddunham@d.umn.edu), Department of Computer Science 320 HH, University of Minnesota Duluth, 1114 Kirby Drive, Duluth, MN 55812-3036, and Luns Tee (luns@aloha.eecs.berkeley.edu), University of California, 211-155 Cory Hall \#1772, Berkeley, CA 94720-1772. A formula for the intersection angle of backbone arcs with the bounding circle for general Circle Limit III patterns. Preliminary report.
M.C. Escher's print Circle Limit III can be considered to be a tessellation by fish tiles in the Poincaré circle model of hyperbolic geometry. In this pattern, different colored lines of fish swim head to tail along white circular arcs forming their "backbones". These backbone lines are equidistant curves in hyperbolic geometry, and all of them make the same angle of approximately 80 degrees with the bounding circle, as was shown by H.S.M. Coxeter. In Circle Limit III four fish meet at right fin tips, three meet at left fin tips, and three meet at their noses (and tails). This pattern can be generalized to ones in which $p$ fish meet at right fins, $q$ fish meet at left fins, and $r$ fish meet at their noses. In this general case, we will derive a formula for the intersection angle of the backbone arcs with the bounding circle. (Received September 20, 2007)

