

1116-K5-986

Vi Hart, Andrea Hawksley, Henry Segerman* (segerman@math.okstate.edu) and **Marc ten Bosch.** *Hypernom.*

Hypernom is a virtual reality game. The game is also playable on iOS and Android tablets, and is available at <http://hypernom.com>. The cells of a regular 4D polytope are radially projected to S^3 , the sphere in 4D space, then stereographically projected to 3D space where they are viewed in the headset. The orientation of the headset is given by an element of the group $SO(3)$, which is also a space that is double covered by S^3 . In fact, the headset outputs a point of this double cover: a unit quaternion. The positions of the cells are multiplied by this quaternion before projection to 3D space, which moves the player through S^3 . When the player is sufficiently close to a cell, they eat it. The aim of the game is to eat all of the cells of the polytope, which, roughly speaking, is achieved by moving one's head through all possible orientations, twice. (Received September 15, 2015)