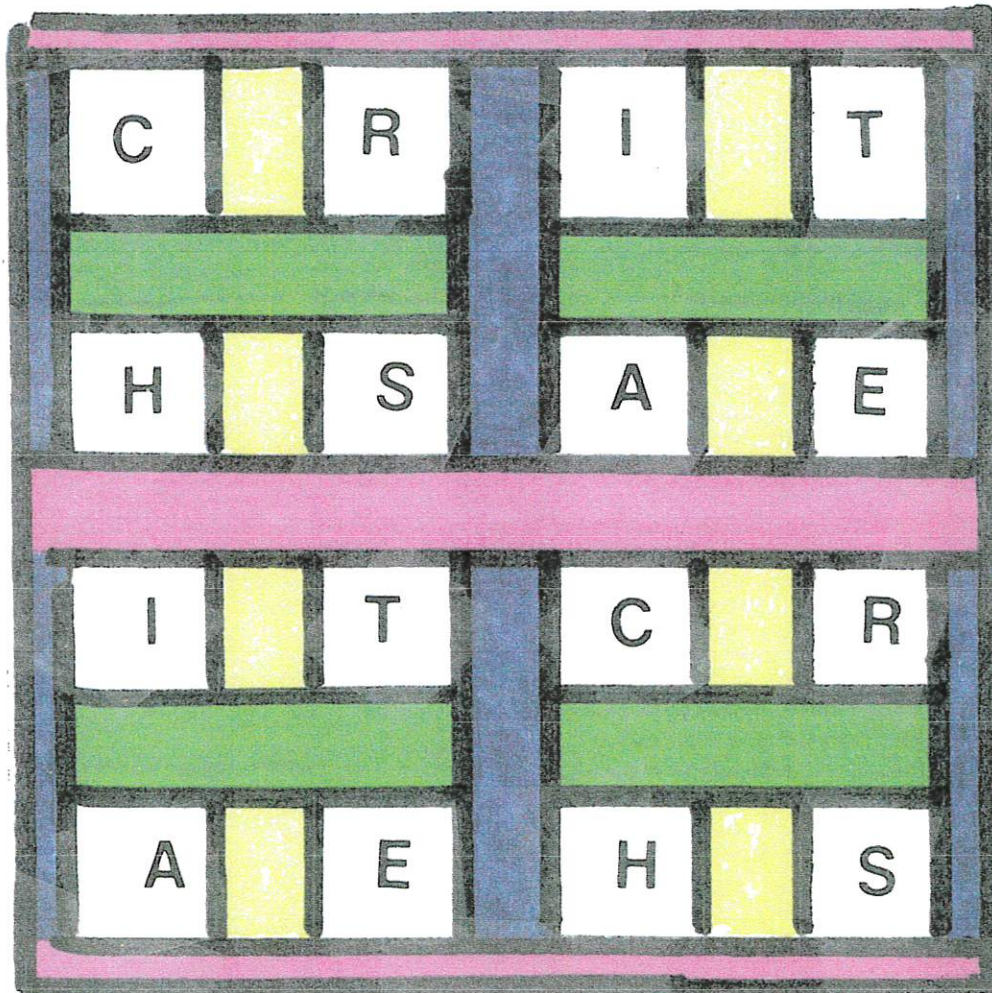


BUTLER UNIVERSITY'S CELEBRATION OF MIND

by Dr. Steve Bloom and Jeremiah Farrell

Our 2019 Celebration had an "Alice" theme and attracted some 30 to 40 attendees. We had cake and a variety of puzzles. Here is an example.

THE CHESHIRE CAT



The four colored strips below are folded so that one word is on either side. The magician sets them down so that red=hart, blue=hire, yellow=care and green=chai appear. He asks the subject to secretly choose a letter from "The Cheshire Cat" and to separate the strips into two piles; one pile that contains words with his letter and the other that does not. The subject then tells the magician the colors of one of the piles but does not mention the nature of that pile. The magician quickly names the chosen letter by looking only at the 4x4 letter square.

Method. The 8 letters of the title appear twice on the 4x4 square. The square can be considered as a torus with the top and bottom red sides and the left and right blue sides joined. No matter how the four colored strips are turned there will always be exactly one letter called the "key" that appears on all showing words or does not appear on any of them. With the start given above the "key" is "S". When the pile colors are given the magician traces from the key crossing the colored edges on the torus to arrive at the chosen letter.

Example. Suppose his chosen letter was "A" with key=S. He separates the strips into the set red, green, yellow and the set blue. The magician locates the key=S and crosses either given set to arrive at "A".

Note: The key can be changed by reversing any of the strips and crossing those colors on the torus square to the new key. Example. Start with key=S and turn red and green. The new key will be "E" and this key will now be the start.

