

SYMMETRY IN JUGGLING: PSEUDO-CHAOTIC SYSTEMS OF BALL PASSING

Robert Wechsler and Helena Zwiauer

Palindrome Dance Company
Johannis str. 42 / 90419 Nurnberg, Germany

In the last 20 years, juggling has grown a hundred-fold in the United States where participants now number in the tens of thousands.¹ What was once the domain of circus artists, has become the fascination of college students and professors; computer programmers and conceptual artists

What are the origins of this fascination?

One trend in juggling concerns the fascination of the complex symmetrical pattern. That is, there are many jugglers today working with highly involved patterns of ball movement (as opposed to the traditional view, which was concerned only with the relative "spectacularness" of the feat). There is a special excitement concerned with the apparent "breakdown," of order in a complex pattern of movement. It is exactly the point where a viewer loses his/her "grip" on what he sees. When you want to shout, "Do that again, but slower!". Jugglers are masters at the art of finding these moments. It is the use of optical illusion and for reasons of psychology that a pattern seems to slip into the non sequitur. The eye, the mind really, is lead down a path, and then dropped there, to wonder.

Alone with three balls, dozens of basic pattern have been identified. Balls are not only thrown upward but downward (bouncing). Moreover, many of the jugglers working with these pseudo-chaotic patterns, juggle in 3-dimensions. By forward and backward movements of the hands or other body parts, as well as patterns requiring two or more persons.

New codification systems as well as mathematical and computer modelling have revolutionized the 'study of juggling' in recent years