1016-37-104 **Bruce P. Kitchens*** (bkitchens@math.iupui.edu), Dept of Mathematical Sciences, IUPUI, 402 N. Blackford Street, LD 270, Indianapolis, IN 46202. *Subshifts of Ledrappier's 3-dot dynamical system.* Preliminary report.

Ledrappiers 3-dot dynamical system is a compact 0-dimensional topological group with two commuting automorphisms which define a $\mathbb{Z}^2$-action. It has zero two-dimensional entropy and the action is mixing of order two but not three. Every directional entropy is positive and all but three directions are expansive. For any fixed element of $\mathbb{Z}^2$ there are uncountably many subdynamical systems of all possible types. It is conjectured that any $\mathbb{Z}^2$ subdynamical system must have a special algebraic structure. The problem is reminiscent of Furstenbrg's times-two, times-three problem on the circle. I will describe the problem, explain what was known and state some new results. (Received February 06, 2006)