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J. R. Bozeman* (james.bozeman@lyndonstate.edu), Dept. of Mathematics and Computer Science, Lyndon State College, Lyndonville, VT 05851. *Identifying Those Links in Solid Tori Which are Braids Made of Braids.* Preliminary report.

Suppose $\bar{\gamma}$ is a braid in an unknotted solid torus $A \subset S^3$ which is an irreducible link L . Assume L is a braid made of braids. Then L has a prime decomposition, $\bar{\gamma} = \bar{\gamma}_j | \bar{\gamma}_{j-1} | \cdots | \bar{\gamma}_2 | \bar{\gamma}_1$, where each $\bar{\gamma}_i, i = 1, \dots, j$ is not a braid made of braids. That is, L may be written as a product of *prime* braids. If L is entirely composed of braids made of braids then it admits a prime decomposition as above on each of the components. This result has applications to the Neilsen-Thurston classification problem. Using work of Moran we show how a braid made of braids may be written as a braid word without referring to the braid diagram. We also show how the product above is related to the usual braid product. Utilizing these results we indicate how to tell if a given link in a solid torus is in fact a braid made of braids or is entirely composed of braids made of braids. This result could have applications to the author's study of the three dimensional conformation of the DNA molecule, specifically the structure of left-handed Z-DNA. (Received July 20, 2004)