MATHEMATICAL RIDDLES AMONG THE MUSHARS: LINKED TO A HISTORICAL TRADITION?

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Riddles are part of the folk mathematics of many cultures. It has been suggested that riddles are important for literacy and numeracy education (Rampal et al., 1998). In India, mathematical riddles are a strong part of the folk culture and may have links to the historical tradition of algebra. In this report, we present examples of riddles known to members of the Mushar (rodent hunters), which is a non-literate, oral community living largely in the northern Indian states of Bihar and Uttar Pradesh. Members of this community were nomads till recently and now are socially marginalised, living in poverty without any regular job or access to formal education. Several of the riddles are based on indeterminate equations with positive integer solutions. Constraints are added which make them determinate equations. The solutions of indeterminate equations have played an important part in the historical development of algebra in India (Katz, 1998). This study of Mushars' knowledge of riddles was part of an ethnomathematical study of the working knowledge of arithmetic that was conducted in three Musharis (hamlets where Mushars live). Data was collected through interviews and discussions with 25 adults (20 male and 5 female). Example of one such riddle is:

A goat produces a quarter kilo (litre) milk everyday, a cow half a kilo, and a buffalo 4 kilos. 20 kilos of milk is required from 20 such animals. How many of each of these animals is needed?

Some Mushars (those who could solve the riddles) were able to not only pose and solve riddles, but also to solve other riddles similar in structure but with the numbers changed. In one instance, one of them seemingly constructed a new riddle for the researcher. The presentation will focus on the knowledge of basic arithmetic among the Mushars, which is similar to that found in oral cultures (Nunes et al., 1985). This fact and the remarks made during the interview indicate that the riddles are learnt by the Mushars from other village communities. In fact, such riddles are a common part of the folk culture in this region, suggesting a long tradition and connections with the historical tradition of algebra in India.

References

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