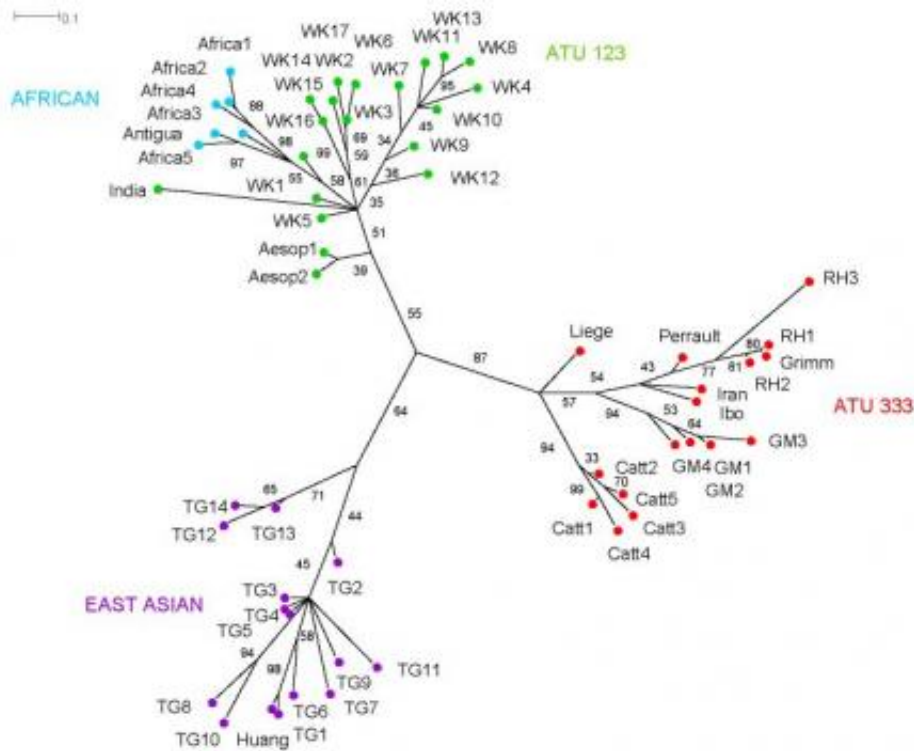


Mathematical modelling provides insights into the origins and evolution of folk tales

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This image shows a maximum clade credibility tree returned by the Bayesian phylogenetic analysis of the tales. Major groupings are labelled by region and/or ATU international type and indicated by the coloured nodes. Numbers beside the edges represent the percentage of trees in the Bayesian posterior distribution of trees in which a given node occurred. The scale bar indicates the average number of changes per character along a given edge. Credit: Tehrani JJ (2013) The Phylogeny of Little Red Riding Hood. *PLoS ONE* 8(11): e78871. doi:10.1371/journal.pone.0078871

New insights into the origins and development of folk tales such as Little Red Riding Hood are being provided by the application of scientific analysis more commonly used by biologists to produce an evolutionary tree of life diagram.

In the scientific journal, *PLOS ONE*, published today, Dr Jamie Tehrani, an anthropologist at Durham University, England, resolves a long-running debate by demonstrating that Little Red Riding Hood shares a common but ancient root with another popular international folk tale The Wolf and the Kids, although the two are now distinct stories.

"This is rather like a biologist showing that humans and other apes share a common ancestor but have evolved into distinct species," explained Dr Tehrani, who found that The Wolf and the Kids probably originated in the 1st century AD, with Little Red Riding Hood branching off 1,000 years later.

The Wolf and the Kids, popular in Europe and the Middle East, is a story about a wolf who impersonates a nanny goat and devours her kids, whereas Little Red Riding Hood is about a wolf who devours a young girl after impersonating her grandmother. Variants of the story are common in Africa and Asia, for example, The Tiger Grandmother in Japan, China and Korea.

Little Red Riding Hood was told by the Brothers Grimm 200 years ago but that version was based on an earlier, 17th century, story written by the Frenchman Charles Perrault, which itself derived from an older, oral tradition of storytelling in France, Austria and northern Italy.

Dr Tehrani subjected 58 variants of the folk tales with phylogenetic analysis, a method more commonly used by biologists for grouping together closely-related organisms to form a tree of life diagram, mapping out the various branches of evolution from the earliest life

forms.

The analysis focused on 72 plot variables, such as the character of the protagonist (for example male or female, single child or group of siblings); the character of the villain (wolf, ogre, tiger or other creature), the tricks used by the villain to deceive the victim and whether the victim is eaten, escapes or is rescued.

Phylogenetics involves a mathematical modelling process that compares similarities between the plot variables and scores them according to the probability that they have the same origin. This enables a tree to be constructed showing the most likely paths, or branches, of the evolution of the story.

Dr Tehrani said: "My research cracks a long-standing mystery. The African tales turn out to be descended from The Wolf and the Kids but over time, they have evolved to become like Little Red Riding Hood, which is also likely to be descended from The Wolf and the Kids.

"This exemplifies a process biologists call convergent evolution, in which species independently evolve similar adaptations. The fact that Little Red Riding Hood 'evolved twice' from the same starting point suggests it holds a powerful appeal that attracts our imaginations.

"There is a popular theory that an archaic, ancestral version of Little Red Riding Hood originated in Chinese oral tradition. It is claimed the tale spread west, along the Silk Route, and gave rise to both The Wolf and the Kids and the modern version of Little Red Riding Hood. My analysis demonstrates that in fact the Chinese version is derived from European oral traditions, and not vice versa.

"Specifically, the Chinese blended together Little Red Riding Hood, The Wolf and the Kids and local folktales to create a new, hybrid story.

Interestingly, this tale was first written down by the Chinese poet Huang Zhing, who was a contemporary of Perrault, who first wrote down the European version of Little Red Riding Hood in the [17th century](#).

"This implies that the Chinese version is not derived from literary versions of Little Red Riding Hood but from the older, oral version, with which it shares crucial similarities. It is therefore understandable that previous scholars have assumed it to be ancestral to the European tale – but actually it's the other way around."

Dr Tehrani, whose research is funded by Research Councils UK, is now applying phylogenetics to other folk tales and believes that his research could shed light on the migration patterns of humans in ancient times, by determining the origins and evolution of the folk stories being told at various locations and dates.

More information: The phylogeny of Little Red Riding Hood, Tehrani, J., *PLOS ONE*, November 2013, Volume 8, Issue 11.

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Provided by Durham University

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