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Results

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Results

1   The cladistic analysis returned 5740 equally most parsimonious

trees (MPTs). The fit between the data and the trees was measured

with the Retention Index, which was calculated as 0.72. Figure

2 shows a consensus tree representing relationships that were

5   present in the majority of the MPTs and levels of support for them

returned in a bootstrap analysis. The tree, which is unrooted,

splits the tales into three principal groups. The first group

corresponds to international type ATU 333, which was present in 62%

of the cladograms generated from the bootstrap replicates. The group

10   comprises the 11th century Liège tale and three recognised sub-types

of ATU 333: variants of Catterinella (with bootstrap support of 84%),

variants of The Story of Grandmother (61% bootstrap support), and

variants of the familiar tale Little Red Riding Hood (20% bootstrap

support). The latter include two non-European tales, one from Iran,

15   the other collected from the Ibo of Nigeria. The analyses separated

Catterinella from the other tales, and suggest that the 11th

century Liège tale diverged from the lineage leading to Little Red

Riding Hood before the latter split from the oral tale The Story

of Grandmother. The Little Red Riding Hood clade separates Perrault's

20   classic version from more recent versions, including the Grimms'

18th century German text. However, the low levels of boostrap support

indicate a substantial degree of conflicting signal surrounding

these relationships. The second major group can be identified as

international type ATU 123. This group is less well supported than

25   the ATU 333 group, being present in only 49% of the cladograms

generated from the bootstrap analysis (although it was present

in all of the MPTs returned by the original analysis). The first split

(with bootstrap support of 59%) in this lineage separates the Indian

tale of the Sparrow and the Crow from the others. The remaining

30   tales split into two lineages, one leading to a pair of Aesopic

fables (53% bootstrap support), the other leading to the folktale

The Wolf and the Kids (59% boostrap support). The latter includes

a clade comprising the African tales, together with a tale recorded

in Antigua (24% boostrap support). The third major group is formed

35   by the East Asian tales. This group was the least well supported

in the bootstrap analysis (35%), and does not appear to contain any

robust sub-groups larger than two taxa.

The Bayesian analysis returned a very similar set of results.

Figure 3 shows an unrooted maximum clade credibility tree obtained

40   from the posterior distribution. It represents the same three

major groupings, with varying levels of support in the posterior

distribution of trees. The ATU 333 group is again the most strongly

supported, being present in 87% of the tree sample. Tales within

this group cluster into the same recognised sub-types of ATU 333

45 that were returned in the cladistic analysis, including Catterinella

(with posterior support of 94%), The Story of Grandmother (94%) and

Little Red Riding Hood (54%), with the Liège tale forming a separate

branch. Compared to the ATU 333 group, support for the ATU 123

group is relatively modest at 55%. Relationships within the group

50 separate variants of the Aesopic fable from the other narratives.

The latter clade (51% posterior probability) includes European and

Middle Eastern variants of The Wolf and the Kids, the Indian tale

of the Sparrow and the Crow, and a clade comprising the African

tales (55% posterior probability). The final major grouping consists

55 of the East Asian tales, which has a posterior probability of 64%.

Relationships within this group generally lack resolution, except

for one clade that clusters two tales from Korea (TG12 and TG13)

with one from Myanmar (TG14) (71% posterior probability).

The NeighbourNet graph is shown in Figure 4. Once again, the tales

60 are divided into the same three main groups, except the Indian tale,

which does not cluster with any of them. Although the groups are

clearly discernible, the overlapping boxes demonstrate conflicting

splits in the data. This is especially clear in the East Asian clade,

which exhibits a highly reticulated structure. Similarly, overlapping

65 boxes obscure the phylogenetic structure within the ATU 123 group,

although it is possible to identify a split between the fable and

folktale versions of the story, with the latter again including

a clade of African tales (plus the Antiguan variant). The ATU 333

group, meanwhile, divides into two relatively well defined branches,

70　　one comprising variants of Catterinella and the medieval Liège

tale, the other variants of Little Red Riding Hood and The Story

of Grandmother (which each forming a distinct clade). Estimates

of the overall tree-likeness/boxiness of the network yielded

an average delta score of 0.3 and Q-residual score of 0.03.