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(54) Title: SYSTEM, METHOD, AND COMPUTER PROGRAM PRODUCT FOR PREDICTIVE MODELING USING HYPERBOLIC KNOWLEDGE GRAPH EMBEDDINGS

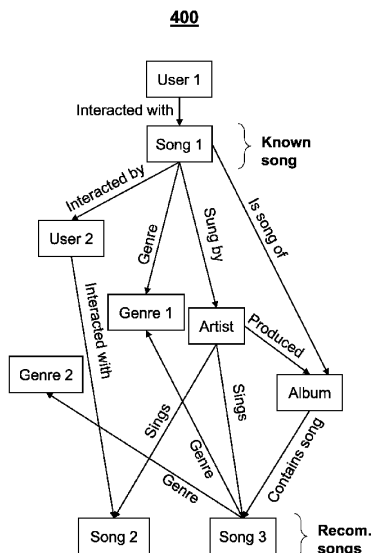


FIG. 4

(57) Abstract: Described are a system, method, and computer program product for predictive modeling using hyperbolic knowledge graph embeddings. The method includes receiving graph data associated with a knowledge graph including at least one triple. The method also includes generating, in a hyperbolic space, a head embedding for each head vector, a tail embedding for each tail vector, and a relation embedding for each relation vector, of the at least one triple. The method further includes determining a score for each triple based on the head embedding, the tail embedding, and the relation embedding. The method further includes determining a loss based on the score for each triple and updating the head embedding, the tail embedding, and the relation embedding for each triple based on the loss. The method further includes repeating determining the score, determining the loss, and updating until a termination condition is satisfied.

[Continued on next page]

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