

# Analysis and Visualisation of Complex Familial Relationships in Greek Mythology

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## **Abstract:**

Family relationships in Greek myth are currently displayed graphically using conventional genealogical chart structures (e.g. Gantz 1993; Smith & Trzaskoma 2007; Fowler 2013). Such family trees construct linear relationships which privilege genetic models of inheritance; they do not easily accommodate the complexities of mythic data. Although some attempts have been made to represent complex family relationships, e.g. polygamy (Hott et. al. 2018) and divorce/remarriage (Kim et. al. 2010), none of the standard visual languages – in either analogue or digital realms – are able to capture the instances of autochthony, parthenogenesis, and non-standard birth that occur in the Greek mythic storyworld. In addition, this tradition is rife with incest, intergenerational relationships, uncertainty and contestation, which likewise are not easily communicable.

This project uses MANTO, an expertly-curated relational dataset of entities with stable LOD identifiers from Apollodorus' *Library* and *Epitome* (2<sup>nd</sup> c CE). It uses the genealogical relationships contained within this dataset to create a public web interface that offers user-friendly and intuitive access to the data, while also providing references to the ancient source material. Through this web interface users can search for Greek entities and graphs ("family trees") of the entity's relationships, which will be dynamically generated. These graphs will show the standard genealogies of these entities – ancestors and descendants – but will also draw attention to the relationships that are unusual. As a result, this interface juxtaposes the visual representation of these relationships with the source material in a way which highlights the more complex genealogical elements of Greek mythology. The graph visualisation techniques used in this project are inspired by existing multipartite directed acyclic graph layout algorithms rather than the simple binary tree-based approaches used in more traditional genealogical representations (see Graham & Kennedy 2010 for a review). Multiple graph visualisation approaches are explored to determine the most effective way to accommodate the relational complexity of the Greek mythic storyworld.

This project's graphical language is more than just a useful tool for understanding and exploring the Greek mythic tradition; it also reveals the inherent gaps in our usual conceptions of family dynamics. We exist in a world in which artificial insemination, adoption, polyamory, and blended families are facts of life, and in which cloning and genetic modification are on the horizon. Conventional family trees are too narrowly constrained by linear, hierarchical conceptions to display such complexity, and this project explores new ways to address these challenges.

## References:

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