Dataset:
This dataset was compiled from the "main" Greek deities listed at http://www.theoi.com, which also includes ancestry information. While many deities have conflicting origin stories, the edges in this dataset correspond to the most accepted ones. There are 111 nodes (deities) and 182 edges in the graph. In-edges represent parent connections, while out-edges represent children. The only layout option in Gephi that adequately represented this data was Force Atlas - below is a picture of the entire graph partitioned by modularity and sized by out-degree.

Headline 1: While there was initially a balance between "good" and "bad" deities, after a few generations good deities greatly outnumbered bad ones because the latter were unable or unwilling to reproduce.

I created this visualization by applying the Force Atlas layout adjusted for node sizes. The nodes in this graph were sized by betweenness centrality, which measures how many shortest paths between all nodes go through a particular node. I partitioned the graph by modularity with a resolution of 6.0, which resulted in the three main clusters shown. Finally, I manually re-colored the nodes associated with Chaos and Eros so that they weren't confusing.
In Greek mythology, Chaos was the first god to emerge at the creation of the universe. Out of his children (Gaia, Tartarus, and Eros), only Gaia had more than two generations of offspring. From the graph, we see three clusters centered at each of Chaos’ offspring. The cluster originating at Gaia (in green) is by far the largest, and it includes all twelve Olympians as well as other minor deities who dwell on land, sea, or in the heavens. The vast majority of the green cluster, which includes multiple generations, are “good” deities – that is, not monsters or underworld types. The blue cluster represents the monstrous family of Typhon and Echidna, which includes creatures such as the Hydra and Cerberus. The siblings Typhon and Echidna are the offspring of Gaia and Tartarus, who are themselves brother and sister (incestuous relationships are very common in Greek mythology). Zeus and Typhon fought for ten years, after which Zeus finally managed to imprison him in the underworld. He allowed Echidna and the kids to live separate from each other on Earth as “obstacles to future heroes”. Hercules ends up killing many of the offspring during his labors, which in addition to the geographic separation is why they didn't reproduce. The other cluster, centered around Erebus, represents the underworld deities - most of the goddesses are depicted as ugly, winged beasts while the gods, such as Hypnos or Charon, are portrayed as loners who despise social interaction. This network suggests that after a few generations, there were many more good deities than monsters or underworld dwellers - this development coincides with increased divine involvement in human affairs (e.g. the Odyssey and Iliad), probably because the good deities had already taken care of the bad ones.
Headline 2: Cadmus is the only human to have reproduced with a deity.

To obtain this graph I first sized by out-degree and colored by modularity as described earlier. I then filtered out all nodes with one or more in-edges, which left me with these four nodes. I ran Force Atlas on the filtered graph to create the displayed layout.

Of the four vertices on this filtered graph, Chaos is unique because since he was the first being ever created, he has no parents. Memphis and Anchinoe are nymphs, immortal beings who dwell on Earth. Their ancestry is complicated and related to gods of specific rivers or other natural phenomena, who aren't considered “main” deities. Cadmus, however, was 100% human and founded the city of Thebes. As a reward for founding the city (and slaying a dragon in the process), the Olympian gods arranged a marriage between Cadmus and Harmonia, the immortal goddess of harmony and concord. Unfortunately for Cadmus, one of his wedding gifts (given to him by a jealous Hephaestus) was a necklace that cursed its wearer with great misfortune. This necklace was passed down to a number of other famous Greek humans in mythology (e.g. Queen Jocasta from Oedipus Rex) and probably contributed to the lack of other humans mating with gods.

Headline 3: While Zeus had many children with many different goddesses, all of his consorts only reproduced with Zeus.

To get this graph, I used an ego-network filter on Zeus with a degree of two, meaning that all nodes that weren't two or less edges away from Zeus were filtered out. All nodes were then sized by betweenness centrality. Next, I colored all nodes on the filtered graph with no in-edges red, as these nodes represent Zeus' wives and consorts. I used Force Atlas with a slight modification: I used the attraction distribution option to push each consort as far as possible from each other. Finally, I displayed all out-edges for the colored nodes by nesting ego-networks of degree one on the consort names. This resulted in no new nodes added to the graph.
You can see that while Zeus was quite a prolific baby-maker, the goddesses that bore him children were faithful to only him. While this observation initially surprised me, it makes sense given that Zeus is the king of Greek mythology - any other god caught messing around with Zeus' consorts will incur his wrath, and also, from a consort's point of view, mating with anyone else is a few steps down. It's also interesting that most of his consorts only gave birth to one child with him; only Hera, his rightful wife, and Leto, who gave birth to the twins Apollo and Artemis, are exceptions.

**Gephi critique:**

**Pros:**

Unlike NodeXL, Gephi ran on my Linux machine. It was painless to load data in the form of an edge list, and no operations (layouts, statistics) took any noticeable computation time. The tutorials were very clear and introduced me to every feature I needed to complete this project. The tool really makes it easy to edit the appearance of graphs as well - I especially appreciated the option to resize node labels proportional to node size. Finally, the ability to nest filters allows for very powerful operations to be run on these graphs.
**Cons:**
I did test Gephi on a much larger dataset (Marvel comics social network, with tens of thousands of nodes) and it was slow to the point of being unusable. Also, there is no way to undo anything. I had to save many copies of my project in order to recover my work. You also have to refresh statistics in the node size / color / partition panels for them to display, and sometimes this doesn't even work. Also, sometimes after saving the project file would become corrupted and I'd have to start all over again. It would be great if they made an option for smaller graphs to automatically compute all statistics and run Force Atlas on them, because doing this manually is time-consuming and unnecessary. I had a hard time understanding what some of the options meant; Gephi's tooltips in this regard were not helpful. Since the online documentation is also lacking outside of the tutorial, I still don't know what some of the options mean. Finally, Gephi had no "group-in-a-box" feature like NodeXL, which was frustrating because I really wanted to display the primeval and Olympian gods in separate boxes.

Best,
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