Exploring the structure of human smuggling networks

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Joint work with

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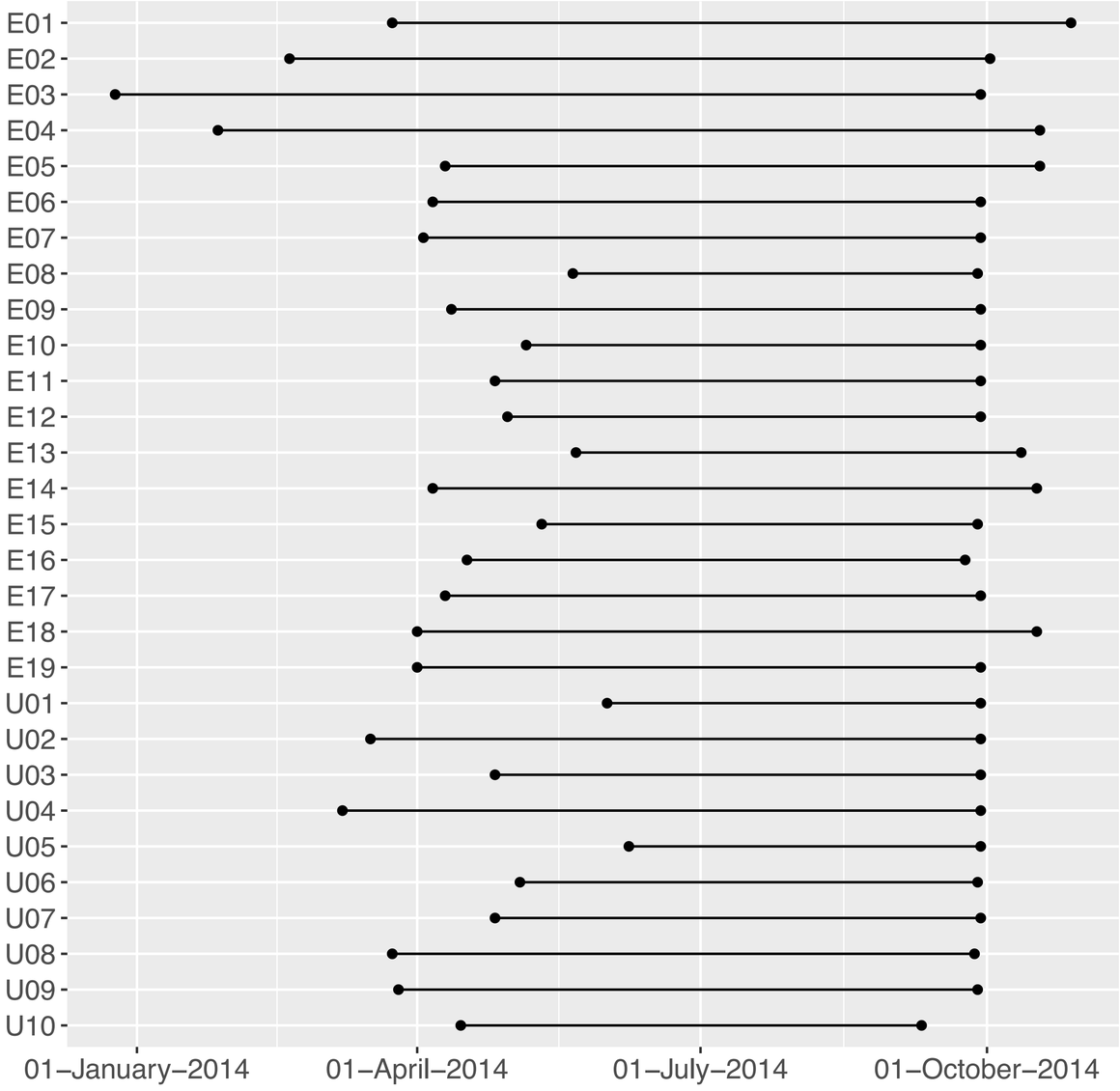
Glauco Operation

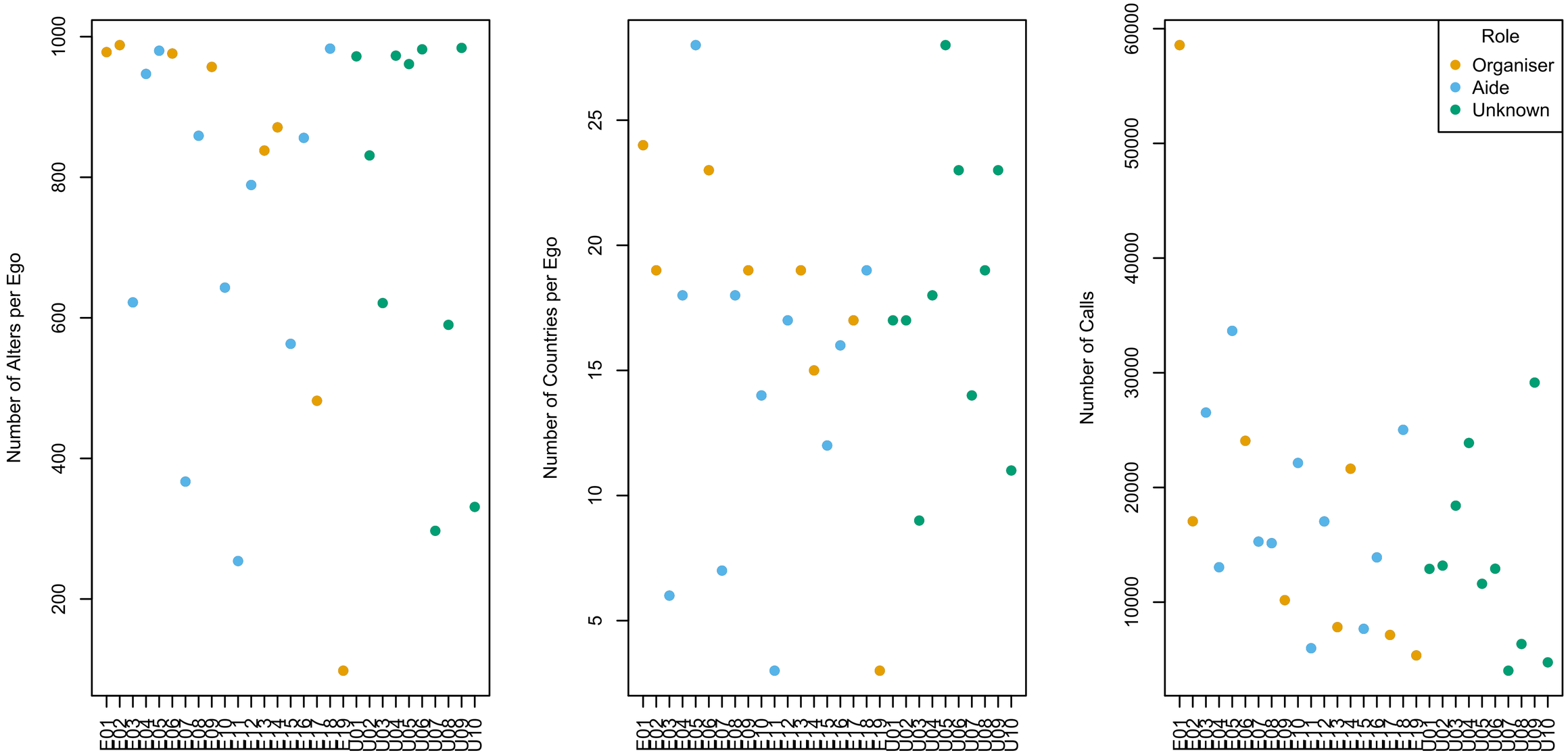
The data are provided by the **Italian Police**:

- Investigation from 25th December 2013 to October 2014
- Wiretap of **29** different phone numbers (**Egos**).
- They has been in contact with more than **15K** **Alters**

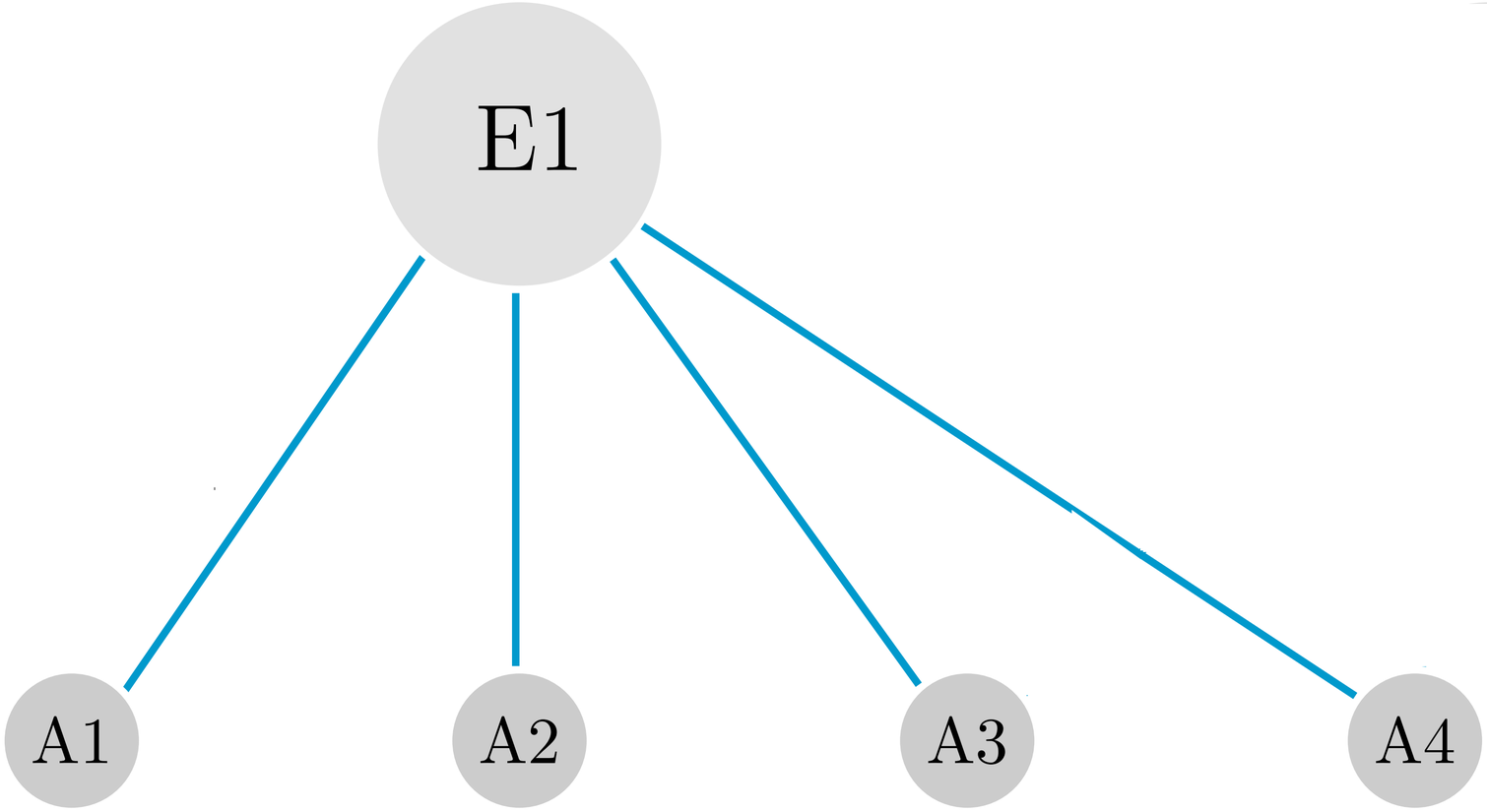
Investigation Period



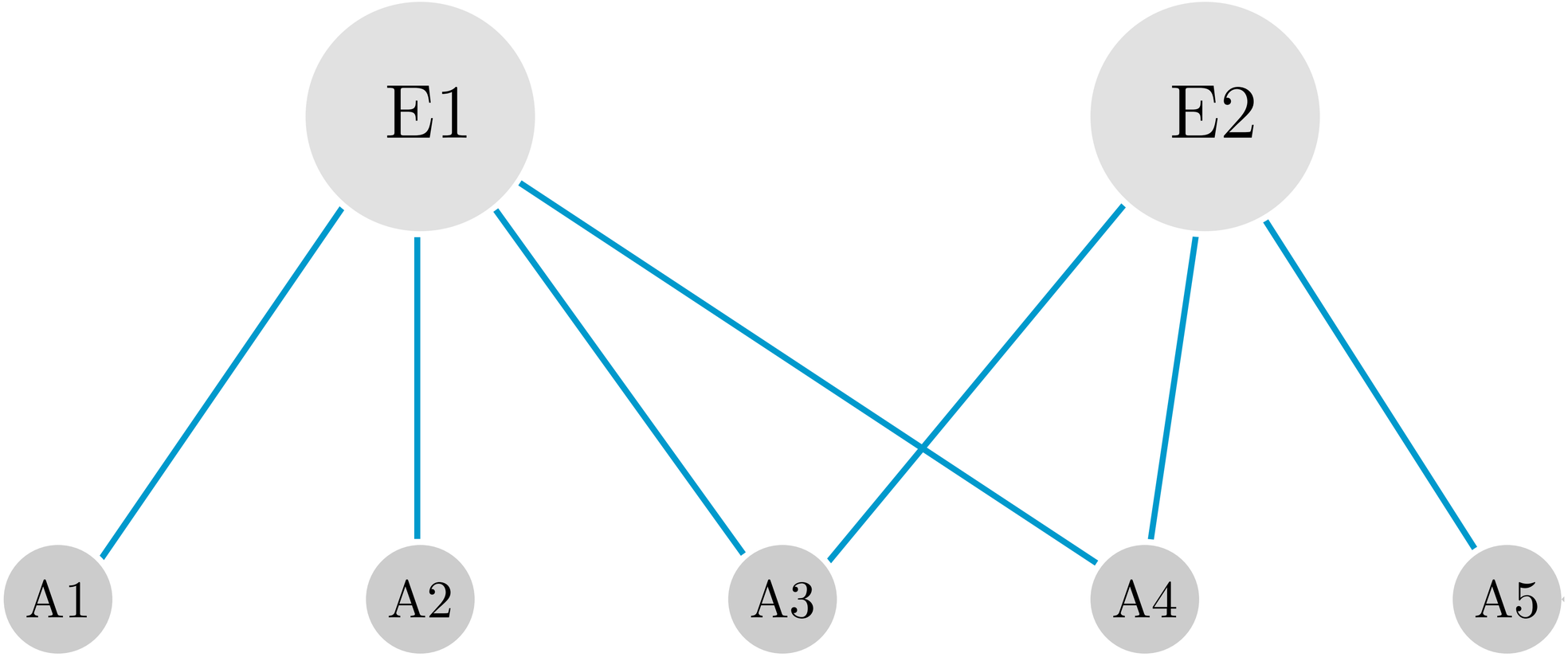
Number of Calls in the Investigation Period



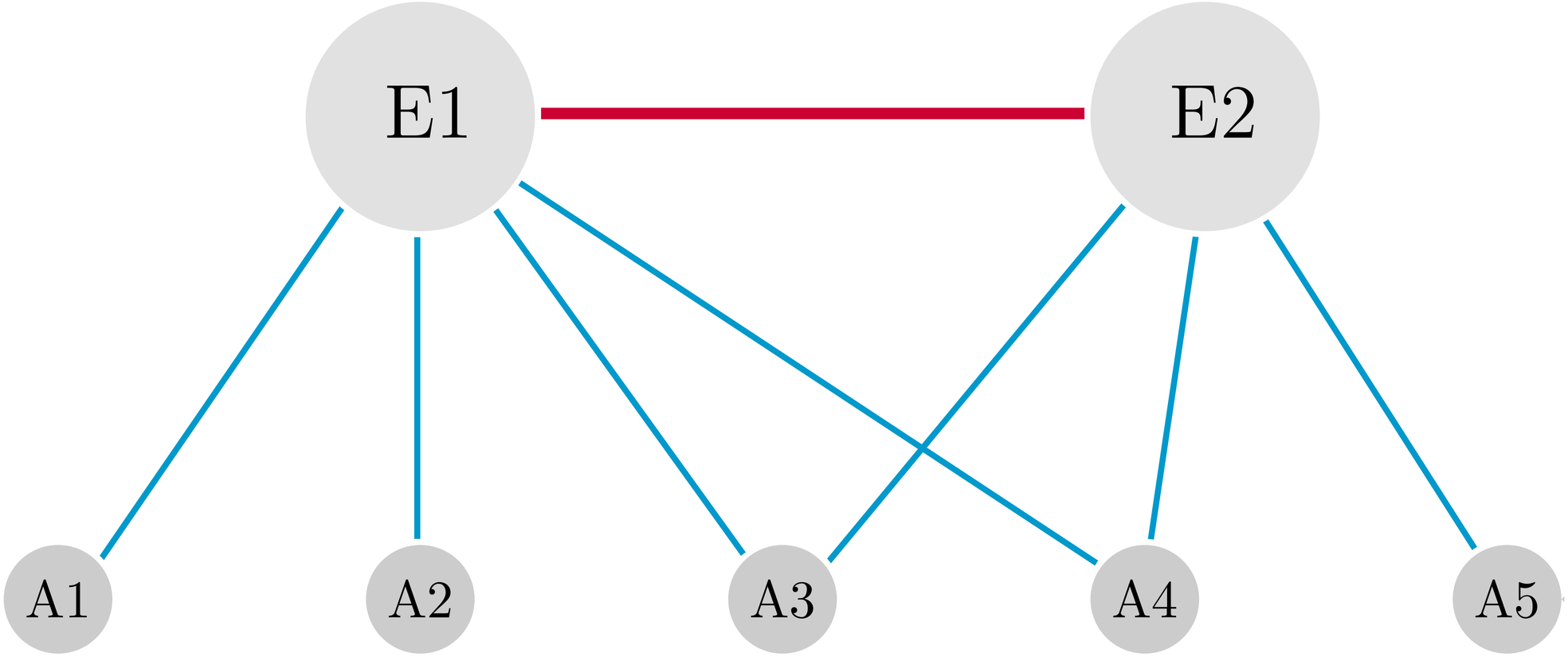
Ego-network



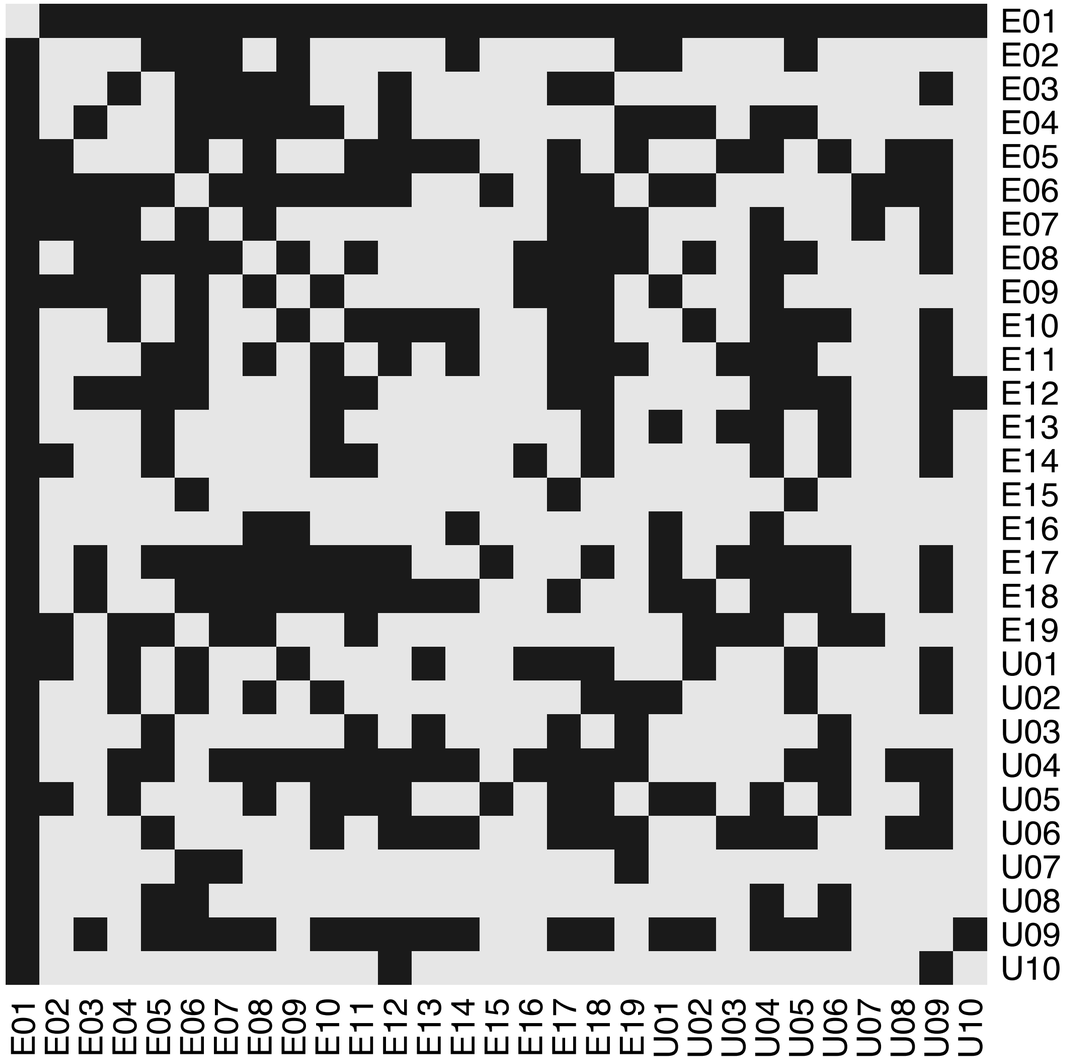
Ego-networks



Interconnected Ego-Networks



Heatmap of the Ego-Ego Network



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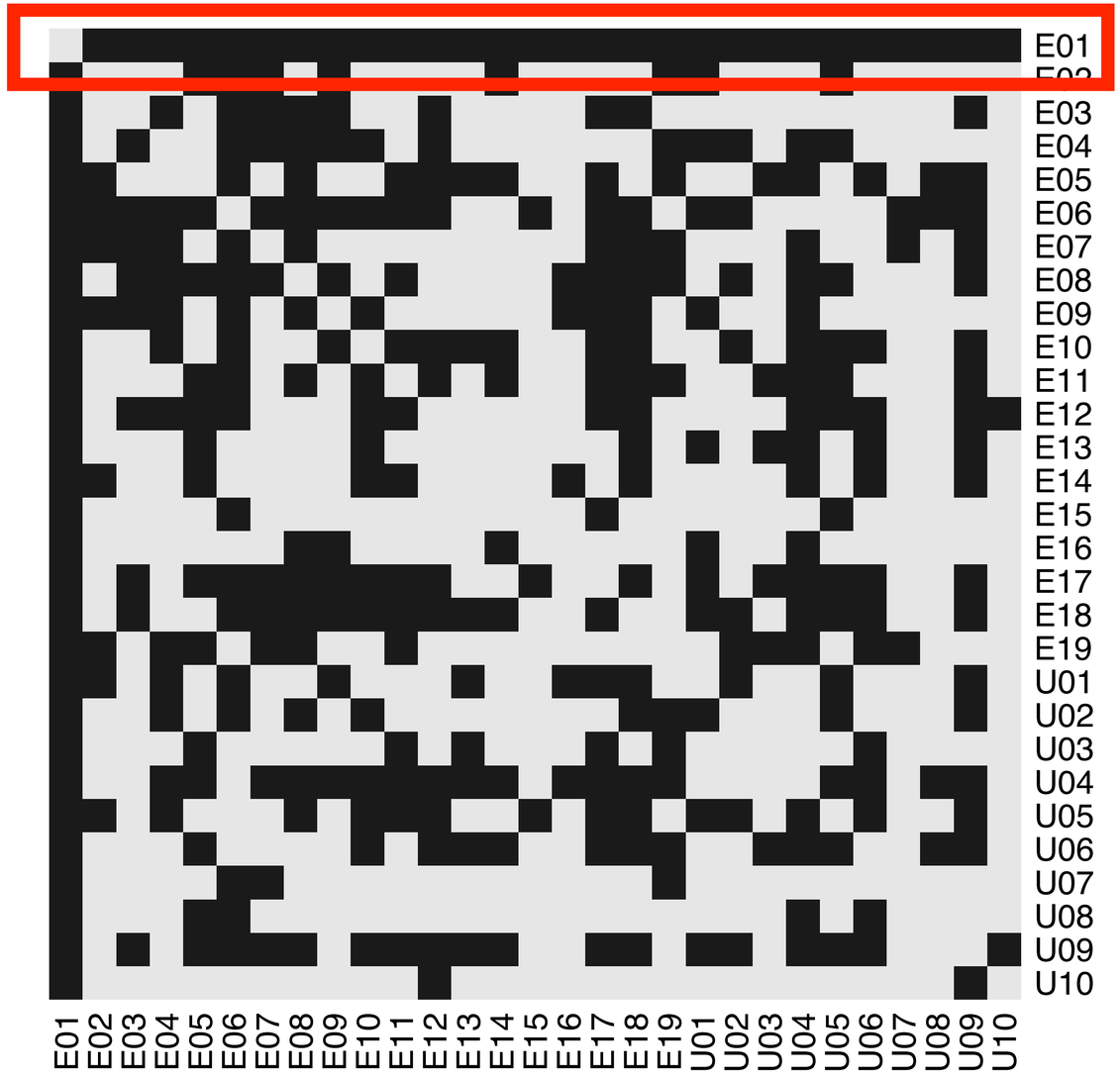
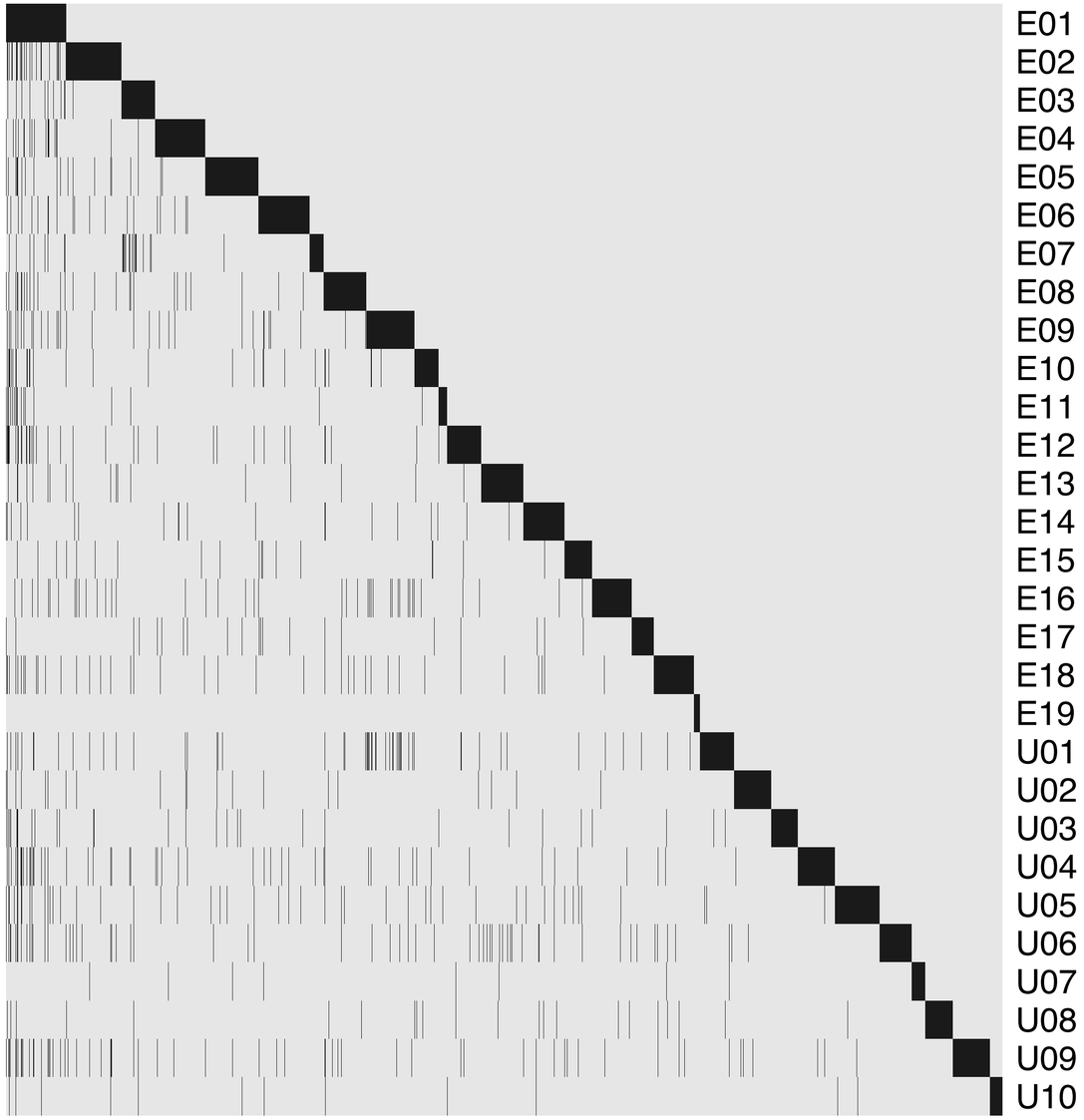
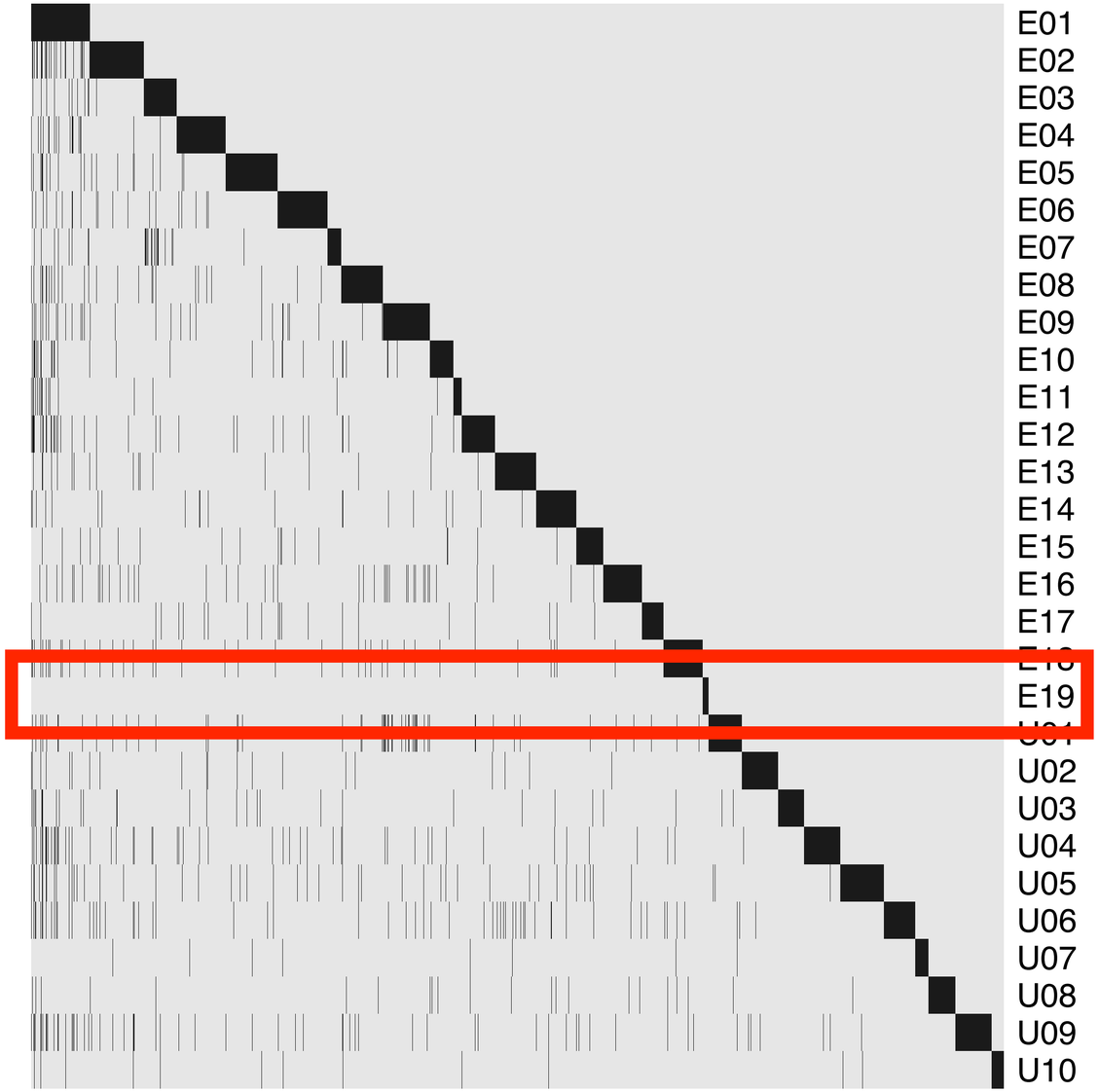


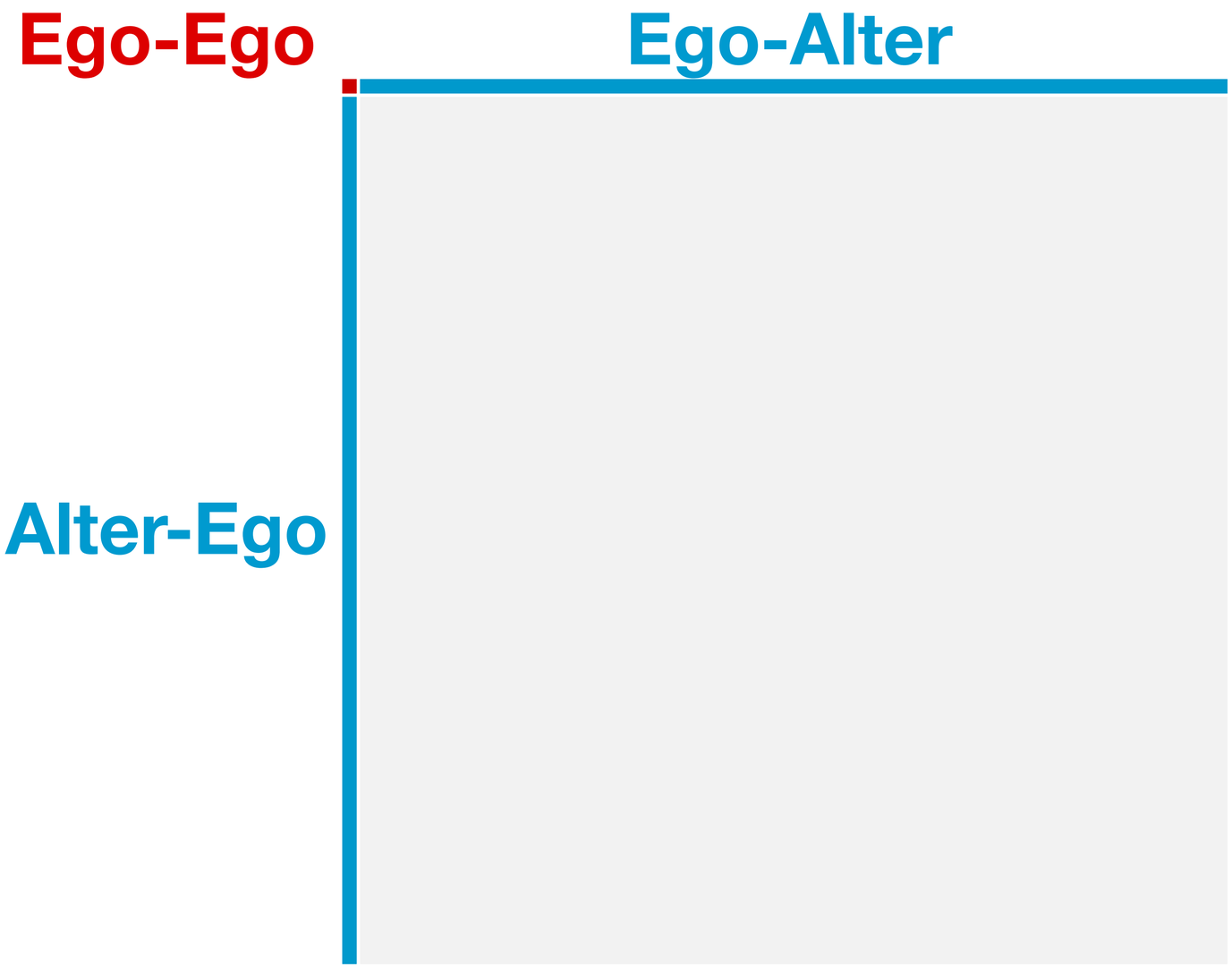
Heatmap of the Ego-Alter Network



Heatmap of the Ego-Alter Network



Full Heatmap of the Ego-Alter Network



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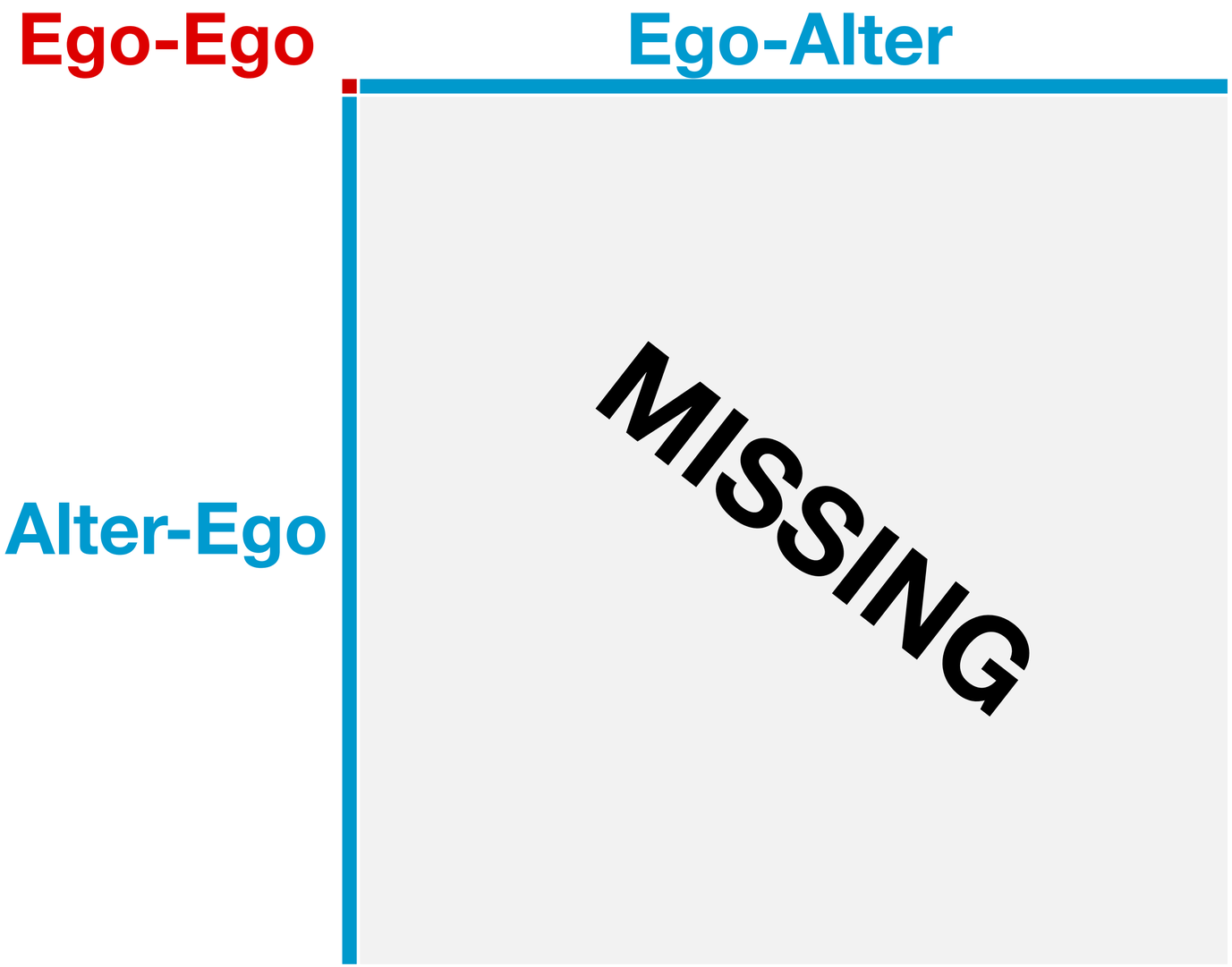
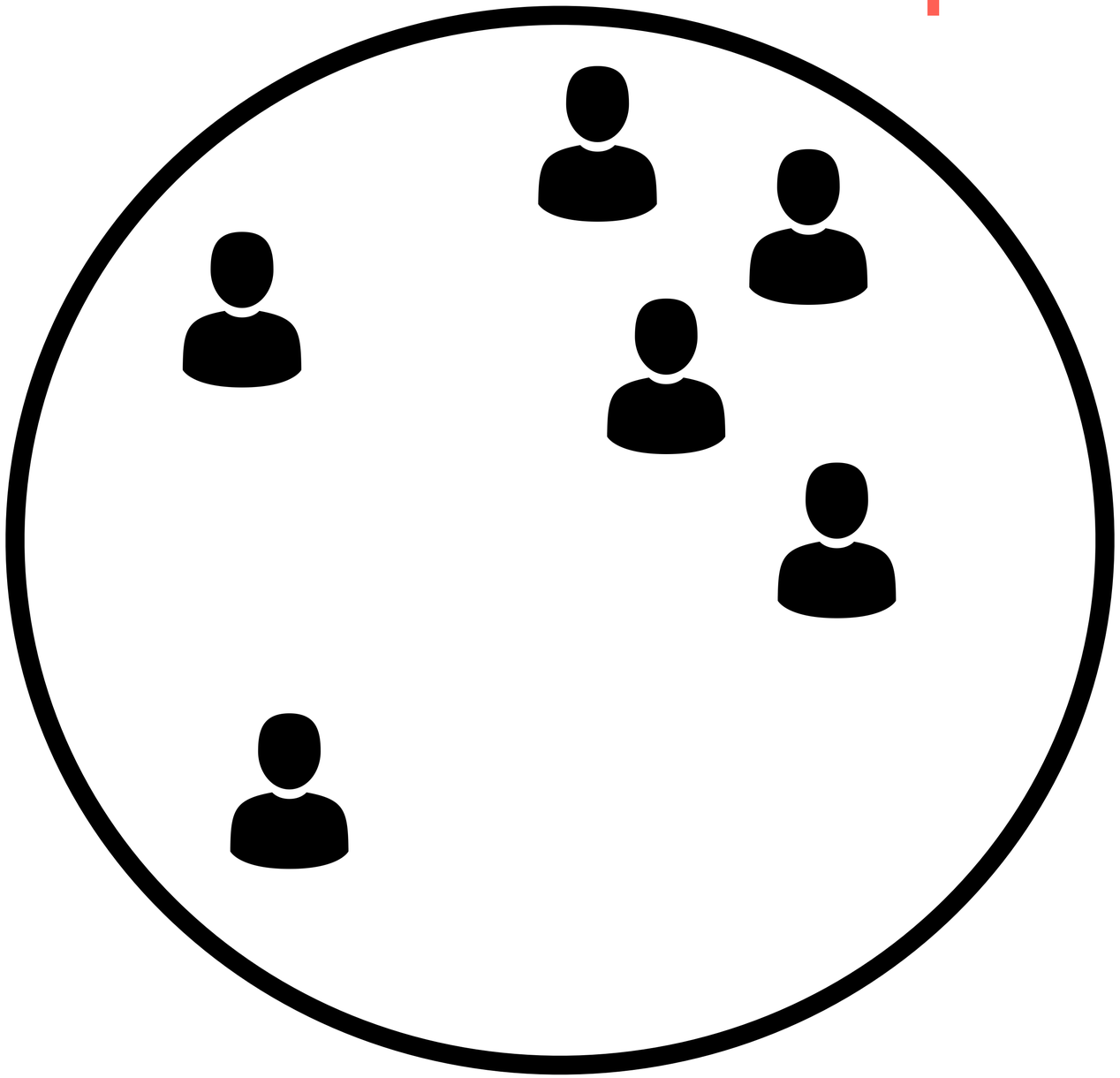


Statistical Models - Latent Space Models



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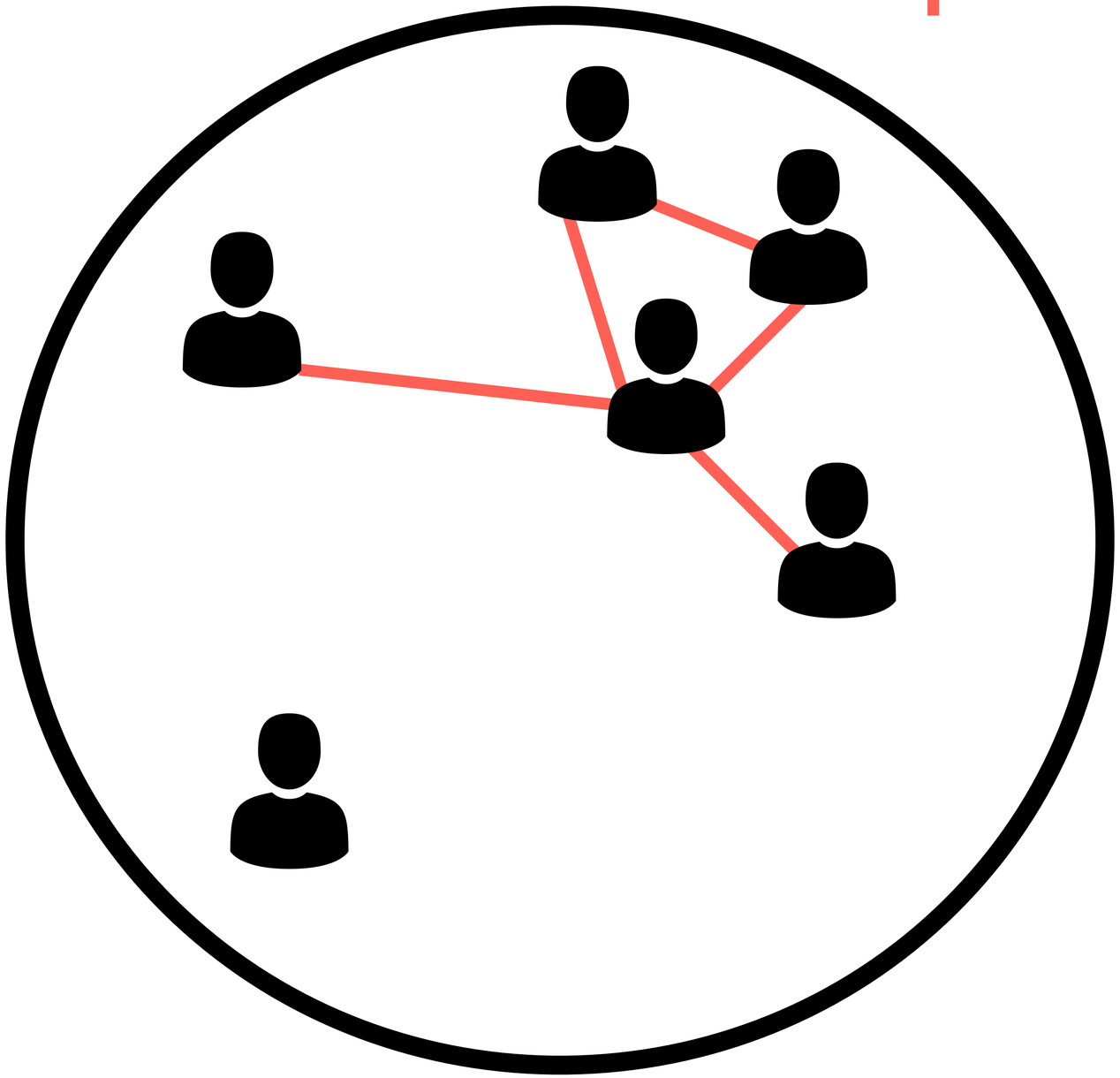
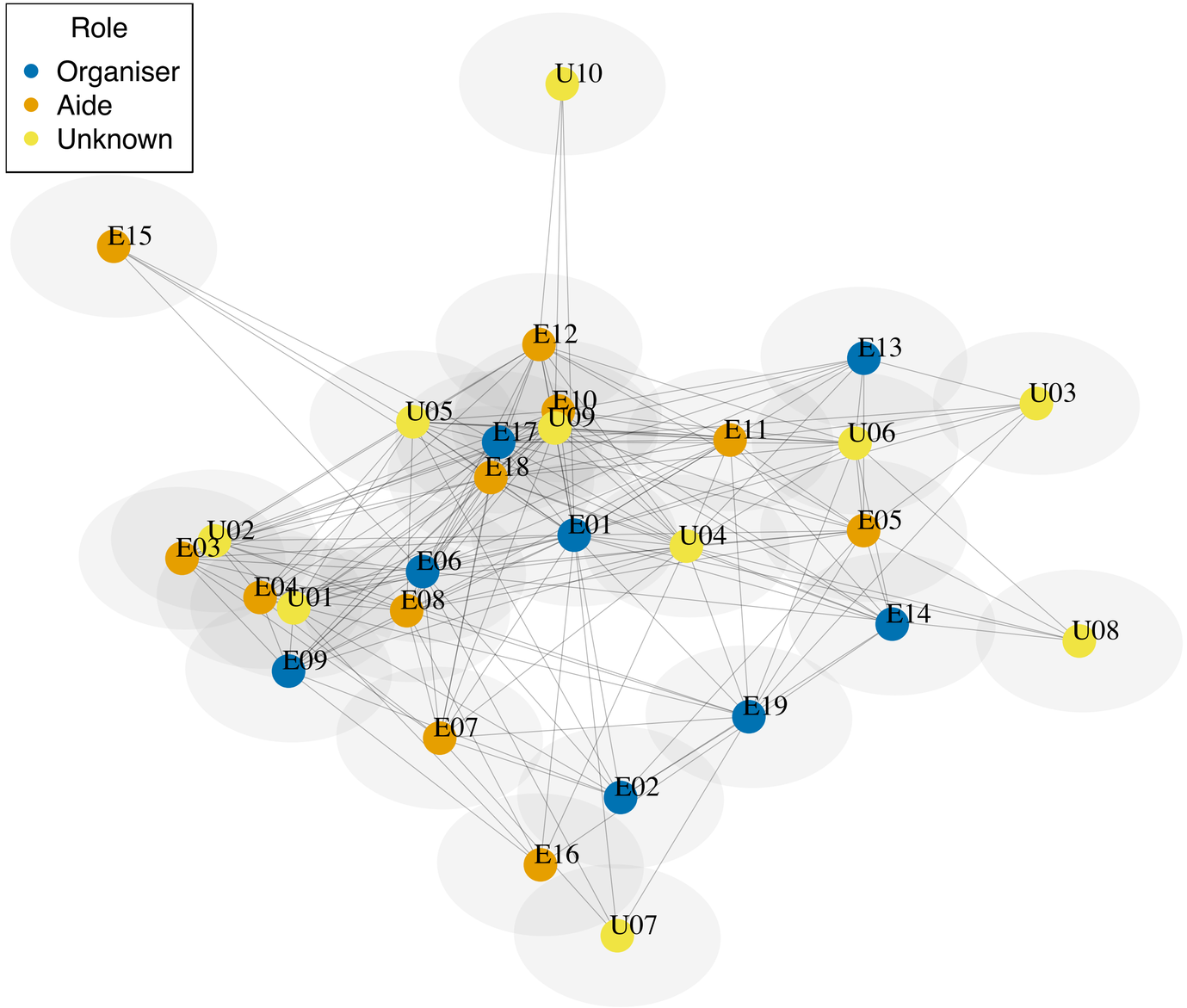


2-D Latent Space Model for Ego-Ego Network



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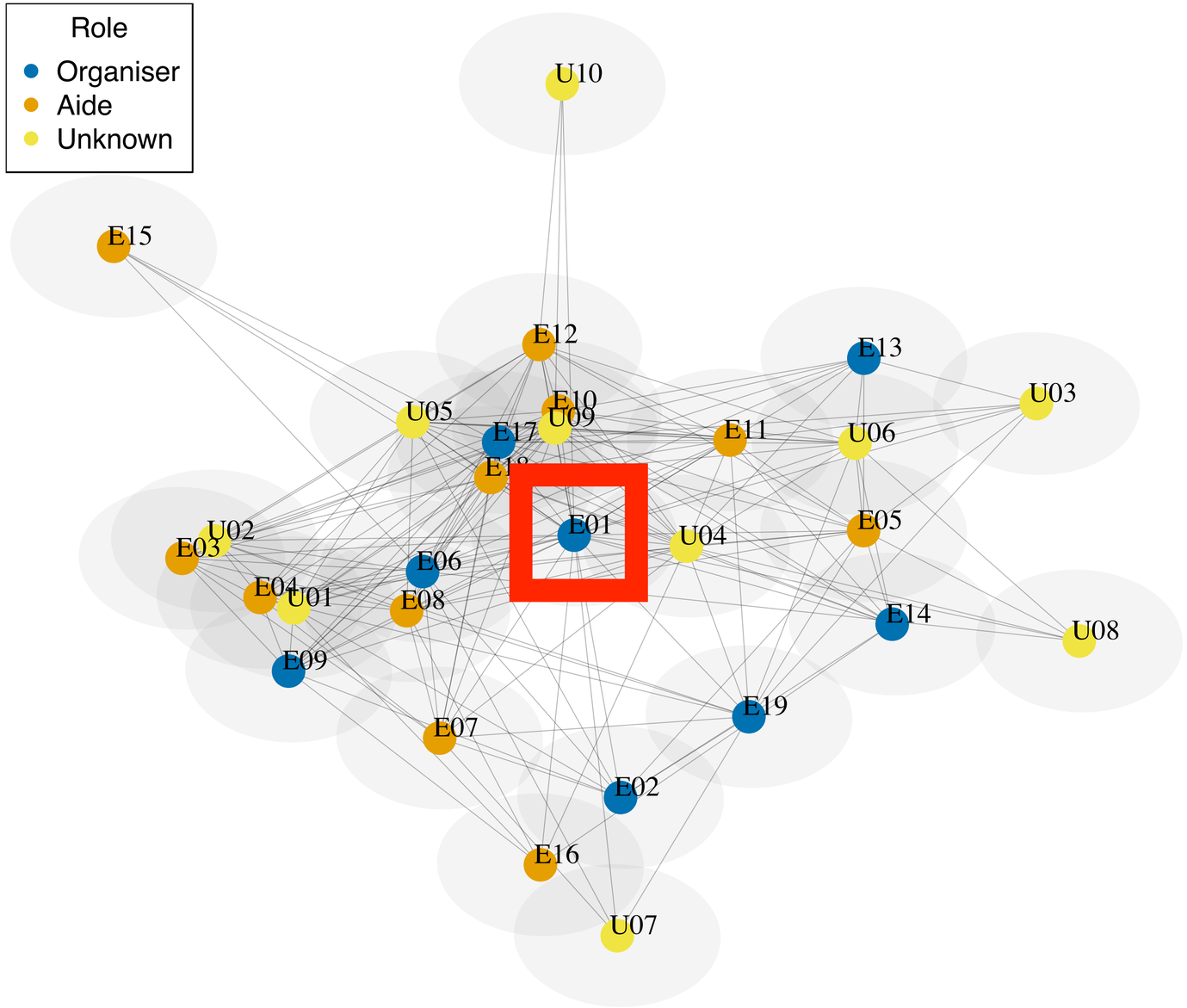

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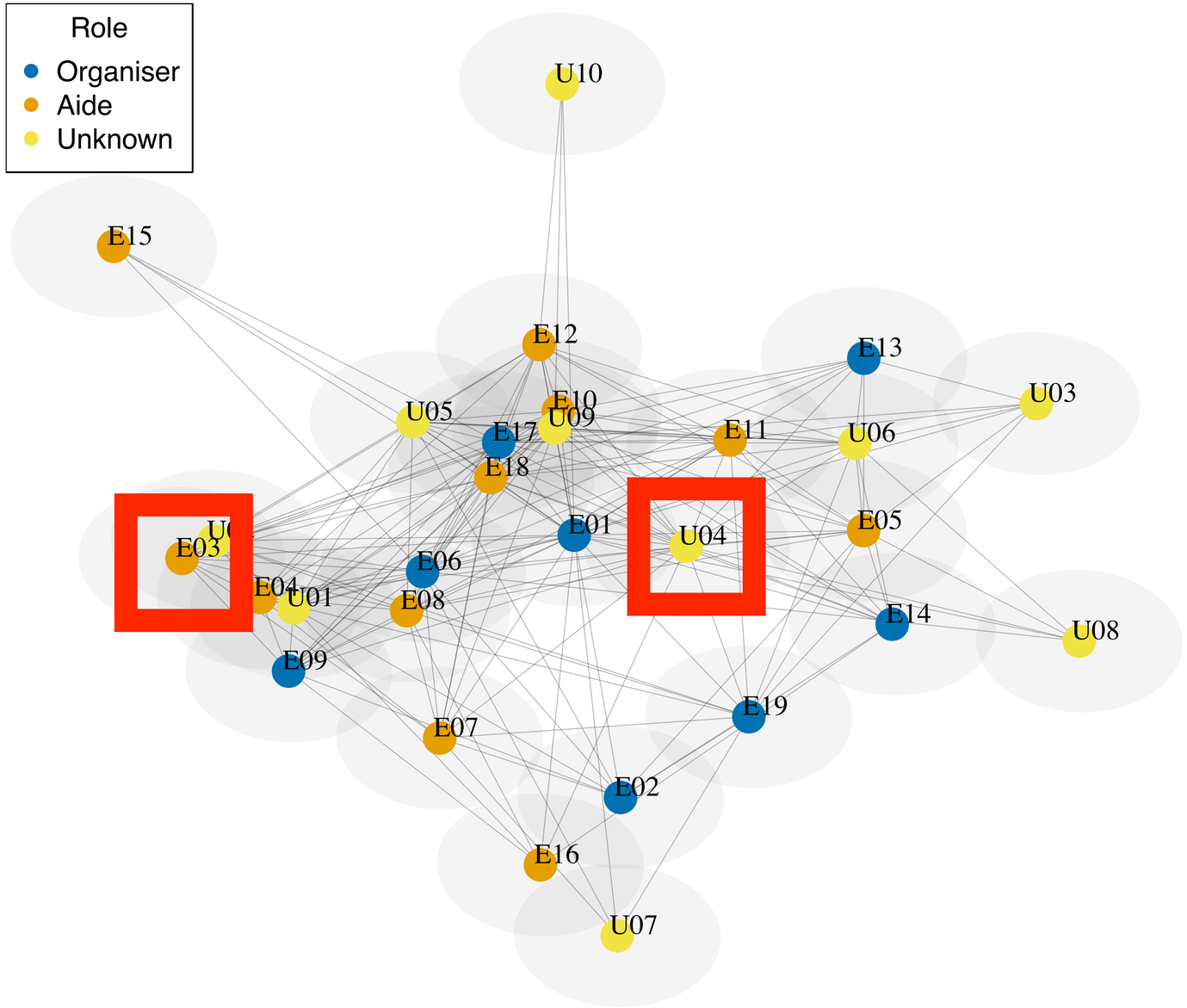

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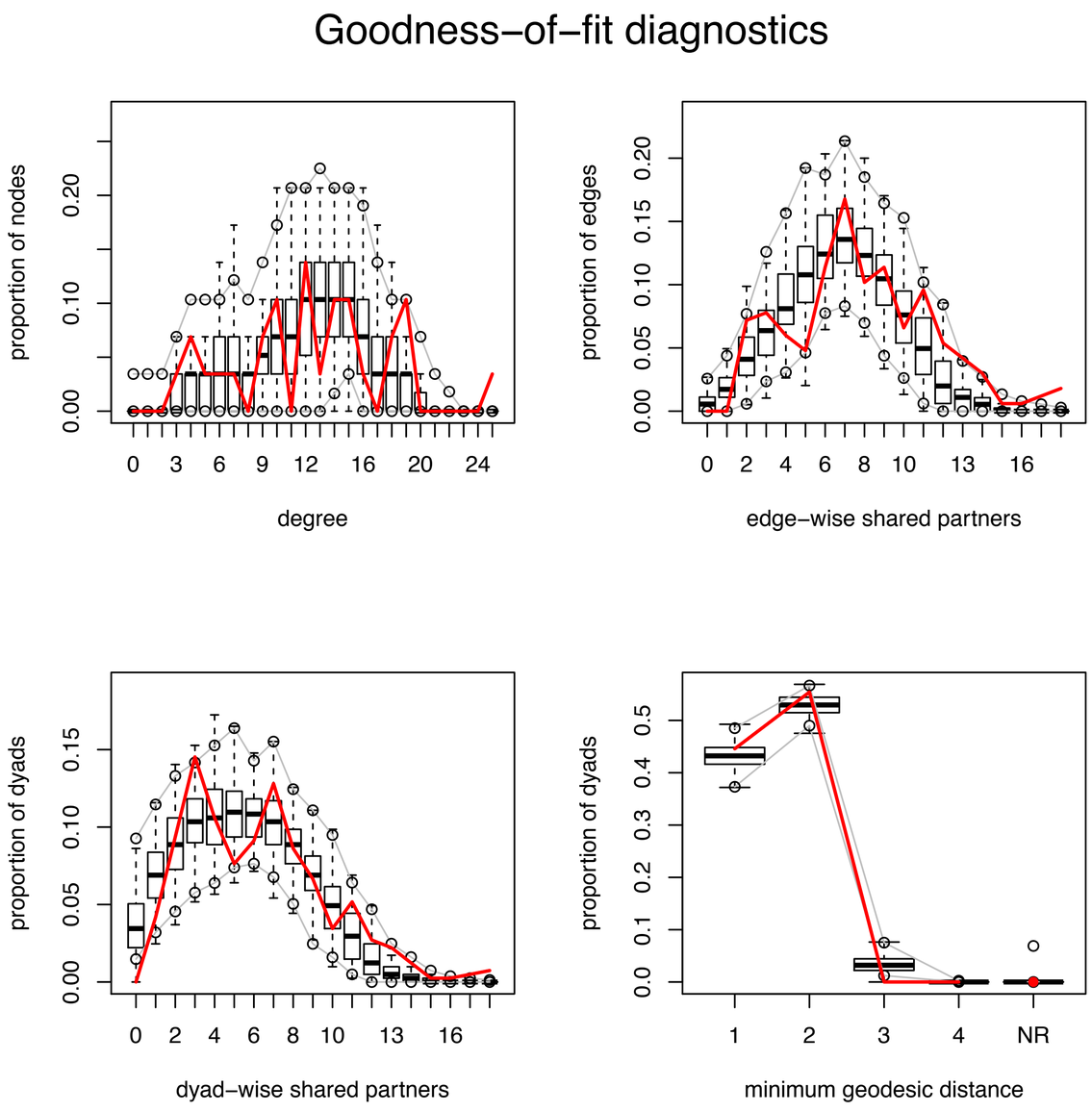
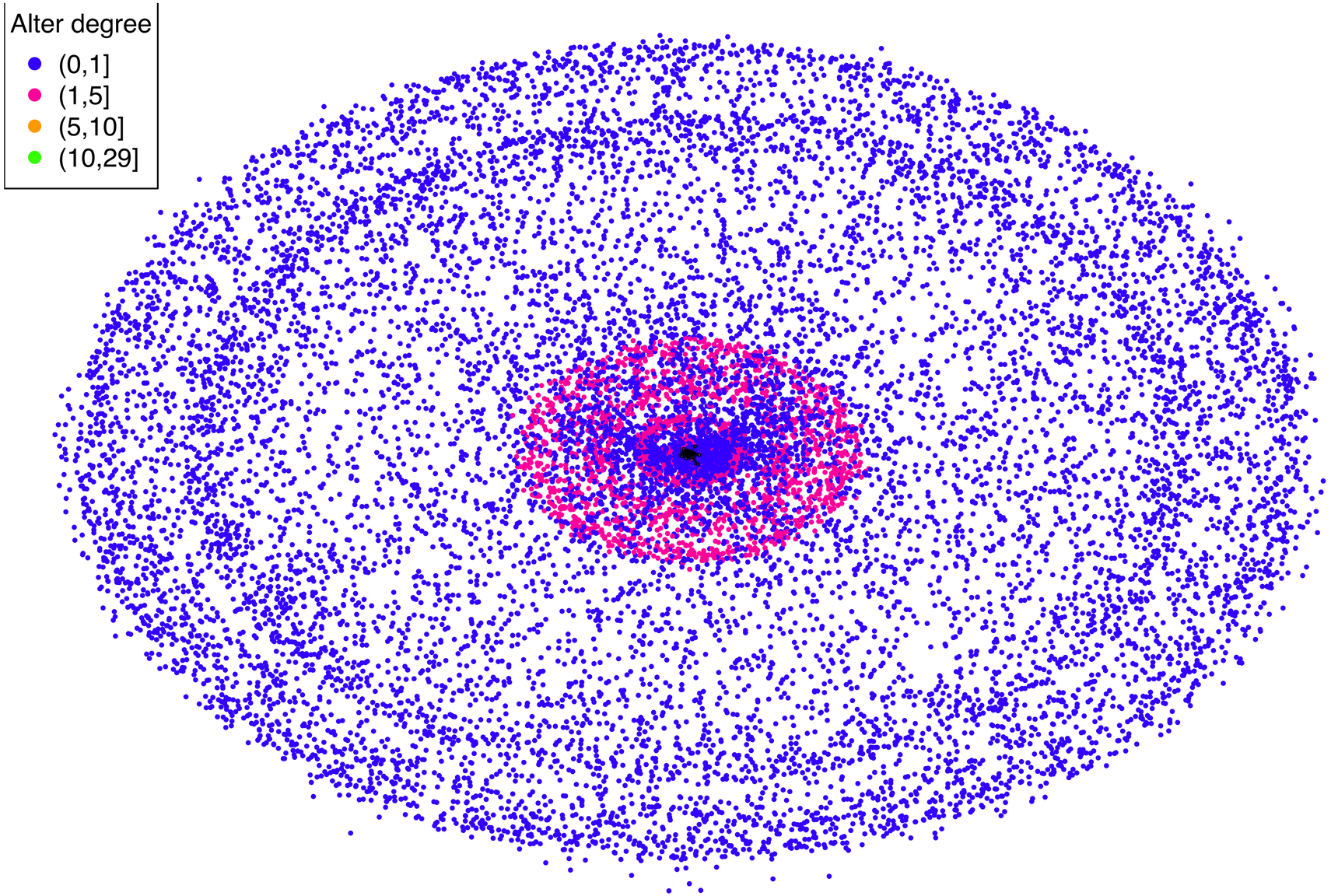


2-D Latent Space Model for Ego-Ego & Ego-Alter Network



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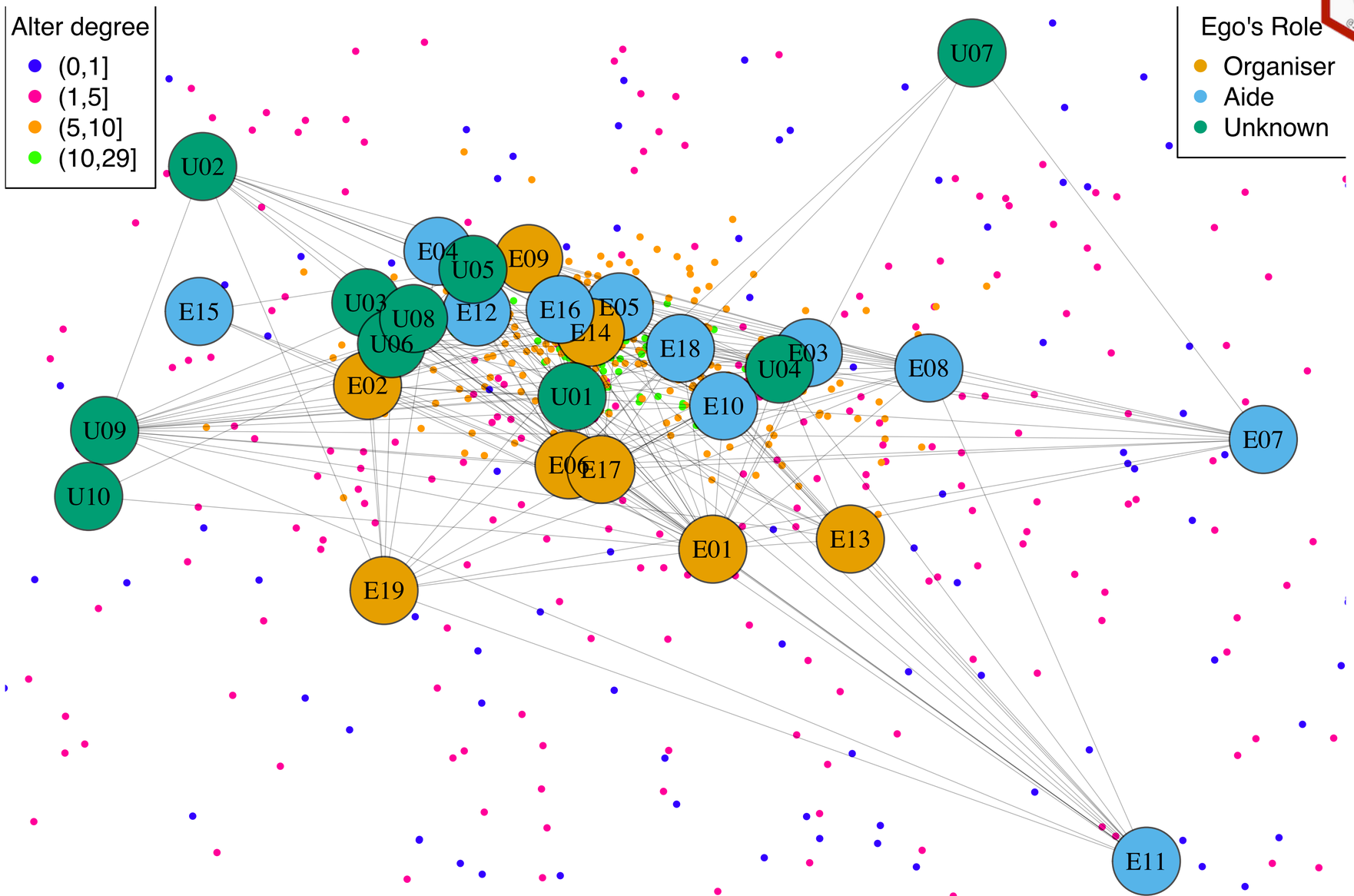

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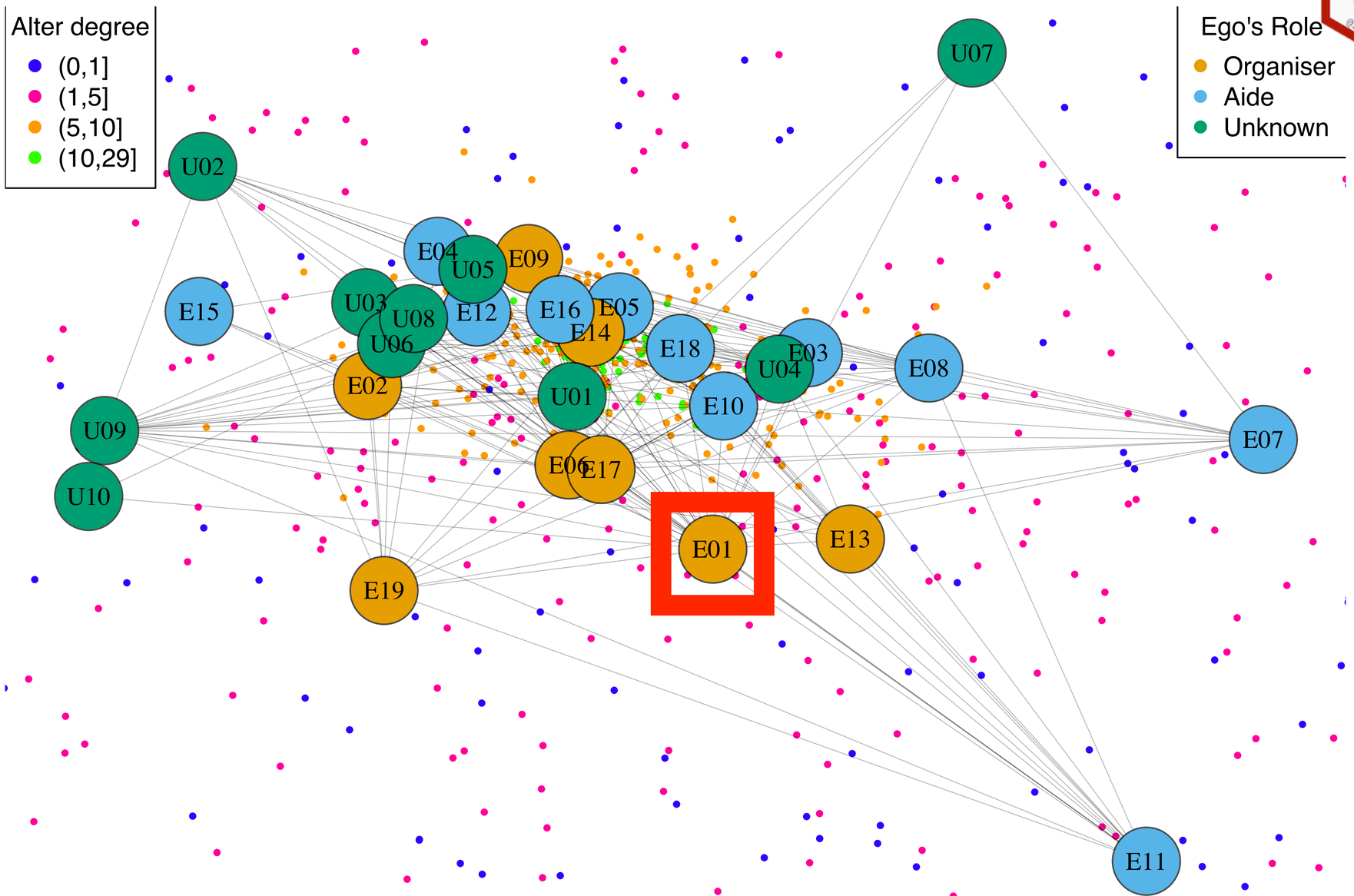

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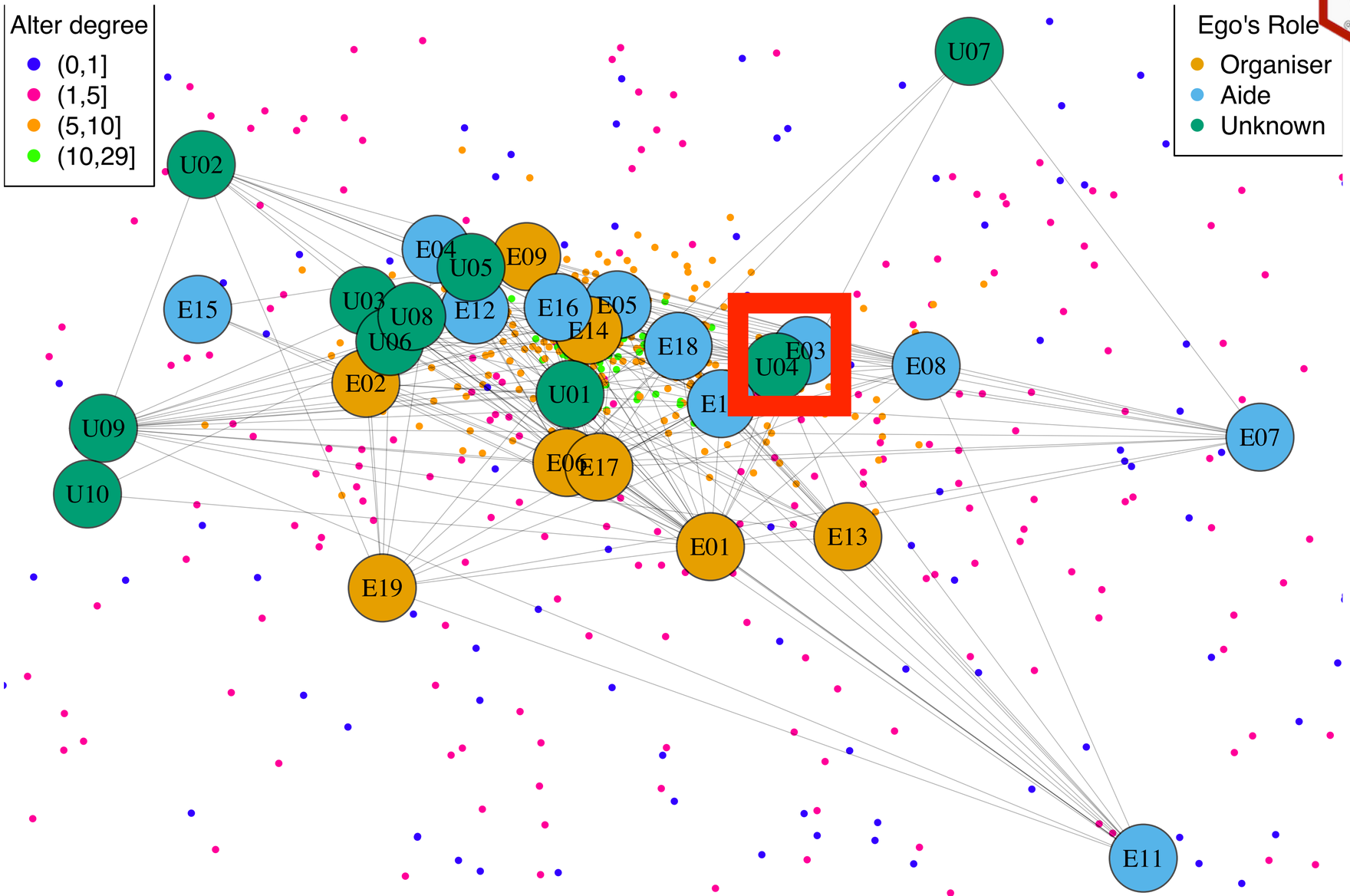

Conclusions

- Latent Space Models highlight unexpected behaviour that can be investigated further.
- The police that can decide:
  - which number to wiretap
  - which conversations to translate