

Figure A1. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.5$; $\varphi = \max$; $\phi = \min$.

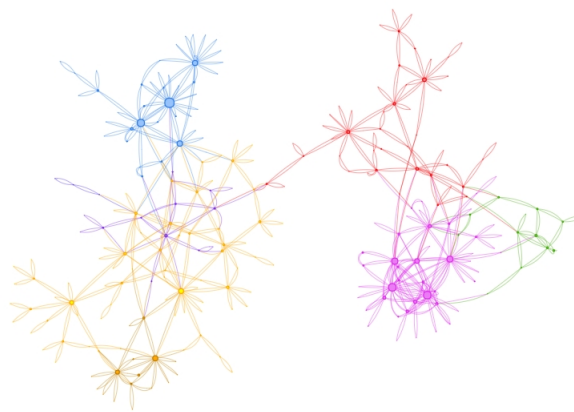


Figure A2. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.4$; $\varphi = \max$; $\phi = \min$.

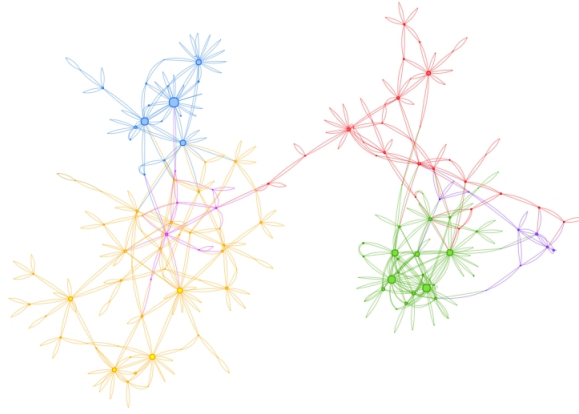


Figure A3. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.3$; $\varphi = \max$; $\phi = \min$.

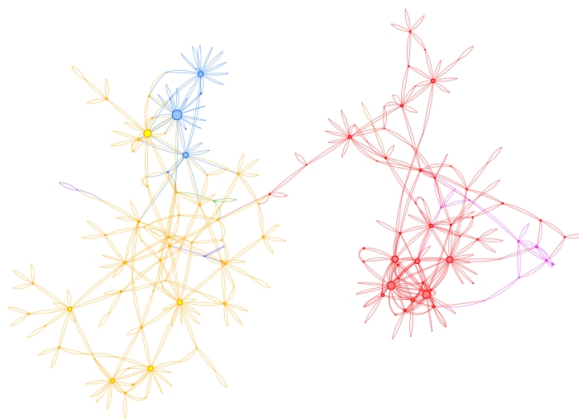


Figure A4. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.2$; $\varphi = \max$; $\phi = \min$.

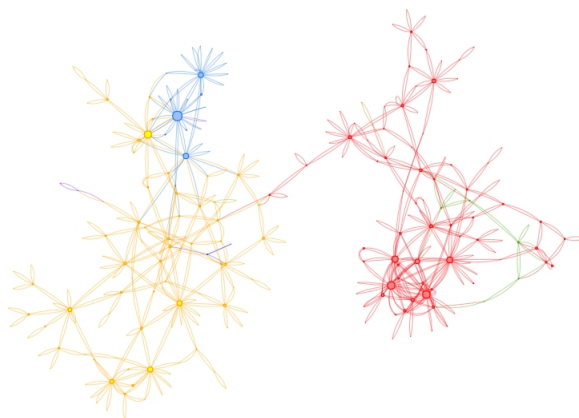


Figure A5. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.1$; $\varphi = \max$; $\phi = \min$.

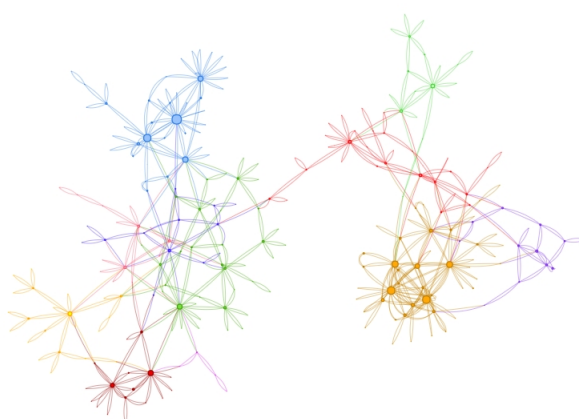


Figure A6. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.5$; $\varphi = \max$; $\phi = \text{prod}$.

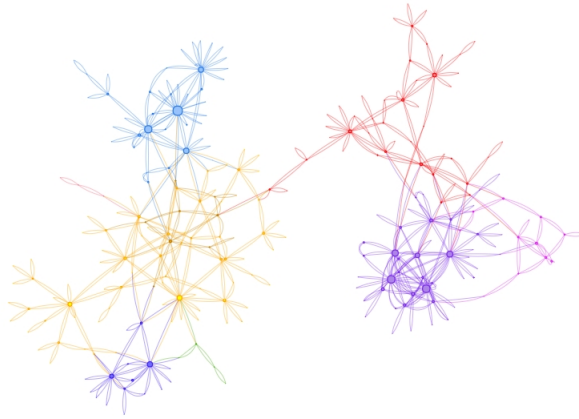


Figure A7. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.4$; $\varphi = \max$; $\phi = \text{prod}$.

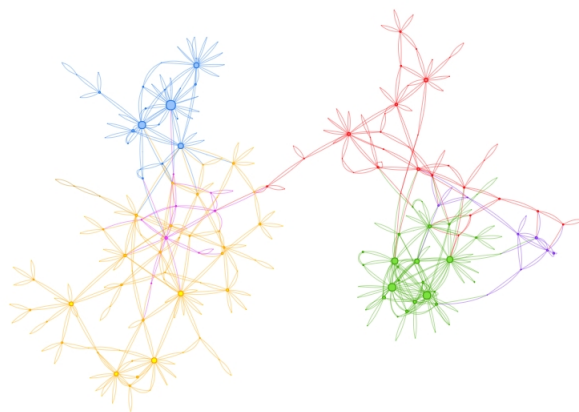


Figure A8. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.3$; $\varphi = \max$; $\phi = \text{prod}$.

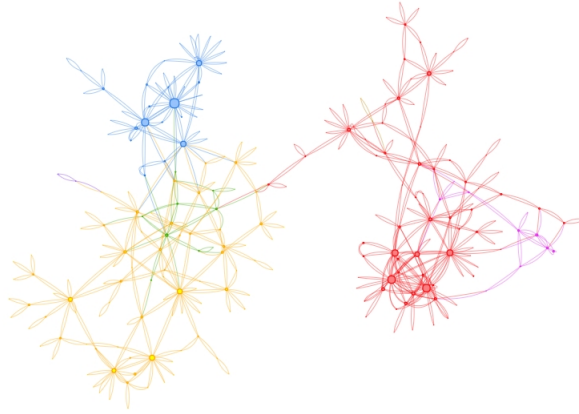


Figure A9. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.2$; $\varphi = \max$; $\phi = \text{prod}$.

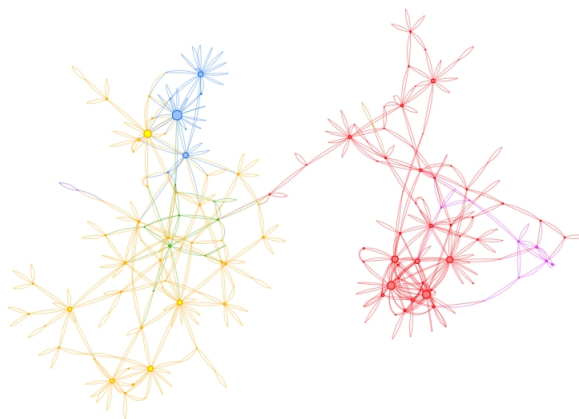


Figure A10. Partitions obtained with the Polarization Louvain algorithm in the polarization extended fuzzy graph $\tilde{G} = (V, E, \mu_P)$. $\alpha = 0.1$; $\varphi = \max$; $\phi = \text{prod}$.