

Assignment 3

Observations and Personal Conclusions

- When perfect synchronization does not happen, blocks tend to form smaller groups which oscillate in negation of each other as their inverses.
- Synchronization fails for $k = 0.1$
- We start seeing 3-4 different coupled oscillations for $k = 0.2$
- After few 100 initial iterations of failed synchronization, Perfect Synchronization can be seen for $k = 0.3, 0.6, 0.7, 0.8, 0.9$ and 1.
- $k = 0.5$ has 2 groups which oscillate in opposition of each other.

Interesting Experimentation

- If the counter is updated every time a neighbor is flashing and not just when any neighbor is flashing, we can achieve perfect synchronization in oscillations.

Resources

- [Synchronization of Pulse-Coupled Biological Oscillators](#)
[Renato E. Mirollo and Steven H. Strogatz](#)
[SIAM Journal on Applied Mathematics 1990 50:6, 1645-1662](#)