Supplemental material

# A benchmark model to assess community structure in evolving networks

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| | Time window | Jaccard squared error | | |
| --- | --- | --- | --- | --- |
| | | Grow/Shrink | Merge/Split | Mixed |
| Multislice $\omega = 0.0$ | 1 | 0.0720 | 0.3345 | 0.0307 |
| | 2 | 0.1365 | 0.4840 | 0.0303 |
| | 5 | 0.2336 | 0.6272 | 0.0325 |
| Multislice $\omega = 0.5$ | 1 | 0.0293 | 0.3193 | 0.0276 |
| | 2 | 0.0546 | 0.4608 | 0.0282 |
| | 5 | 0.1105 | 0.6013 | 0.0303 |
| Multislice $\omega = 2.0$ | 1 | 0.0019 | 0.3326 | 0.0360 |
| | 2 | 0.0014 | 0.3605 | 0.0374 |
| | 5 | 0.0147 | 0.4488 | 0.0421 |

Table S1: Jaccard squared error, for each method tested and each benchmark, considering three different time windows.

| | Time window | NMI squared error | | |
| --- | --- | --- | --- | --- |
| | | Grow/Shrink | Merge/Split | Mixed |
| Multislice $\omega = 0.0$ | 1 | 0.0337 | 0.4932 | 0.0067 |
| | 2 | 0.0621 | 0.4806 | 0.0063 |
| | 5 | 0.1022 | 0.4855 | 0.0059 |
| Multislice $\omega = 0.5$ | 1 | 0.0143 | 0.4896 | 0.0060 |
| | 2 | 0.0262 | 0.4753 | 0.0059 |
| | 5 | 0.0479 | 0.4790 | 0.0055 |
| Multislice $\omega = 2.0$ | 1 | 0.0065 | 0.4951 | 0.0094 |
| | 2 | 0.0041 | 0.4891 | 0.0094 |
| | 5 | 0.0041 | 0.4825 | 0.0100 |

Table S2: NMI squared error, for each method tested and each benchmark, considering three different time windows.
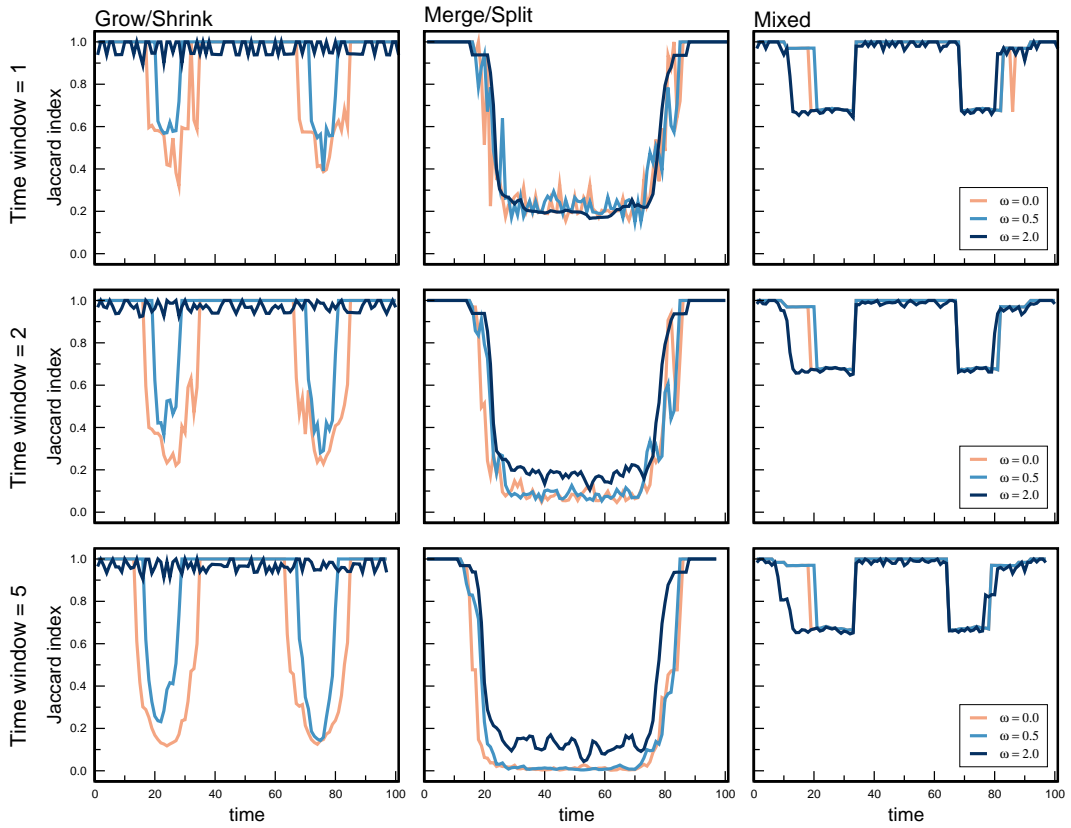
Figure S1: Plots of the Jaccard Index between the planted partition and the results of the multislice algorithm for three different inter-slice couplings and for the three benchmarks proposed. The Jaccard index is computed using the proposed evolving formulation and for three different window sizes: 1, 2 and 5. There is a column for each benchmark, and a row for each time window size.
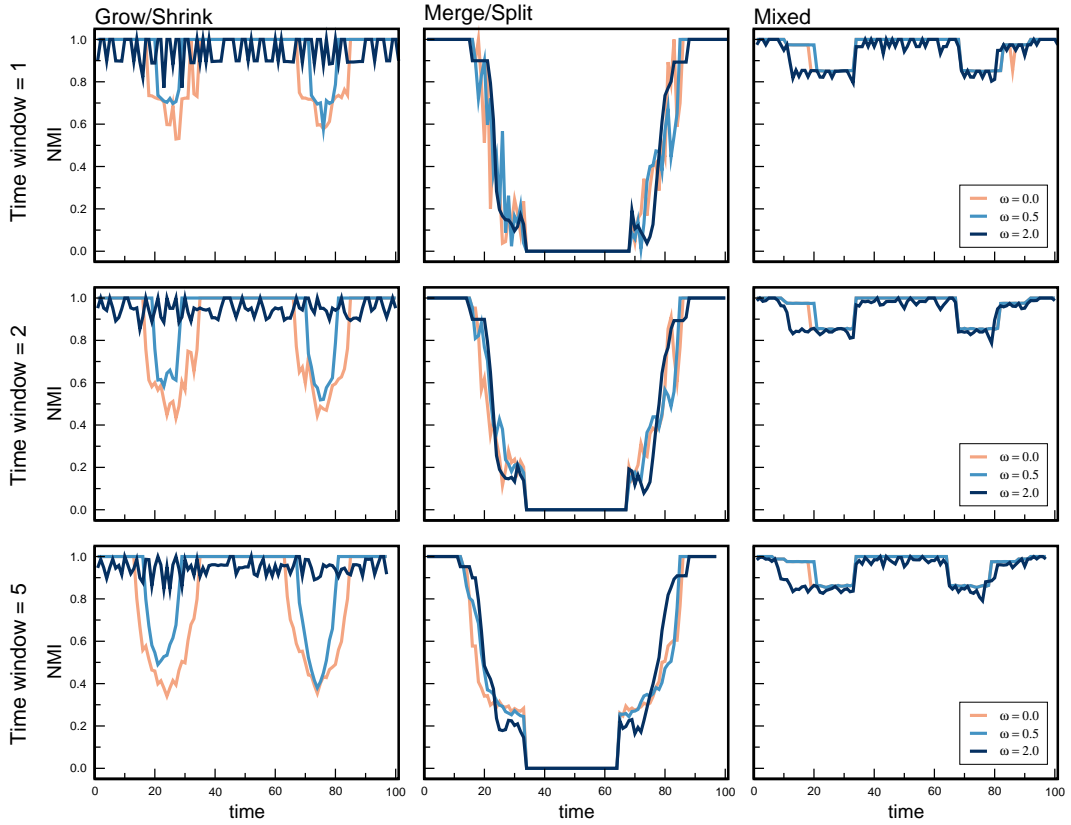
Figure S2: Plots of the Normalized Mutual Information (NMI) between the planted partition and the results of the multislice algorithm for three different inter-slice couplings and for the three benchmarks proposed. The NMI is computed using the proposed evolving formulation and for three different window sizes: 1, 2 and 5. There is a column for each benchmark, and a row for each time window size.