

rem.dyad function arguments

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Here I will introduce 6 arguments below (**edgelist**, **n**, **effects**, **ordinal**, **covar**, **hessian**), but we will mainly focus on the on the first four arguments. The remaining arguments govern model fitting procedures and output and their default values will suffice here.

- 1) **edgelist**: how the user passes their data to **rem.dyad**. Data to be used by **rem.dyad** must consist of an edgelist matrix, whose rows contain information on successive events. This matrix must have three columns, containing (respectively) the event times, sender IDs (as integers from 1 to n), and receiver IDs (also from 1 to n). Event times should be relative to onset of observation where the temporal likelihood is being used; otherwise, only event order is employed.
- 2) **n**: should be a single integer representing the number of actors in the network.
- 3) **effects**: how the user specifies which statistics (effects) will be used to model the data. This argument should be a character vector where each element is one or more of the following pre-defined effect names.
 - NIDSnd: Normalized indegree of v affects v's future sending rate
 - NIDRec: Normalized indegree of v affects v's future receiving rate
 - NODSnd: Normalized outdegree of v affects v's future sending rate
 - NODRec: Normalized outdegree of v affects v's future receiving rate
 - NTDegSnd: Normalized total degree of v affects v's future sending rate
 - NTDegRec: Normalized total degree of v affects v's future receiving rate
 - FrPSndSnd: Fraction of v's past actions directed to v' affects v's future rate of sending to v'
 - FrRecSnd: Fraction of v's past receipt of actions from v' affects v's future rate of sending to v'
 - RRecSnd: Recency of receipt of actions from v' affects v's future rate of sending to v'
 - RSndSnd: Recency of sending to v' affects v's future rate of sending to v'
 - CovSnd: Covariate effect for outgoing actions (requires a covar entry of the same name)
 - CovRec: Covariate effect for incoming actions (requires a covar entry of the same name)
 - CovInt: Covariate effect for both outgoing and incoming actions (requires a covar entry of the same name)
 - CovEvent: Covariate effect for each (v,v') action (requires a covar entry of the same name)
 - OTPSnd: Number of outbound two-paths from v to v' affects v's future rate of sending to v'
 - ITPSnd: Number of incoming two-paths from v' to v affects v's future rate of sending to v'
 - OSPSnd: Number of outbound shared partners for v and v' affects v's future rate of sending to v'
 - ISPSnd: Number of inbound shared partners for v and v' affects v's future rate of sending to v'
 - FESnd: Fixed effects for outgoing actions
 - FERec: Fixed effects for incoming actions
 - FEInt: Fixed effects for both outgoing and incoming actions
 - PSAB-BA: P-Shift effect (turn receiving) – AB->BA (dyadic)
 - PSAB-B0: P-Shift effect (turn receiving) – AB->B0 (non-dyadic)
 - PAAB-BY: P-Shift effect (turn receiving) – AB->BY (dyadic)
 - PSA0-X0: P-Shift effect (turn claiming) – A0->X0 (non-dyadic)
 - PSA0-XA: P-Shift effect (turn claiming) – A0->XA (non-dyadic)

- PSA0-XY: P-Shift effect (turn claiming) – A0->XY (non-dyadic)
 - PSAB-X0: P-Shift effect (turn usurping) – AB->X0 (non-dyadic)
 - PSAB-XA: P-Shift effect (turn usurping) – AB->XA (dyadic)
 - PSAB-XB: P-Shift effect (turn usurping) – AB->XB (dyadic)
 - PSAB-XY: P-Shift effect (turn usurping) – AB->XY (dyadic)
 - PSA0-AY: P-Shift effect (turn continuing) – A0->AY (non-dyadic)
 - PSAB-A0: P-Shift effect (turn continuing) – AB->A0 (non-dyadic)
 - PSAB-AY: P-Shift effect (turn continuing) – AB->AY (dyadic)
- 4) **ordinal**: a logical indicator that determines whether to use the ordinal or exact timing likelihood.
- 5) **covar**: how the user passes covariate data to `rem.dyad()` in the form of an R list, where each element of the list is a covariate as described above. When covariates are indicated, then there should be an associated covariate effect listed in the effects argument and each element of the covar list should be given the same name as its corresponding effect type specified in effects (e.g., *CovSnd*, *CovRec*, etc).
- 6) **hessian**: a logical indicator specifying whether or not to compute the Hessian of the log-likelihood or posterior surface, which is used in calculating inferential statistics. The default value of this argument is **FALSE**.