The following definition states how a model $\mathcal{M}$ (as defined above) behaves wrt global preferential attachment.

Definition (global preferential attachment): Let $\mathcal{M}$ be a model as defined above. We say that $\mathcal{M}$ satisfies the global preferential attachment effect iff, for any indexing, for any node i, $1 \le i \le N$, for p, $1 \le p < N$;

$p(d_i^{(N)} \geq n+1 \mid d_i^{(p)} = n; \mathcal{M})$ increases with n, $1 \le n < p$.

If $P(d_i^{(N)} \geq n+1 \mid d_i^{(p)} = n; \mathcal{M})$ is independent of n, the model is said to be neutral wrt the global preferential attachment effect.

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This definition directly translates the fact that the more links a node i has at some point in the process, the more likely a new link will be created with that node. This is exactly the preferential attachment effect.

For both ILFM and IMMSB, in $\mathcal{M}_e$, the generation of links are independent of each other. The fact that n links have been created after p steps has no impact on the future links to a given node. In $\mathcal{M}_g$, as one first needs to generate F and Φ prior to generate all the links, a similar behavior is likely to be observed. Intuitively thus, both ILFM and IMMSB are neutral wrt the global preferential attachment effect. The following property formalizes this intuition.