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An EN can be described as “a set of nodes and a pattern of ties among such nodes”, but this begs five questions.

What is an Economic Network (EN)?

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4. **What is a pattern?**
5. **When is a network an EN, and not just a social network (SN)?**

1. Network Nodes

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Need to specify how nodes relate to actors: is the link explicit and justified?

- **a. aggregation — common effects or common causes**
- **b. nodes proxy for unobserved actors.**

2. Delimiting the Set of Nodes

Two questions about the "boundary specification problem:"

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realist: look for evidence among the actors on who’s in and out — Erickson’s “snowball” sampling approach

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d. the "node specification" problem of death and birth e.g. firms are born, firms merge, firms exit

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Nonetheless, the pattern of specialisation might be significant.

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Moreover, what do inter-firm relations mean?

- another form of network tie?
  using reliance on networks to predict the location of the firm's boundaries, or
- something different from market integration?
  qualitative increase in commitment $\rightarrow$ need a theory of the firm to analyse ENs.

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3 + 4 + 5 →

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EN: "any collection of actors ($N > 2$) that pursue repeated, enduring exchange relationships with one another and, at the same time, lack a legitimate organisational authority to arbitrate and resolve disputes that might arise during the exchange." — self-organisation

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IV. **Increasingly, the structures of inter-firm orientation designed to be *orthogonal* to market exchange.**
To meet needs unmet by market exchange (e.g. coopetition)

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→ To argue that particular network position confers advantage, it's necessary to show, first, that any observed association between position and success does not reflect underlying differences in actor "type" or, second, that expectations of success did not determine the observed network pattern.

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Distance L_{ij} **= shortest path length between vertices** i **and** j

Characteristic Path Length of Graph G = $L(G)$ **= the average of** L_{ij} **for all** i, j **in graph** G, $i \neq j$.

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Small World Networks (SWN) are resiliant against random failures of vertices (nodes), but highly vulnerable to deliberate attacks on hubs (vertices of high degree $k(v)$).

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- **You understand that just considering the topology of system interactions will not magically allow you to unify quantum mechanics and gravity, explain the origin of life, or elucidate the meaning of life.**

References

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