Relationship between Granger non-causality and network graph of state-space representations

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Propositions

belonging to the thesis

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of

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1. The statistical properties of a process can shed light on the internal connections of a model describing that process.
2. For certain linear and bilinear dynamical systems that can be decomposed into two subsystems, the information flow between these subsystems is consistent with the causal relationship between their output processes. (Chapters 2 and 6)
3. If the interconnection structure of a complex linear dynamical system is transitive and acyclic, then this is consistent with the causal relationship between the output processes of the subsystems. (Chapter 4)
4. Propositions 2 and 3 have the potential to reconstruct the internal connections of the system in question.
5. Knowing the internal connections of a model can help to estimate the model parameters in a distributed way.
6. Achievements stand on two legs, ideas and deeds, and what makes the two legs move is belief.
7. Based on a limited statistics, the purpose of a Dutch lunch break is not to be hungry, whereas the purpose of the French lunch break is not to have anything left to talk about.