Context and the transitivity trap

From (Powell et al., 2024)

Transitivity is perhaps the single most important challenge for causal mapping. Consider the following example. If source P [pig farmer] states 'I received cash grant compensation for pig diseases [G], so I had more cash [C]', and source W [wheat farmer] states 'I had more cash [C], so I bought more seeds [S]', can we then deduce that pig diseases lead to more cash which leads to more seed (G à C àS), and therefore G à S (there is evidence for an indirect effect of G on S, i.e. that cash grants for pig diseases lead to people buying more seeds)?

The answer is of course that we cannot because the first part only makes sense for pig farmers, and the second part only makes sense for wheat farmers.

In general, from G → C (in context P) and C → S (in context W), we can only conclude that G → S in the intersection of the contexts P and W. Correctly making inferences about indirect effects is the key benefit but also the key challenge for any approach which uses causal diagrams or maps, including quantitative approaches (Bollen, 1987).