

# Hidden depths

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Propositions belonging to the thesis

## **Hidden Depths**

### **Robustness of modelling approaches for uncovering latent classes in longitudinal data**

Gavin van der Nest

1. The use of statistical fit indices for class enumeration introduces some statistical vigour to the process but remains to some extent heuristic. – this thesis
2. If the information criteria (ICs) of a fitted group-based trajectory model or latent class growth analysis continually improve as fitted number of classes increases, then this could be indicative of covariance underspecification. Here, ICs may be misleading and prone to over-extraction, thus a thorough investigation of the proposed covariance structure and model is warranted. – this thesis
3. The joint developmental profile of multivariate models can differ in shape and subject assignment from individual, univariate trajectories. Similarity between univariate and multivariate profiles is more likely given strong (univariate) cross-classes associations. – this thesis
4. In multivariate models, scenarios where outcomes have different levels of class separation, subject classification and trajectory recovery in the low separated outcome are distorted in favour of the high separated outcome.– this thesis
5. The scientific impact of studying the robustness of latent class modelling approaches is that remedial and model selection strategies can be developed which should lead to better model specification. This, in turn, has societal relevance as better model specification could directly influence the veracity of inferences derived from longitudinal finite mixture models including diagnostic and prognostic conclusions in medical science and patient care.
6. The existence of true (hidden) classes is as much a mathematical and practical issue as it is a philosophical one.
7. Statistics is the subtle art of transforming information into knowledge.
8. Although statistics affords one the opportunity to play in everyone's backyard, a basic understanding of that backyard is required.
9. Every crisis creates a mixture, that of realists guided by science and of denialists led by emotion.
10. "For instance is no proof." — David Salsburg, *The Lady Tasting Tea*