

Group Behaviour

- discussed personal behaviour only
 - ‘group’ = household, personal network, even society
- comparatively new field
- substantial achievements have been made
- much remains to be done
 - part of programme is clear to researchers
- but complexity breakthrough is needed

State of the Art

- modelling mainly uses utility maximisation
 - with exceptions based on rules
 - focussing on outcomes, not processes
- models use $GUF = GUF(u_1, ..u_n)$
 - multi-linear (or linear), iso-elastic, Nash-type, capitulation etc.
 - resource allocation in households
 - task and time assignments, with joint constraints
 - joint activity participation, including travel, e.g. ride-sharing
- applications in residential location, car ownership, general travel

Current Developments

- understanding aspects of behaviour
 - presence of children, sex roles, age, cars etc.
- applications, e.g. in Japan
 - development of GUF formulations
 - not very different results, sometimes!
- social network synthesis
- pro-social behaviour analysis
- extending timing analysis with constraints

Research Needs

the Timmermans agenda:

1. model more interactions, but at cost of complexity
2. need more theory (e.g. GUF)
 - theory from other fields can be used, but empirical results also needed
3. need more work on context
 - could help with improving on RUM
4. need more temporal effects: week as well as day etc.

don't see much help from other fields

- except game theory
- stated choice seems to need more work to cover negotiation

Other Research Needs

- methodological breakthrough (complexity/operation)
 - but high degree of consensus discourages this!
- is utility the answer?
- latent classes (or variables?), dynamics (learning)
- more applications (car sharing..)
- improve social network synthesis
 - more important than demographics
- issues in representing pro-social variables
- extending capability to model constraints