Activity Modeling with GPS Tracking Data:
New Assumptions for the Age of ICT?

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The argument:

- Some taken-for-granted assumptions regarding the relationship between *daily activity schedules* and *travel behavior* may need rethinking in the information age
- Even though currently the effects of *ICT* on travel behavior may still be negligible in the aggregate, we may need to take them into account when developing *forecasting models*.

The Past (1)

- *Tell me **where** you are (and when) and I'll tell you what you're (most likely) doing*
- Assumption 1P:
  - There is a robust correspondence between activities and 'adapted spaces'
    - Trip destination is a reliable proxy for activity, given land use and temporal information
    - Time of day is a reliable proxy for the spatial location of groups engaging in known activities

The Future (1)

- *Tell me where you are - and when - and I'll tell you what you're (probably) **not** doing*
- Assumption 1F
  - There is a growing disconnect between activities and adapted spaces as people increasingly can engage in activities remotely
    - Critical to deciding whether location is a good proxy for activity is knowing whether ICT options are available and likely to be used

The Past (2)

- *Tell me **when** – and where – you are and I'll tell you how long you may be there*
- Assumption 2P:
  - Because of the cost of travel, activities taking place at adapted spaces tend to be performed in continuous blocks of time.
    - People's daily space-time trajectories correspond fairly closely to their movements from activity to activity

The Future (2)

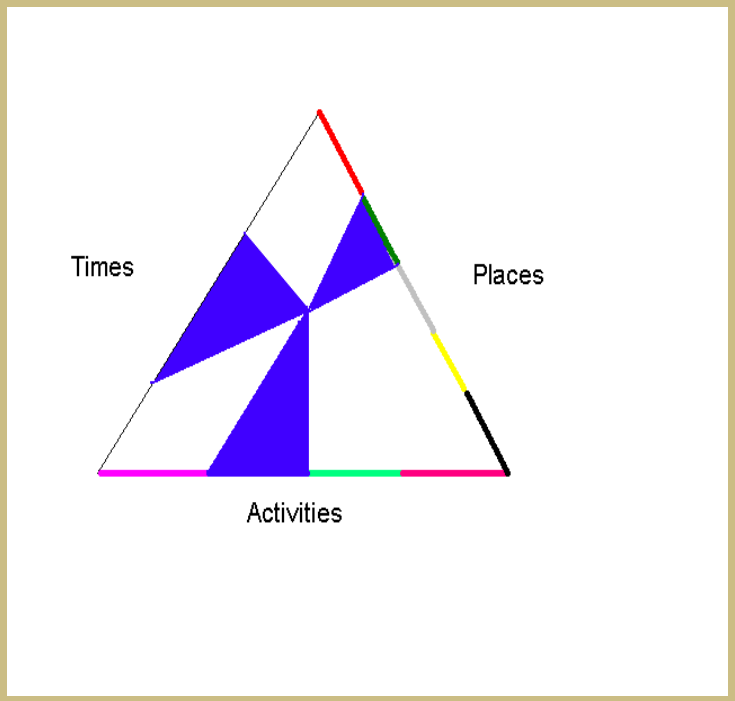
Assumption 2F

- Where and when ICT are used to perform certain activities (or tasks), the cost of switching among activities (or tasks) is minimized
  - One major reason for performing activities (or tasks) in continuous blocks of time [the need to be at an appropriate adapted space] is eliminated when and where ICT may be used to perform these same activities or tasks

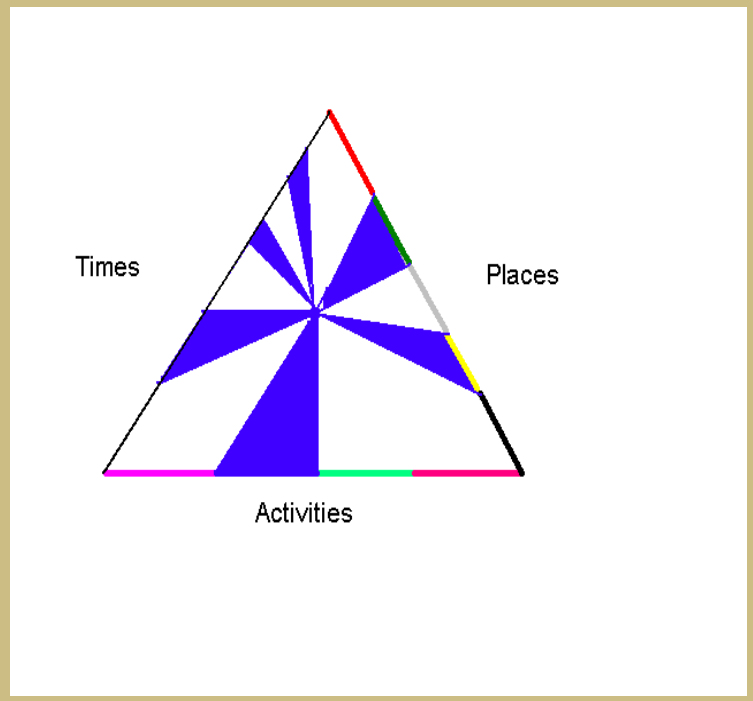
1F+2F >

The *fragmentation of activity* hypothesis

Before ICT



After ICT



Some implications (1):

- Increasingly *unreliable* correspondence between *space-time paths* and *activity schedules*
- Systematic '*activity fragmenters'* may be few compared to the more traditionally behaving masses, but they are likely to be *nodes* in the urban socio-economic nexus from which the daily schedules of many other support people depend

Some implications (2)

- The reasons for choosing between ICT and transportation in carrying out specific tasks and activities need to be better understood
- In simulations, definition of trip purpose should go beyond naming the main activity performed at the end of the trip to include reasons for choosing mobility over ICT as means to same end
- An extension of time geography's space-time prism model into more dimensions would be very desirable *(and is possible)*