Modelling Safety – The In-Safety Approach

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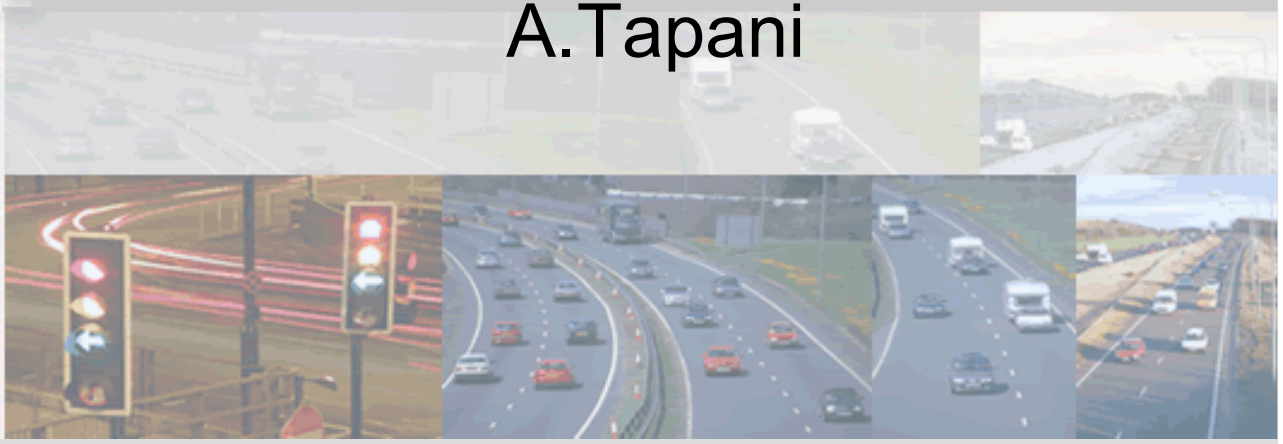


Modelling Aspects

Modelling Driver Behaviour

Macroscopic Models

Route Choice

- Assignment
- Routing

Consider safety in choosing route

→ requires information of safety levels on route segments

Microscopic Models

Vehicle Movement

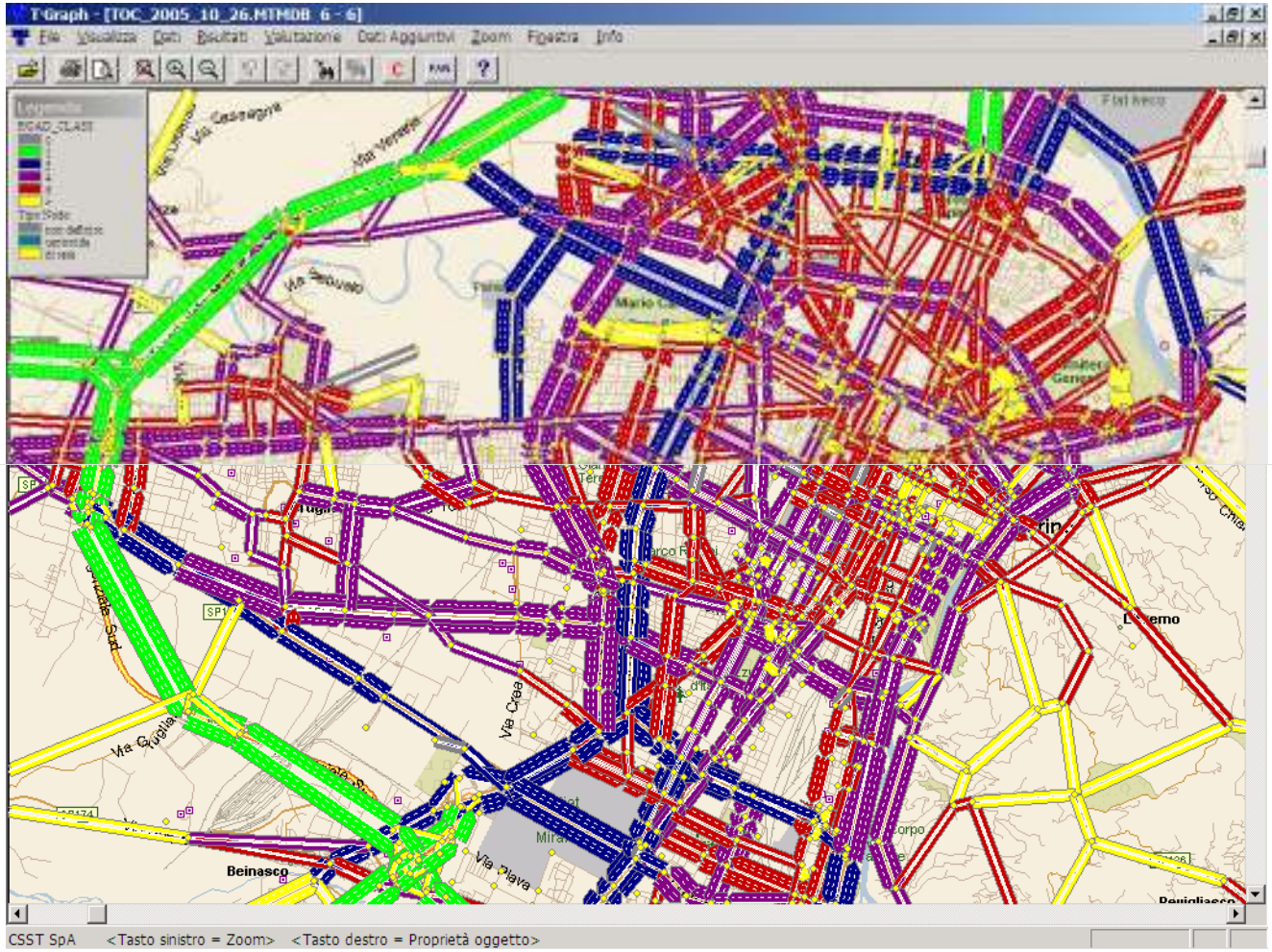
- Lateral
- Longitudinal

- Define safety critical situations
  → Surrogate parameters
- Investigate driver behaviour in these safety critical situations

Defining Road Safety Level

- Definition of parameters for classifying road based on safety and existing road characteristic data
- Classification of urban and extra-urban roads
- Upgrade of supply model Software
- Upgrade of grafical user interface software for showing road classification

Example of Road Classification



Assignment Considering Safety (1)

- Macroscopic (Planning) Model
- Traffic Assignment Techniques
  - Minimising the cost
  - Cost mainly a function of travel time and distance

→ Also able to store other information such as accident statistics on links

Assignment Considering Safety (2)

Cost function in most general form:

Cost = PPM * Time + PPK * Dist + PPU(i) * DATA(i)

PPM: pence per minute, “Value of time”

PPK: pence per km

PPU: pence per unit, “Value of safety”

Microsimulation for Safety Assessment

- Parameters for safety assessment:
  - Time to Collision (TTC) and derivatives (TET and TIT)
  - Time to Accident (TA)
  - Small headways
  - Post-encroachment-time

- Definition of scenarios

- Influence of Driver Parameters on Safety Parameters
  - Adaption of Driver Behaviour in critical situations

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