Predictive Route Guidance

An Interesting ITS Application

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Introduction

Goals of presentation

- Provide an overview of predictive route guidance

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- Provide an overview of predictive route guidance
- Give a sense of what’s known

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- Provide an overview of predictive route guidance
- Give a sense of what's known
- Give a sense of what's *not* known

Goals of presentation

- Provide an overview of predictive route guidance
- Give a sense of what's known
- Give a sense of what's *not* known
- Identify some of the major issues

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  - Network conditions improve overall (maybe)

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  - In the past ("historical" guidance)
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  - In the future ("predictive" guidance)

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Route guidance

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Guidance issues

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Predictive route guidance

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- The Self-Defeating Prophecy!!

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  - If enough of them listen to us and shift to the other route
  - It may congest worse than what we predicted for the original

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- Example of a self-defeating prophecy
  - Suppose we predict congestion on one of two parallel routes
  - We tell drivers about it
  - If enough of them listen to us and shift to the other route
  - It may congest worse than what we predicted for the original
  - And leave the original route free-flowing

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  - If enough of them listen to us and shift to the other route
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- Another possibility:
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- In all these cases, guidance was based on wrong predictions
  - We've probably made network conditions worse
  - And people will eventually stop listening to us

The key issue - Part III

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- How do we compute consistent guidance?

Side points

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System approach

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A network model for guidance

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$$S \circ D(T) = T$$
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- My doctoral research was on this

Research needs

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  - Hybrid centralized/vehicle-centric systems (Farver 2005)

Thank you! – Questions?