Choosing travel mode

Professor Joffre Swait
Institute for choice
University of South Australia

Sponsored by Mercedes Benz

Mercedes-Benz

Gold Partners

BusFinance

DAIMLER TRUCKS ADELAIDE
FUSO

PITCHER PARTNERS
ACCOUNTANTS • AUDITORS • ADVISORS

australian bus & coach underwriting

Bus Australia Network

BIC Bus Industry Confederation moving people
busnsw Bus & Coach Association NSW
BusSA Bus & Coach Association SA
BusVic Bus Association Victoria
QBIC
TasBus Tasmanian Bus Association
WABTA

Mode Choice: Rethinking Our Perspectives on Commuter Behavior

Prof. Joffre Swait

2016 BusSA State Conference

Adelaide, SA

28 May 2016

What is I4C?

Focal research area: modelling human decisions (choices) to understand and predict behaviour

- Applied microeconomics & consumer psychology
- Ultimate aims: improved social & economic policy

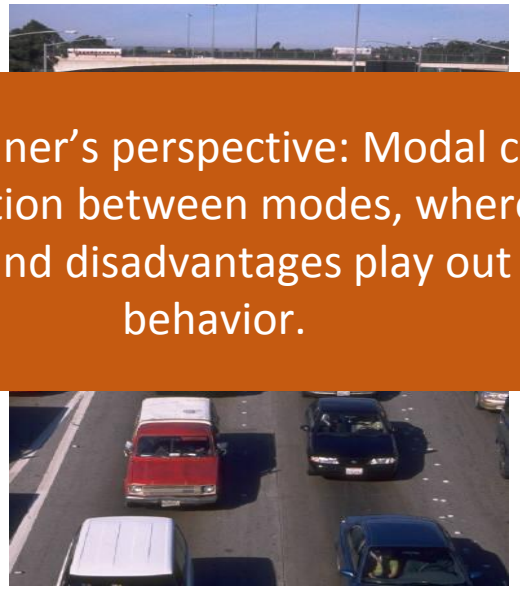
Economic systems

- Product & services markets
- Environment
- Transportation
- Health

Social systems

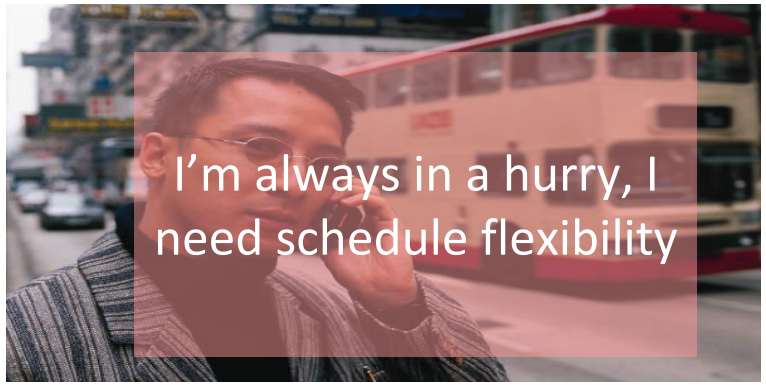
- Urban residential mobility & impacts on racial composition
- Housing choice

What's our current perspective on mode choice for (commute) trips?

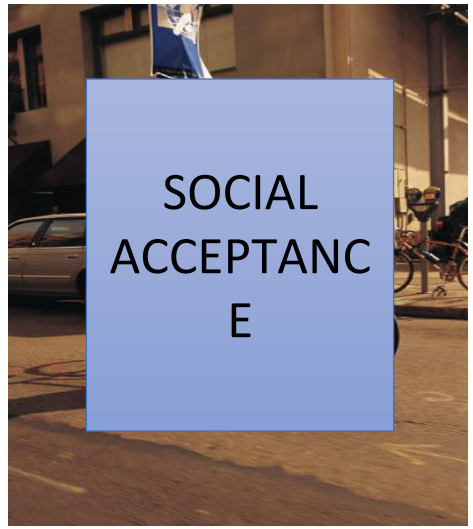


Current transport planner's perspective: Modal choice is the result of the daily competition between modes, wherein modal costs, benefits, advantages and disadvantages play out to affect people's behavior.

But life is more complicated than that!



But life is more complicated than that!



Our perspective on mode choice needs to be expanded …

Barriers/constraints to choice

Joint decision making: resource sharing within households

Social influences

Goal-driven decision making

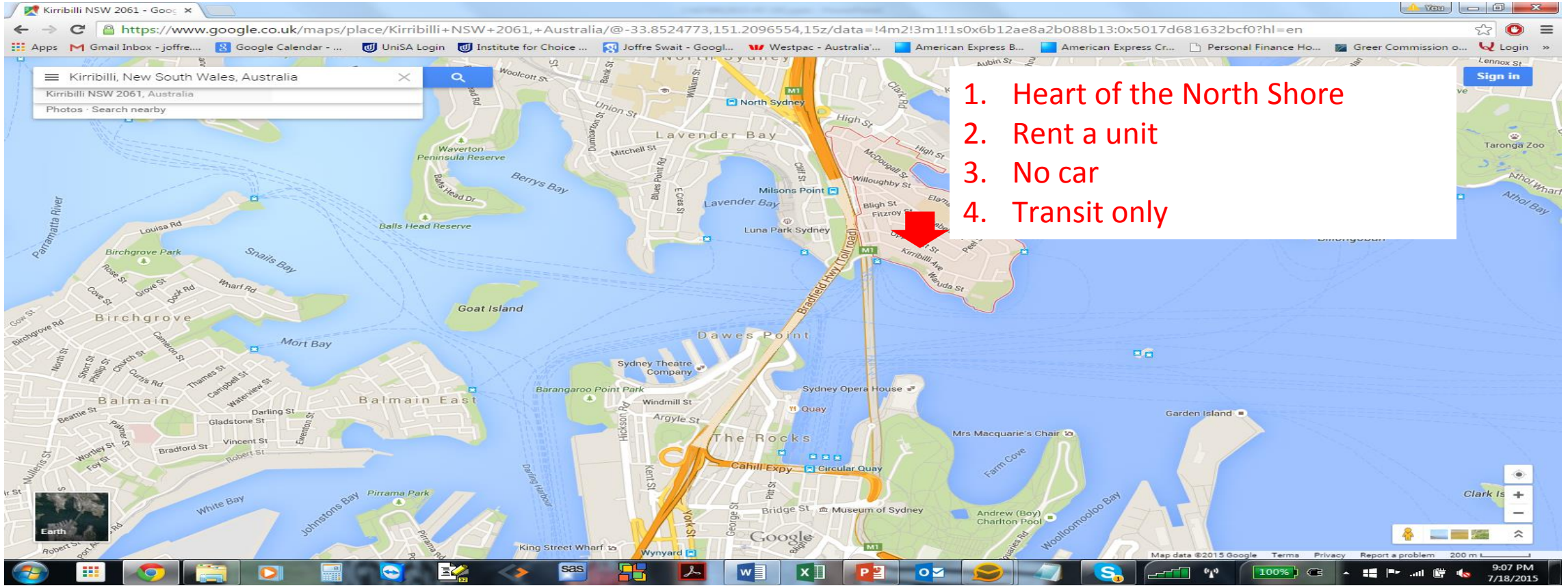
7

So let me tell you a story about myself …

4½ years ago I moved to Sydney …

- … to take a job at University Technology Sydney as designated successor for a specific research center.
- Who was I then?
  - 57 years old
  - (Re)Married 3 years before
  - No children in the home
  - Career: in & out of consulting & academia, moved a lot, at the University of Alberta immediately preceding
- Questions for urban and transport planners:
  1. Where would I live in Sydney?
  2. Would I rent or buy? Would I live in a detached home or a unit?
  3. Would I own a car?
  4. Would I use transit?

Here are the answers …



Why did I make these choices?

- I don’t like apartments.
- I’m paying very high rent.
- I’ve owned cars everywhere I’ve lived for the last 40 years.
- Since my school boy years, I’ve not used transit regularly.

Why did I go against my habits of decades?

Let me retell you this story but dig deeper down …

4½ years ago I moved to Sydney …

- … to inherit the kingdom [GOAL 1].
- BUT WOULD I ACTUALLY INHERIT?
  - Many uncertainties surrounded the situation!
- I needed to be prepared to leave Australia if things didn't work out.
  - Minimize costs of "returning to base" [Goal 2.1]
    - negotiate contract appropriately
    - rent, not own; locate near public transit
  - Make leaving Australia quick and easy [Goal 3.1]
    - not buy an automobile for the first time in 40 years
    - rent, not own; locate near public transit

Understanding my actions (choices) is much easier …

- … if you know my motivations (GOALS) and concerns (GOALS & CONSTRAINTS).

- By no means is my mode choice behavior a function of daily intermodal competition!

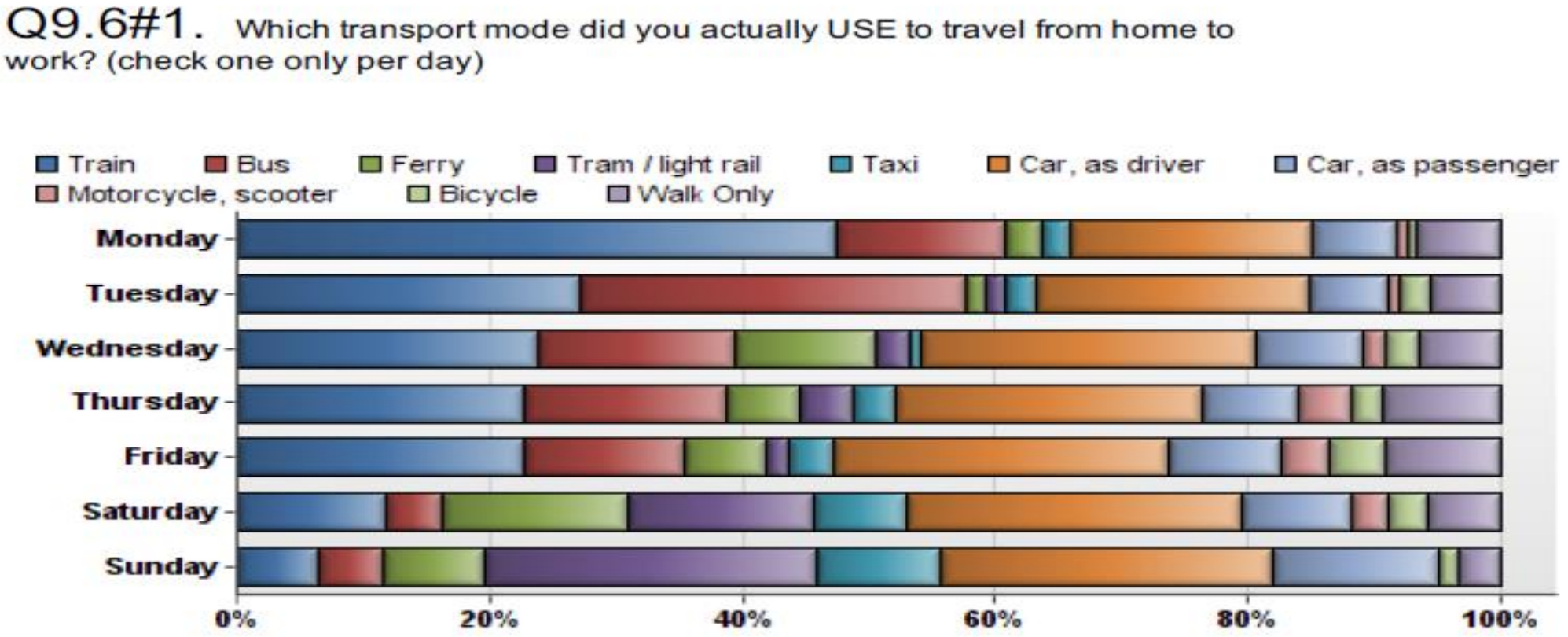
Proposition: Current focus on purportedly daily behavior is counter-productive to our understanding of what underlies commuter mode choice.

I4C does Sydney commute mode choice

- N=889 commuters across Sydney
- Observation period: all of March 2015
  - NOT a standard household survey, which observes trip behavior on previous day

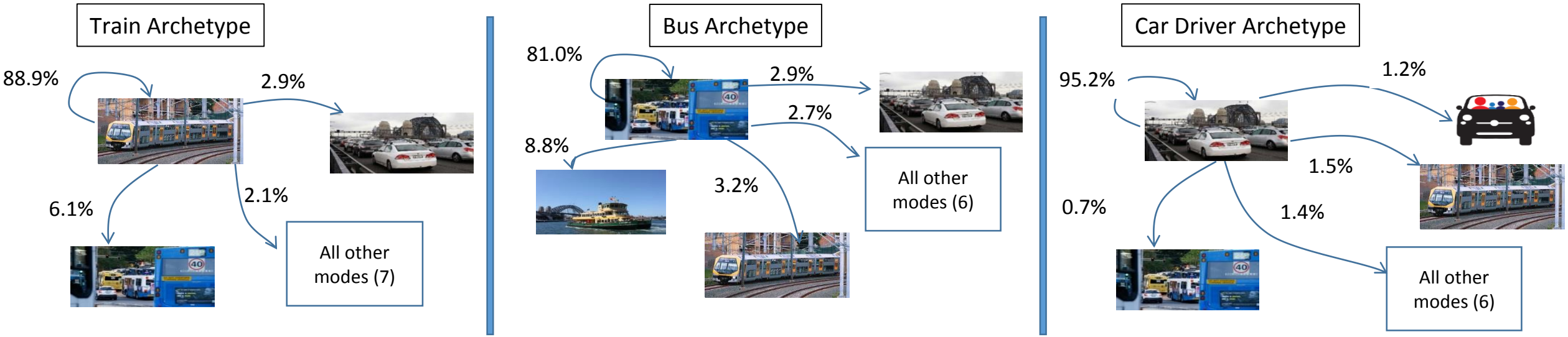
What we would see with the current perspective on mode choice …

But we actually have a longer window on behavior!



What are the implications of observing this “panel” of individual commuter behavior?

Sydney Work Commute: Observed Transition Patterns (over March 2015)



Why did people switch modes?

Q9.7. What were the reasons for changing work trip transport modes during the week in question? (Check as many as apply)

#	Answer	Bar
3	Other	
4	Preferred mode was not available (e.g., car was under maintenance, train service unavailable)	
5	Bad traffic conditions for preferred mode (e.g., road accident occurred on your route)	
6	Home-related constraints (e.g., child pickup/dropoff at school or daycare)	
7	Work-related constraints (e.g., needed the car to drive to clients)	
8	Social activities (e.g., seeing a movie after work)	
9	Sports activities (e.g., going to the gym before/after work)	
10	Shopping activities (e.g., going to the supermarket after work)	
12	Personal constraints (e.g., medical/dental appointment)	

Why did people switch modes?

Verbatims

On two days I walked to the train station rather than drive.
distance
Regulary use bicycle one day a week
missed the bus so drove to work one day
Waited 45 minutes for 2 buses which did not show up
keep fit
Tuesday to Friday I travelled by car as a driver to a different site
when a family member was available for drop off
running late!
in a hurry
personal Preference - trying to exercise more

Possible explanation for these data …

- People are “building” their (commuter) lives around a mode!??
  - Main mode
  - Backup mode(s)

- But our current conceptualization is about a daily competitive setting. How far off could we be?

New Understanding About Mobility Needs: The Work Commute Strategy

- Today's thinking …
  - Work commutes are determined on the basis of repeated, short-term decisions: daily conditions, availability of modes, within household interactions
    - Trip focus, at best day focus (activity analysis)

- I4C's research direction
  - Commuter archetypes: workers define a Commuting Strategy based on higher-order **goals**
  - These Commute Strategies are developed along with higher-order decisions like where to live, where to work, etc.

Examples of Goal-Based Commuting Strategies

Core (Best) Mode	Backup & Flexibility Modes		
	✘		

To conclude …

- The way we conceptualize a process shapes how we think.
- Work Commute Strategies are a significantly different way of thinking about mode choice.
- Implies different ways to:
  - Collect data: over significantly longer periods
  - Model behavior
  - Plan & implement system changes

The Institute for Choice …

- … is very interested in pursuing goal-based choice modeling research.
  - Work commute mode choice: Swait, Bliemer, Axhausen
    - Motivations for Commuting Plans (choice sets)
  - Neighborhood selection: Bruch and Swait
    - Pursuit of in-group presence in neighborhood screening and evaluation
  - Recreational site selection: Thiene, Swait, Scarpa
    - Motivations for site visitation

- We'd love to hear from you!

Thank you!