Extended abstract prepared for hEART2014

Considering Overtaking and Common Lines in the Bus Bunching Problem

Ronghui Liu*[1], Jan-Dirk Schmöcker[2], and Achille Fonzone[3]

[1] Institute for Transport Studies, University of Leeds, UK

[2] Department of Urban Management, Kyoto University, Japan

[3] Transport Research Institute, Edinburgh Napier University, Napier University, U.K.,

$$t_{mn} = m\tau + n(k\tau + T) + \alpha \frac{(n+m-2)!}{(n-1)!(m-1)!}\left[\frac{k}{k-1}\right]^{m-1}\left[\frac{1}{1-k}\right]^{n-1} \quad (1)$$

$$p^s_{nm(i)} = \int_0^\infty f_i(\tau_{nm(i)}) \prod_{j\in L_n^s, \mathrm{m}(j)\neq \mathrm{m}(i)} Prob\left(E(\tau_{nm(j)}) > \tau + E(g^s_{nm(i)}) - E(g^s_{nm(j)})\right) d\tau \quad (2)$$

$$k_{nm(i)} = \frac{\sum_s A^s_n p^s_{nm(i)}}{B_{m(i)}} \quad (3)$$

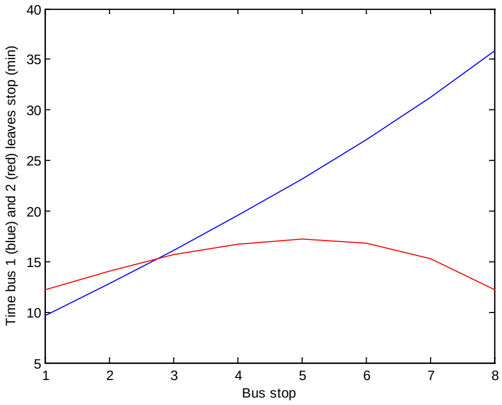

Fig. 1 Time of bus 1 (blue) and bus 2 (red) traversed through bus stops.

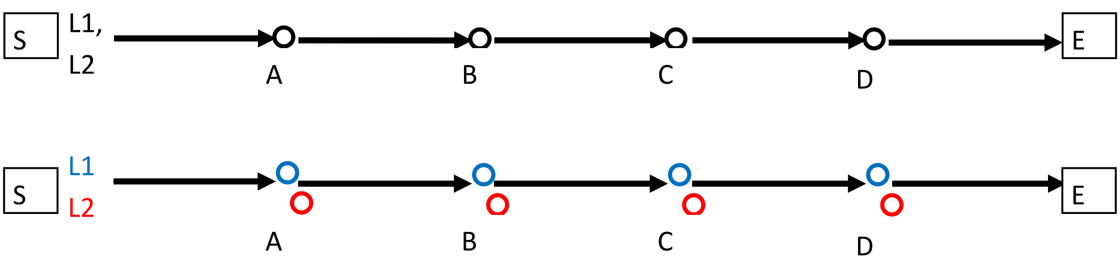

Fig. 2. Top: Two bus lines sharing the same stops, bottom: separate stops for both bus lines.

* Corresponding author: Tel: +44 113 343 5338, Fax: +44 113 343 5334, Email: r.liu@its.leeds.ac.uk.