

# RprobitB application to Train dataset

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The `Train` dataset from the R-package `mlogit` constitutes a

- stated preference survey in Netherlands,
- each individual ( $N = 235$ ) responding to several scenarios ( $T = 5 \dots 19$ ),
- where for every scenario, two train trips ( $J = 2$ ) are proposed
- with different combinations of 4 attributes: `price`, `travel time`, `number of changes` and the `class of comfort`.

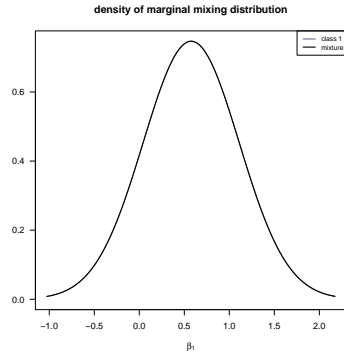
We z-standardize the covariates. The `cost` attribute is fixed to the value -1. The `class of comfort` attribute is connected to a fixed coefficient.

Model	$C$	$C$ update	fixed coefficients	random coefficients
1	1	no		<code>travel time</code> , <code>number of changes</code>
2	2	no		<code>travel time</code> , <code>number of changes</code>
3	3	no		<code>travel time</code> , <code>number of changes</code>
4	2	yes		<code>travel time</code> , <code>number of changes</code>
5	1	no	<code>number of changes</code>	<code>travel time</code>
6	2	no	<code>number of changes</code>	<code>travel time</code>
7	2	yes	<code>number of changes</code>	<code>travel time</code>

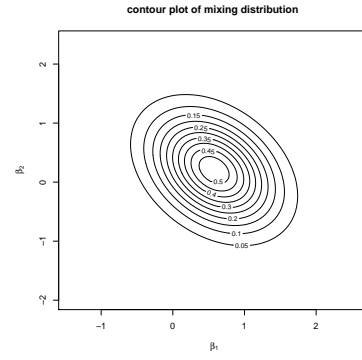
Table 1: Model definitions

Model	WAIC	dWAIC	Akaike weight
1	4897.034	0.0000	0.9886
5	4905.953	8.9189	0.0114
6	6488.273	1591.2387	0.0000
7	6557.075	1660.0407	0.0000
2	6609.486	1712.4519	0.0000
4	6822.989	1925.9545	0.0000
3	7882.325	2985.2909	0.0000

Table 2: Model comparison (best to worst)

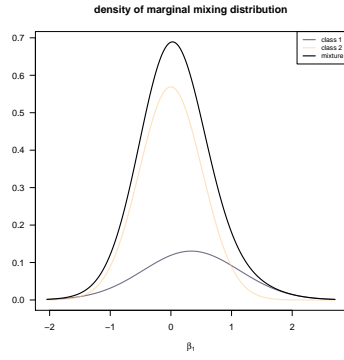


(a) Mixing distribution

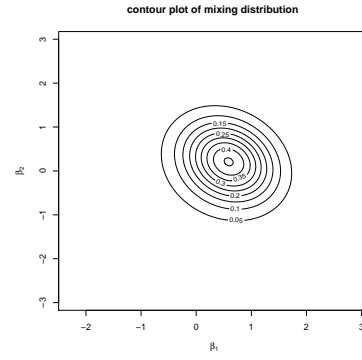


(b) Contour plot

Figure 1: Model 1

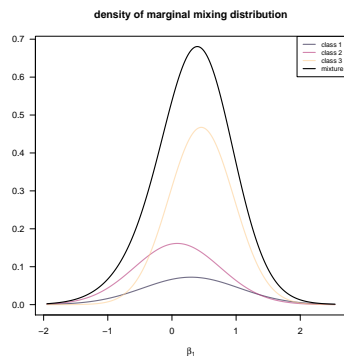


(a) Mixing distribution

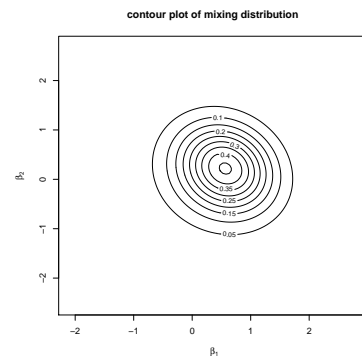


(b) Contour plot

Figure 2: Model 2

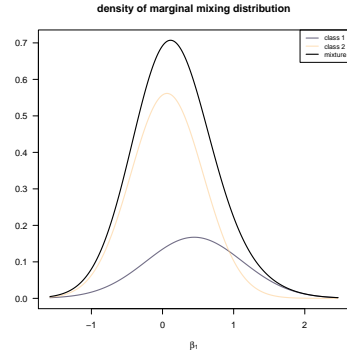


(a) Mixing distribution



(b) Contour plot

Figure 3: Model 3

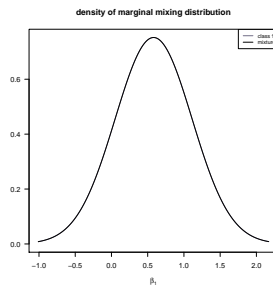


(a) Mixing distribution

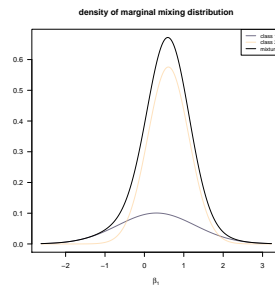


(b) Contour plot

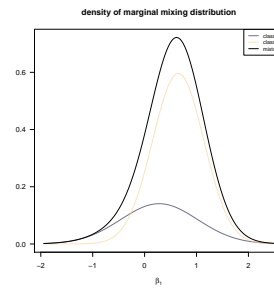
Figure 4: Model 4



(a) Mixing distribution



(b) Mixing distribution



(c) Mixing distribution

Figure 5: Model 5 - 7