$$\Pr\{\alpha_3 = \alpha_5 = \alpha_9 = \alpha_{14} = \alpha_{16}\} = 0.21,$$

$$\Pr\{\alpha_1 = \alpha_2 = \alpha_4 = \alpha_6 = \alpha_8 = \alpha_{11} = \alpha_{13} = \alpha_{15}\} = 0.01.$$

The distribution of $\boldsymbol{\pi}^\beta$ is more concentrated. Its support included 840 vectors, 59 visited only once, 347 less than 10 times, for a total probability of 0.01. With probability 0.01 all the levels are from the same mixture component. The six most probable vectors account for about 0.27 of the probability and are reported below:

$\boldsymbol{\pi}^\beta$	Frequency
1111112	10490
1222221	6764
1222223	4553
1121113	2481
1122113	1414
1232221	1285

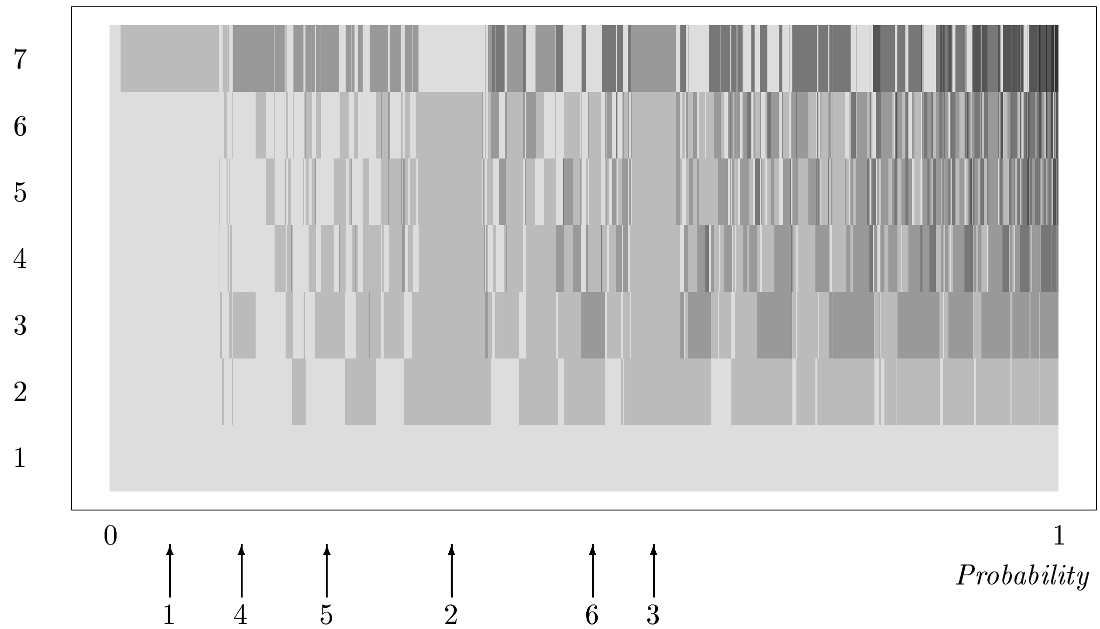

Figure 14: Potato trial data set. A graphical display of the probability distribution of $\boldsymbol{\pi}^\beta$.

These summaries are in agreement with the boxplots exhibited in Figure 13, panel (a). An overall view of the distribution of $\boldsymbol{\pi}^\beta$ is given in Figure 14. This is the same form of display as given in Figure 9 for the interactions in the fabric example. The plot suggests that the pattern where most of the levels in $\{\beta_2, \beta_3, \beta_4, \beta_5, \beta_6\}$ are grouped together accounts for much of the distribution. The six most probable partitions reported above are easily identified, even without the help of the arrows added to the plot.

5 Discussion

In this paper we provide a Bayesian approach to the analysis of factorial experiments that exploits finite mixtures to impose partially exchangeable prior distributions on the main effects and the