Example data structure in a discrete choice experiment:

ID	Scenario	Alternative	Chosen	Z
1	1	А	1	2.3
1	1	В	0	1.8
1	1	C	0	3.1
1	2	А	0	2.5
1	2	В	1	2.9
1	2	C	0	1.7
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2	1	В	1	4.1
2	1	С	0	2.8

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Each individual faces multiple scenarios, each with multiple alternatives

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• Can estimate assuming multinomial logit, nested logit, mixed logit, etc.

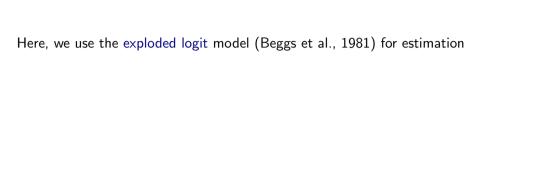
Example data structure for rank-ordered logit:

ID	Scenario	Alternative	Rank	Z
1	1	А	1	2.3
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 ${\sf Rank}=1$ indicates most preferred alternative in each scenario

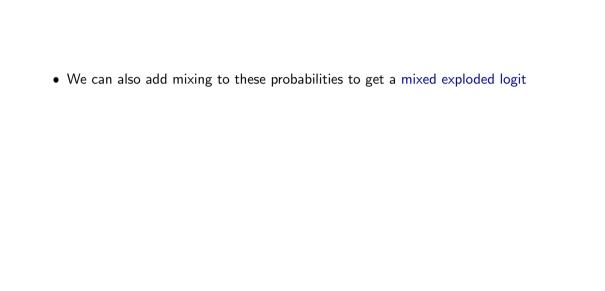


Here, we use the exploded logit model (Beggs et al., 1981) for estimation

The "choice probability" is the joint event of a particular ranking of options

It's a product of logit P's, where the choice set decreases as options are ranked:

$$\mathsf{Pr}\left(\mathsf{Ranking} = 1, \dots, J\right) = \frac{\exp\left(Z_{i1}\gamma\right)}{\sum_{k=1}^{J} \exp\left(Z_{ik}\gamma\right)} \frac{\exp\left(Z_{i2}\gamma\right)}{\sum_{k=2}^{J} \exp\left(Z_{ik}\gamma\right)} \cdots \frac{\exp\left(Z_{iJ-1}\gamma\right)}{\sum_{k=J-1}^{J} \exp\left(Z_{ik}\gamma\right)}$$



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• We now know the relative preference of the J-1 non-chosen options