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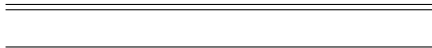
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from carbohydrates from protein from fats			
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- $\max_{x_i, z_i, y_i} \sum_{i=1}^N U(x_i, z_i, y_i; \theta_i)$
- $\theta_i = \{a_{i1}, \dots, a_{iC}\}$
- $x_i \in \mathbb{R}^C$
- $z_i \in \mathbb{R}^C$
- $y_i \in \mathbb{R}^C$
- $\mathbf{A} \equiv \{a_{nc}\}_{n=1, \dots, N, c=1, \dots, C}$

$$U(x_i, z_i, y_i; \theta_i)$$

$$\text{s.t.} \quad \sum_{n=1}^N y_{in} p_n + x_i \leq l_i; \quad z_i = \mathbf{A} y_i; \quad x_i, y_{in} \geq 0$$

- $U(x, z)$ C
- $r_n = r_n$ $\text{nt} + \text{int}$
- $y_n \square \square, \}$ $\sum_{n=1}^N y_n =$
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- $U(x, y)$
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- J K_j

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$$U(x_i, \mathbf{z}_i, \mathbf{y}_i; \mu_i) = \prod_{j=1}^J \prod_{k=1}^{K_j} f_{ikj}(y_{ikj}) \prod_{c=1}^C h_{ic}(z_{ic}) \quad (i, x_i)$$

$$z_{ic} = \prod_{k,j} a_{kj,c} y_{ikj} \quad f_{ikj}(y_{ikj}) \quad h_{ic}(z_{ic})$$

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- $h_{ic}(z_{ic}) = z_{ic}^c$

- $f_{ikj}(y_{ikj}) = \text{Dirichlet}(y_{ikj} | \alpha_{ikj})$

$$\frac{\mu_{ij}}{i} + \frac{1}{i} \sum_k a_{kj} \times y_{ikjt} = \mu_{ij} + \mu_{jt} + \mu_{ijt}$$

$$i =$$

$$W_{ijt} = \sum_c z_{ijct} + \mu_{ij} + \mu_{jt} + \mu_{ijt}$$

- $W_{ijt} = \sum_k p_{ikjt} y_{ikjt} \quad z_{ijct} = \sum_k a_{kj,c} y_{ikjt}$
- μ_{ij}



i

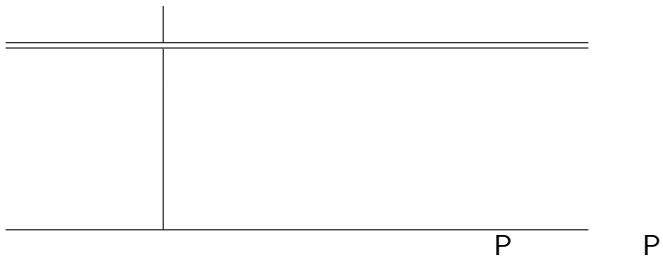
\square ijt

Zijct

j



$$y_{ijt}^{H,V} = \frac{-V_j}{\bar{p}^H}$$



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