1. Abstract
2. Introduction
3. Theory and Model Specification

–Multinomial Model

We assume that the count of unigrams x_{ij} in documents for unique unigrams $i \in (1, 2, .., I)$ across $j \in (1, 2, 3, .., J)$ documents is distributed according to the multinomial. Surpressing i by denoting x_j as the vector $(x_{1,j}, x_{2,j}, ..., x_{I,j}$, we have the following model:

$$x_j \sim MN(q_{ij}, m_{ij}); q_j = \frac{exp(\alpha_j + y_j\theta_j + u_j\Gamma_j)}{\sum exp(\alpha_j + y_j\theta_j + u_j\Gamma_j)}$$

where y_j is the metadata, and u_j is the factor membership associated with document j, and θ_j and Γ_j are the distortion coeffecients for the respective metadata and factor membership.

– Sufficient Reduction

4. Application
5. Graphs
6. Conclusion
7. Acknowledgements
8. References