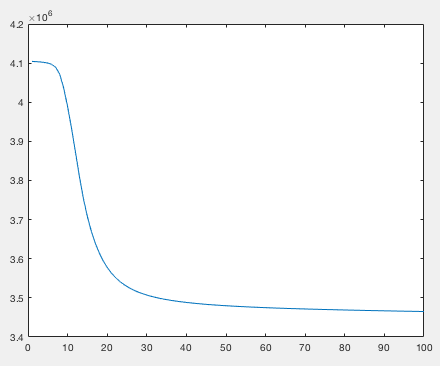
Show the convergence: Plot the objective value as a function of iteration.



Shows the most 10 frequent words in each topic. In the other word, for each column of W, list the 10 words having the largest weight.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0.03309: 'percent', 0.01877: 'rate', 0.01693: 'rise', 0.01515: 'price', 0.01431: 'increase', 0.01222: 'low', 0.01178: 'economy', 0.01174: 'market', 0.01103: 'average', 0.01086: 'fall' | 0.02712: 'music', 0.01326: 'performance', 0.01251: 'play', 0.01243: 'perform', 0.01221: 'dance', 0.01209: 'song', 0.00973: 'sing', 0.00959: 'band', 0.00957: 'sound', 0.00913: 'concert' | 0.03268: 'police', 0.01991: 'kill', 0.0169: 'officer', 0.0161: 'man', 0.01401: 'fire', 0.0135: 'city', 0.01319: 'official', 0.01122: 'yesterday', 0.00958: 'attack', 0.00934: 'shoot' | 0.02481: 'law', 0.01601: 'rule', 0.01377: 'court', 0.01213: 'decision', 0.01211: 'case', 0.01203: 'state', 0.01152: 'legal', 0.01146: 'issue', 0.00945: 'lawyer', 0.0092: 'require' | 0.04168: 'president', 0.03257: 'graduate', 0.02942: 'mrs', 0.02864: 'father', 0.02697: 'director', 0.0255: 'executive', 0.02479: 'retire', 0.0234: 'vice',  0.02206: 'son',  0.0213: 'name' |
| 0.01098: 'car', 0.0096: 'mile', 0.00908: 'drive', 0.00833: 'water', 0.0077: 'train', 0.00768: 'line', 0.00708: 'road', 0.00695: 'hour', 0.00678: 'foot', 0.0061: 'keep' | 0.02216: 'game', 0.0187: 'team', 0.018: 'play', 0.01506: 'win', 0.01447: 'player', 0.0143: 'season', 0.01237: 'second', 0.00884: 'victory', 0.00844: 'score', 0.00796: 'start' | 0.01099: 'american', 0.01091: 'world', 0.00892: 'country', 0.00885: 'history', 0.00741: 'study', 0.00708: 'century', 0.00689: 'states', 0.0066: 'society', 0.00656: 'decade', 0.0065: 'professor' | 0.02194: 'city', 0.02012: 'building',  0.0159: 'area', 0.0153: 'build', 0.01156: 'project', 0.01111: 'resident', 0.01054: 'house', 0.01039: 'site', 0.00958: 'plan', 0.00912: 'community' | 0.01531: 'food', 0.00932: 'serve', 0.0083: 'dry',  0.00828: 'fresh', 0.00812: 'water', 0.00764: 'restaurant',  0.00731: 'taste', 0.00706: 'oil',  0.00704: 'add' |
| 0.01658: 'problem', 0.00881: 'process', 0.00716: 'mean', 0.00695: 'put', 0.00632: 'difficult', 0.00628: 'clear', 0.0061: 'idea', 0.00603: 'possible', 0.00584: 'require', 0.00578: 'decide' | 0.01638: 'film', 0.01631: 'art', 0.01306: 'movie', 0.01117: 'play', 0.01105: 'character', 0.00992: 'artist', 0.00869: 'director', 0.00817: 'production', 0.00802: 'theater', 0.00777: 'scene' | 0.01479: 'drug', 0.01362: 'study', 0.01301: 'health', 0.01263: 'doctor', 0.0111: 'medical', 0.01035: 'patient', 0.00928: 'test', 0.00892: 'treatment', 0.00822: 'cause', 0.00812: 'problem' | 0.04617: 'child', 0.03535: 'school', 0.0318: 'family', 0.02532: 'student', 0.0174: 'parent', 0.0144: 'mother', 0.01177: 'home', 0.01124: 'life', 0.01058: 'young', 0.01051: 'teacher' | 0.02694: 'book', 0.02493: 'write', 0.02405: 'editor', 0.01681: 'article', 0.01661: 'life', 0.01559: 'man', 0.01322: 'writer', 0.01229: 'woman', 0.01112: 'read', 0.0107: 'story' |
| 0.01788: 'computer', 0.01698: 'company', 0.01331: 'technology', 0.01272: 'system', 0.01185: 'network', 0.01129: 'service', 0.00943: 'program', 0.00913: 'site', 0.00811: 'information', 0.00805: 'internet' | 0.0274: 'charge', 0.02421: 'case', 0.02218: 'lawyer', 0.01875: 'trial', 0.01608: 'judge', 0.01512: 'court', 0.01489: 'prison', 0.01412: 'prosecutor', 0.01326: 'criminal', 0.01215: 'sentence' | 0.02698: 'official', 0.01466: 'report', 0.01052: 'meeting', 0.01047: 'member', 0.00873: 'investigation', 0.00868: 'comment', 0.00865: 'office', 0.00767: 'spokesman', 0.00752: 'discuss', 0.0075: 'statement' | 0.03489: 'company', 0.01647: 'share', 0.01551: 'market', 0.01489: 'stock', 0.01469: 'sell', 0.01445: 'business', 0.01182: 'buy', 0.01177: 'executive', 0.01092: 'percent', 0.01063: 'investor' | 0.02294: 'pay',  0.0198: 'money', 0.01704: 'cost', 0.01306: 'job', 0.01232: 'budget', 0.01202: 'cut', 0.01184: 'tax', 0.01151: 'program', 0.0112: 'worker', 0.01028: 'state' |
| 0.02651: 'sell', 0.02362: 'store', 0.01602: 'buy', 0.01411: 'sale', 0.01043: 'design', 0.01041: 'shop', 0.0084: 'price', 0.00816: 'owner', 0.00773: 'collection', 0.00734: 'available' | 0.01928: 'campaign', 0.01912: 'vote', 0.01867: 'political', 0.01426: 'republican', 0.01397: 'election', 0.01339: 'party', 0.01336: 'candidate', 0.01263: 'leader', 0.01188: 'state', 0.01132: 'democratic' | 0.01615: 'war', 0.01554: 'military', 0.01537: 'american', 0.01469: 'government',  0.014: 'states', 0.01389: 'country', 0.01049: 'force', 0.01019: 'leader', 0.008: 'peace', 0.0076: 'international' | 0.00996: 'man', 0.00961: 'room', 0.0089: 'wear', 0.0086: 'night', 0.008: 'sit', 0.00768: 'tell', 0.00743: 'woman', 0.00729: 'little', 0.00719: 'thing', 0.00715: 'ask' | 0.01444: 'thing', 0.01293: 'ask', 0.01112: 'tell', 0.01016: 'question', 0.01008: 'feel',  0.0098: 'speak', 0.0085: 'really', 0.00846: 'lot',  0.00779: 'word', 0.00713: 'add' |