The original framework



Where b is the T-dimensional vocabulary of over contextual features, x is a 1-of-K indicator value, t is a contextual feature occurred in the review, l is the positive/negative label, a is the FxK contextual preference over commodity features, e is a F-dimensional vector of polarized commodity features, c is the 2xF matrix for probability distribution over positive/negative commodity features, f is a polarized commodity feature within the review.

For simplicity, we split the process in the middle, so we have two parts.

Part 1: Pre-process the reviews to label context x

Part 2: Learn a,x,c from labeled reviews