**Back off bigrams** – start with the second word of the trigram and all of the unobserved unigrams from the trigram

**Observed back off bigrams** use the second word of the trigram and all of the unobserved trigram endings – and they are in the list of bigrams

**Unobserved back off bigrams** use the second word of the trigram and the unobserved trigram ending - and they are not in the list of bigrams

**Probability of observed back of bigrams** is the count of each observed bigram, minus the discount, divided by the count of the uingrams with the second word of the trigram

**Probability of the unobserved back off bigrams** is alpha 1( 1 minus the ratio of the sum of all bigrams starting with word 2 divided by the count of the unigram of word 2) times (count of each unobserved unigram minus discount) divided by the sum of all unobserved trig tail unigrams

**Alpha-tri** is 1 minus the (count of the trigrams that begin with the bigram minus the discount) divided by the times the bigram appears among the trigrams

**Unobserved trigrams** – all trigrams that begin with the bigram and plus the unobserved unigrams

**Unobserved trigram probs** = alpha-tri times prob of each unobserved backoff bigram divided by the sum of all the probs of the observed trigrams