CS194 Fall 2011 Lecture 24
Temporal models
Letter 5-gram (Declaration of Independence)

When in the course of human Events, it becomes necessary for one People to dissolve the Political Bands which have connected them with another, and to assume among the Powers of the Earth, the separate and equal Station to which the Laws of Nature and of Natures God entitle them, a decent Respect to the Opinions of Mankind requires that they should declare the causes which impel them to the Separation....

our Emigrations hitherefore, That the Life, Liberty, all other Legislature Separalleled totally unwarrantablishing Warfare, acquiesce in Warfare, transporting his Government. The History of our Laws for absolved for these right their Safety and Usurpation. He has marked by these Opppresent ought a ...
Word n-grams (AIMA)

Unigram: logical are as are confusion a may right tries agent goal the was . . .
Bigram: systems are very similar computational approach would be represented . . .
Trigram: planning and scheduling are integrated the success of naive bayes model is . . .
Hierarchical models (Chomsky writings)

For any transformation which is sufficiently diversified in application to be of any interest, most of the methodological work in modern linguistics is not to be considered in determining a corpus of utterance tokens upon which conformity has been defined by the paired utterance test. By combining adjunctions and certain deformations, the theory of syntactic features developed earlier may remedy and, at the same time, eliminate the system of base rules exclusive of the lexicon. Clearly, the fundamental error of regarding functional notions as categorial is unspecified with respect to an abstract underlying order. Furthermore, the notion of level of grammaticalness is to be regarded as the extended c-command discussed in connection with (34). Presumably, relational information appears to correlate rather closely with the levels of acceptability from fairly high (eg (99a)) to virtual gibberish (eg (98d)).
AR(1) time series

$X(t)$ vs Time step

- $w_1=0.98$, $\sigma=1.0$
- $w_1=0.9$, $\sigma=1.0$
- $w_1=0.8$, $\sigma=1.0$
- $w_1=0.4$, $\sigma=1.0$
- $w_1=0.2$, $\sigma=1.0$
- $w_1=0.1$, $\sigma=1.0$
AR(3) time series

- $w_j=0.33, \sigma=1.0$
- $w_j=0.32, \sigma=1.0$
- $w_j=0.3, \sigma=1.0$
- $w_j=0.2, \sigma=1.0$
- $w_j=0.1, \sigma=1.0$
ARMA(1,1) time series

$X(t)$

Time step

$w_1 = 0.98, \sigma = 1.0$

$w_1 = 0.9, \sigma = 1.0$

$w_1 = 0.8, \sigma = 1.0$

$w_1 = 0.4, \sigma = 1.0$

$w_1 = 0.2, \sigma = 1.0$

$w_1 = 0.1, \sigma = 1.0$
ARMA(3,3) time series

$X(t)$

Time step

$w_j = 0.33, \sigma = 1.0$

$w_j = 0.32, \sigma = 1.0$

$w_j = 0.3, \sigma = 1.0$

$w_j = 0.2, \sigma = 1.0$

$w_j = 0.1, \sigma = 1.0$