CS674, Spring 2002
Lecture Handout, 4/15/02

1. Parallel-corpus example.

Ash nazg durbatulûk, ash nazg gimbatul,
ash nazg thrakatulûk agh burzum-ishi krimpatul.

One Ring to rule them all, One Ring to find them,
One Ring to bring them all and in the darkness bind them.

(From J.R.R. Tolkien, *The Lord of the Rings*)

2. A handy fact: let $p(x_1, \ldots, x_m) = K x_1^{n_1} \cdots x_m^{n_m}$, where $n_i \geq 1$ for each i. Then,

$$\begin{aligned}
\frac{d}{dx_i} p(x_1, \ldots, x_m) &= \frac{1}{x_i} n_i K x_1^{n_1} x_2^{n_2} \cdots x_i^{n_i} \cdots x_m^{n_m} \\
&= \frac{1}{x_i} n_i p(x_1, \ldots, x_m)
\end{aligned}$$