

Language model unit:

- ▶ Probability and statistics background (last week Wednesday)
- ▶ Statistics about language (last week Friday)
- ▶ Language models themselves (today)
- ▶ Smoothing language models (Wednesday)
- ▶ Interpolation among language models (Friday)
- ▶ (Finish and apply language models next week)

Today:

- ▶ What a language model is
- ▶ N-gram language models
- ▶ Maximum likelihood and relative frequency
- ▶ Evaluating language models

T Thomas VanDrunen
Johnson • 1 day ago

Bird identification. Yesterday while driving near Waterman IL (my family was coming home from Honey Hill orchard) I saw a kind of bird I couldn't identify. It was from a bit of a distance, so my description is sketchy, but here goes:

It was medium size, maybe comparable to a dove or pigeon. The color that stood out at a distance was a sort of reddish brown; when it flew I could see white underparts. There were several on the ground--in the fields, roadside, and road itself. What was most noticeable was that it ran pretty fast along the road, taking to the air only when the car approached.

Anyone want to take a guess at a kind of bird that runs well and would be common in agricultural areas a couple counties to the west but not as common in the suburbs and forest preserves of DuPage? Thanks.

Posted in **General to Anyone**

2 Neighbors


6 Comments

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 **Badar Zulqarni** • South Wheaton

It could be killdeer. <https://images.app.goo.gl/nrGUoEU2XjsWT4Ax9>
1 day ago Like Reply Share

 **Margaret T.** • Wiesbrook

Agree!
1 day ago Like Reply Share

E Elizabeth Stoffel • Winfield

Did you notice the sound they made? Killdeer have a unique song/call...
1 day ago Like Reply Share

T Thomas VanDrunen • Johnson

Thanks all. From what I've read just now about killdeer, I think that's probably what it was. At any rate, I wouldn't have recognized a killdeer.

(I couldn't hear the call, I just saw them while driving by.)

$$\begin{aligned} & P\left(\begin{array}{l} \text{it's a} \\ \text{killdeer} \end{array} \mid \begin{array}{l} \text{I don't} \\ \text{recognize it} \end{array}\right) \\ &= \frac{P\left(\begin{array}{l} \text{I don't} \\ \text{recognize it} \end{array} \mid \begin{array}{l} \text{it's a} \\ \text{killdeer} \end{array}\right) \cdot P\left(\begin{array}{l} \text{it's a} \\ \text{killdeer} \end{array}\right)}{P\left(\begin{array}{l} \text{I don't} \\ \text{recognize it} \end{array}\right)} \\ &= \frac{P\left(\begin{array}{l} \text{it's a} \\ \text{killdeer} \end{array}\right)}{P\left(\begin{array}{l} \text{I don't} \\ \text{recognize it} \end{array}\right)} \end{aligned}$$



It was breakfast time.

Father was eating his egg.

Mother was eating her egg.

Gloria was sitting in a high chair
and eating her egg too.

Frances was eating bread and jam.

“What a lovely egg!” said Father.

“It is just the thing to start the day
off right,” said Mother.

Frances did not eat her egg.

$$\begin{aligned}
& P(\text{Frances did not eat her egg}) \\
&= P(\text{egg}|\text{Frances did not eat her}) \cdot P(\text{Frances did not eat her}) \\
&= P(\text{egg}|\dots) \cdot P(\text{her}|\text{Frances did not eat}) \cdot P(\text{Frances ...eat})
\end{aligned}$$

$$P(w_{1:n}) = P(w_1)P(w_2|w_1)P(w_3|w_{1:2}) \cdots P(w_n|w_{1:n-2})$$

$$P(w_n|w_{1:n-1}) \approx P(w_n|w_{n-1}) \text{ or } P(w_n|w_{n-2}w_{n-1})$$