End-to-end deep learning
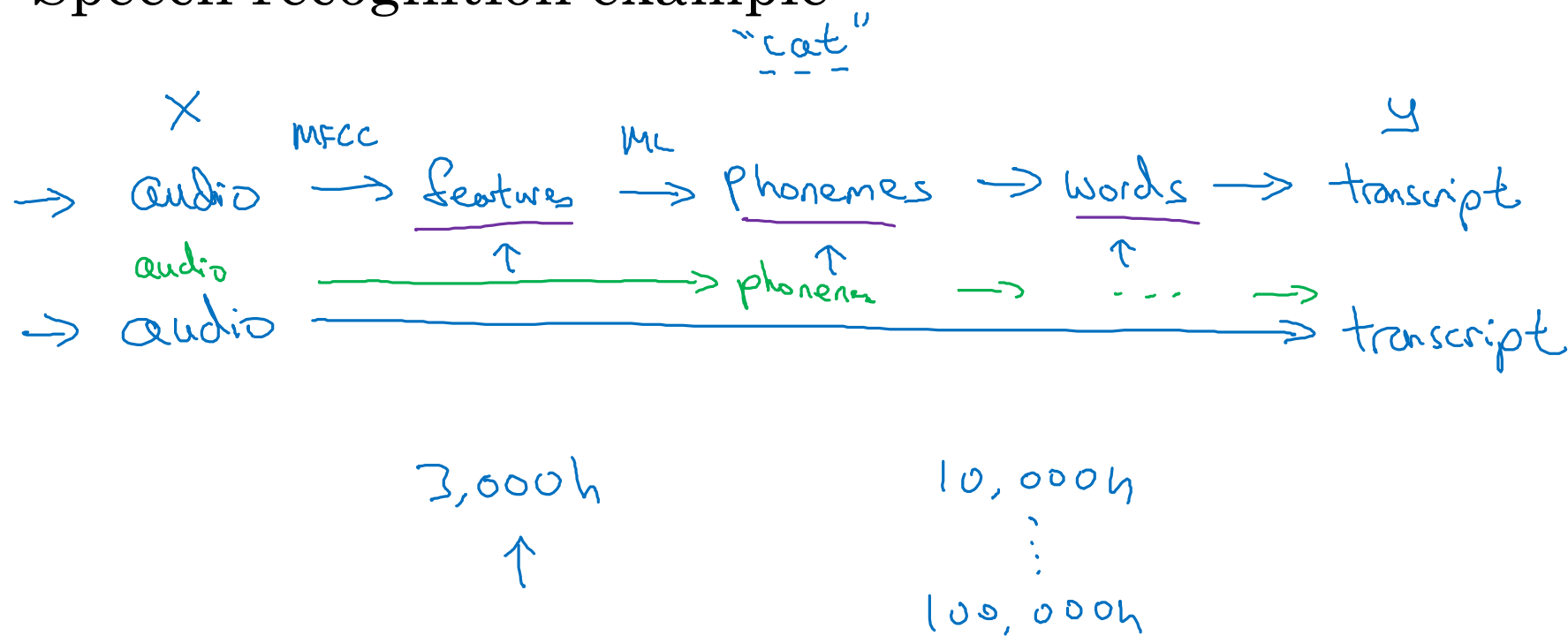
deeplearning.ai

What is
end-to-end
deep learning

What is end-to-end learning?

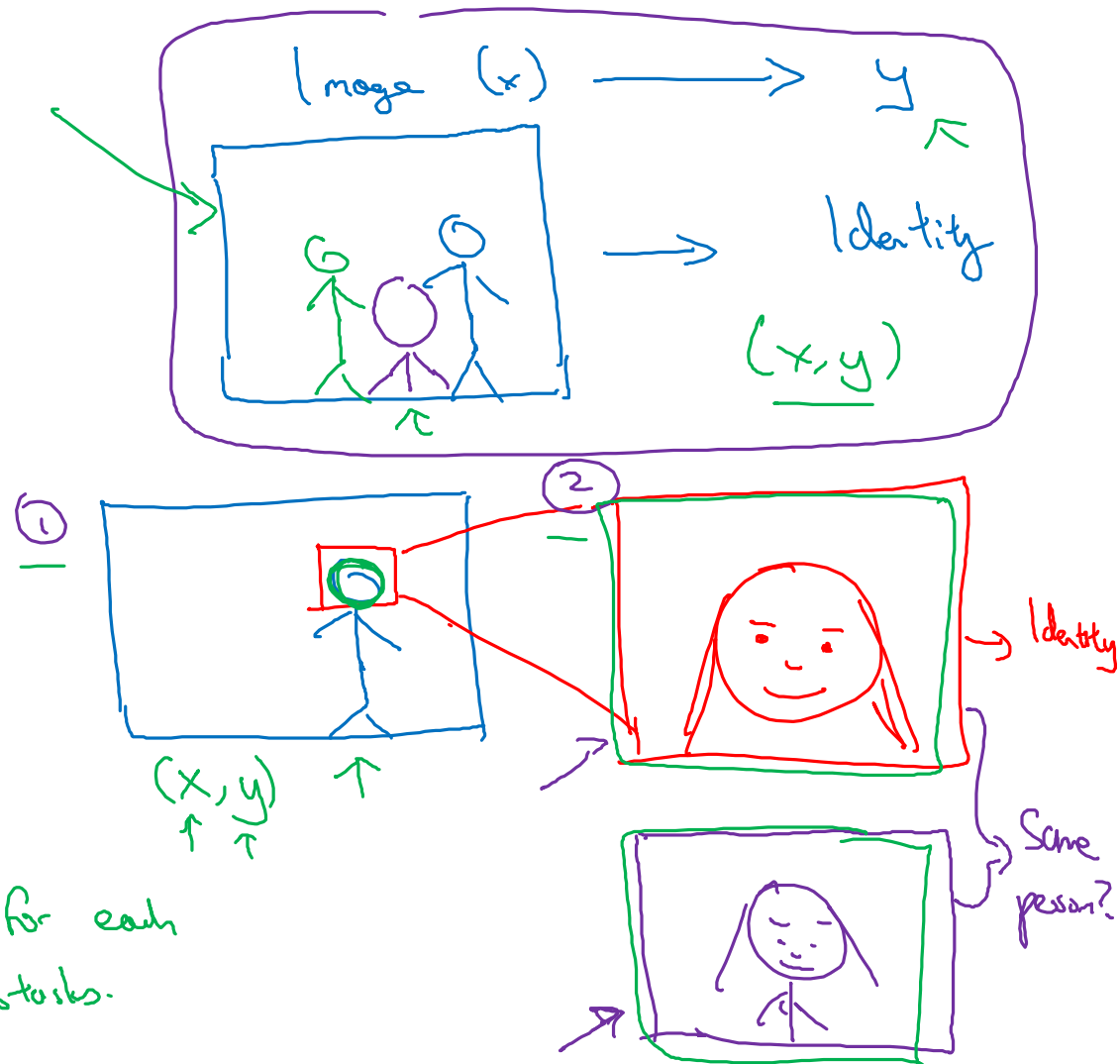Speech recognition example

"cat"

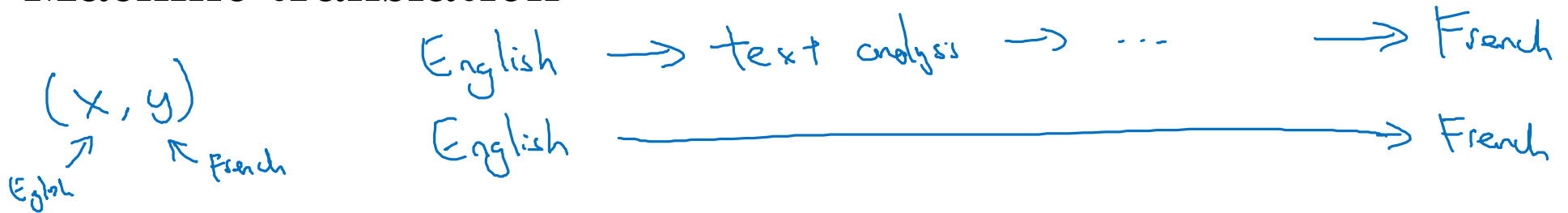X MFCC $\rightarrow$ features   ML $\rightarrow$ Phonemes $\rightarrow$ Words $\rightarrow$ transcript y

audio $\rightarrow$ phonemes $\rightarrow$ ... $\rightarrow$

audio $\rightarrow$ transcript

3,000h

10,000h
⋮
100,000h

Andrew Ng

Face recognition

[Image courtesy of Baidu]

Image (x) → y

Identity

(x, y)

Camera

① ②

(x, y)

Have data for each
of 2 subtasks.

Identity

Same
person?

Andrew Ng

More examples

Machine translation

(x, y)

English↗ ↖French

Eglish

English → text analysis → ⋯ → French

English ⟶ French

Estimating child's age:

Image ①→ bones ②→ age

Image ⟶ age ←