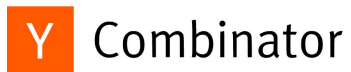


cero

<https://cero.ai>

Backed by



ST>RT-UPCHILE

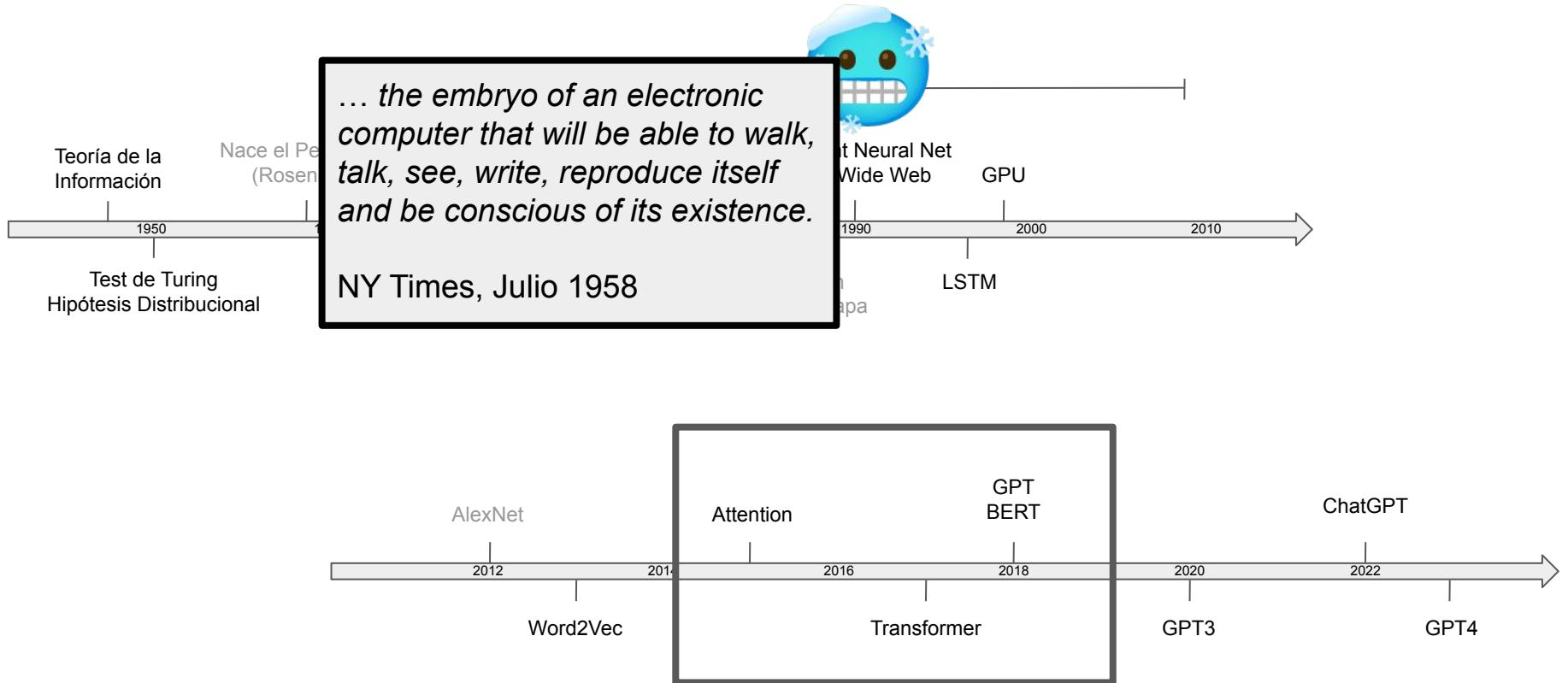
¿Cómo llegamos donde estamos?

¿Qué es realmente una red neuronal artificial?

¿Qué se puede hacer ahora
que no se podía hacer antes?

¿Cuál es el rol de un *emprendedor tecnológico*
en este (nuevo) escenario?

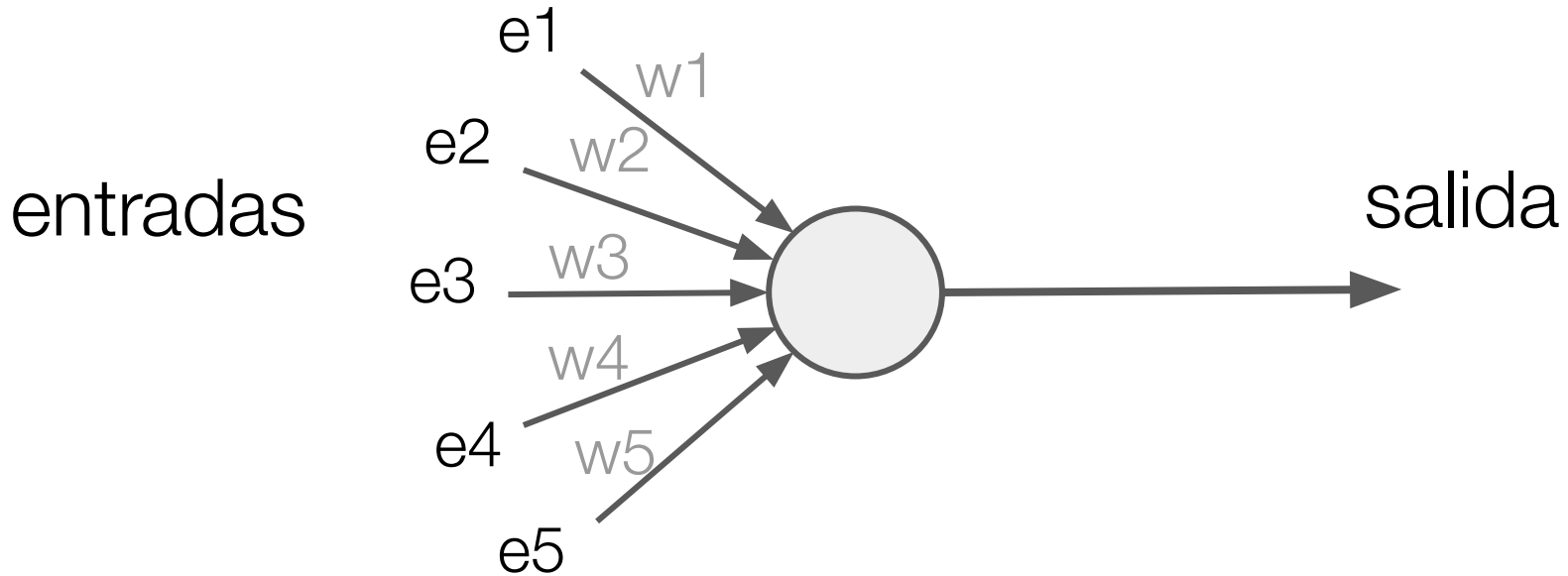
Cómo llegamos donde estamos



Qué es realmente una red neuronal artificial

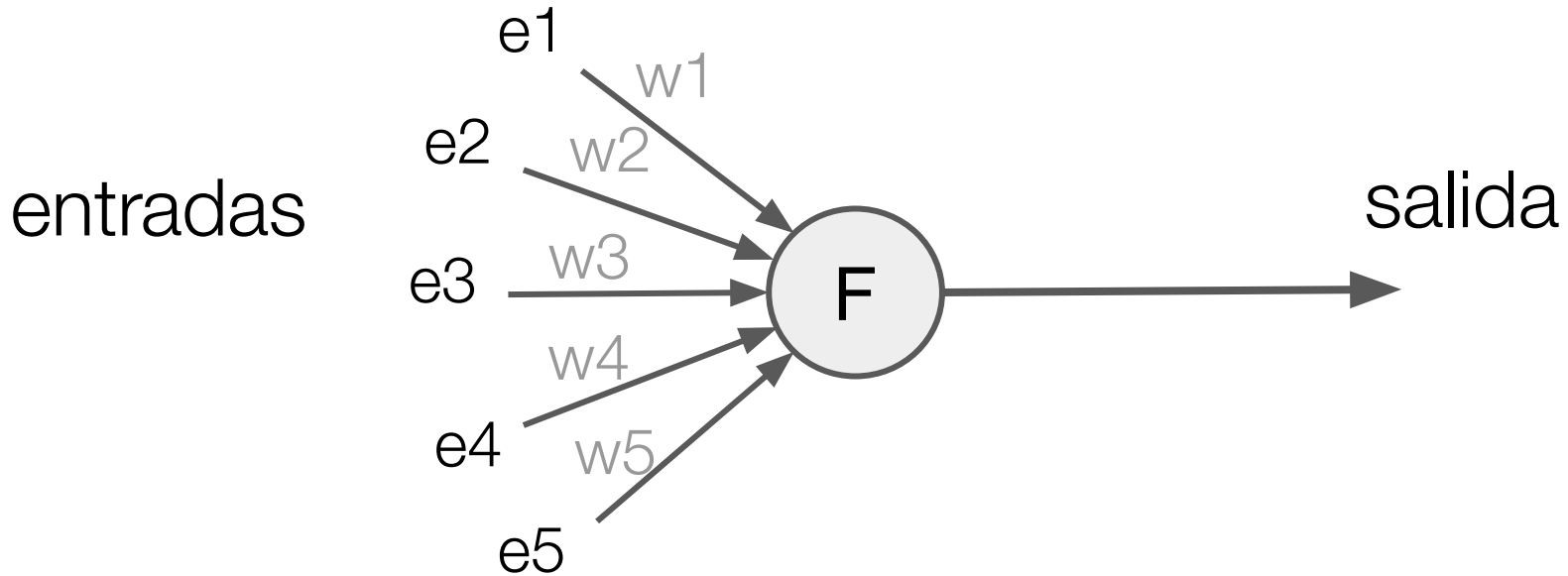


Neurona artificial (perceptrón)



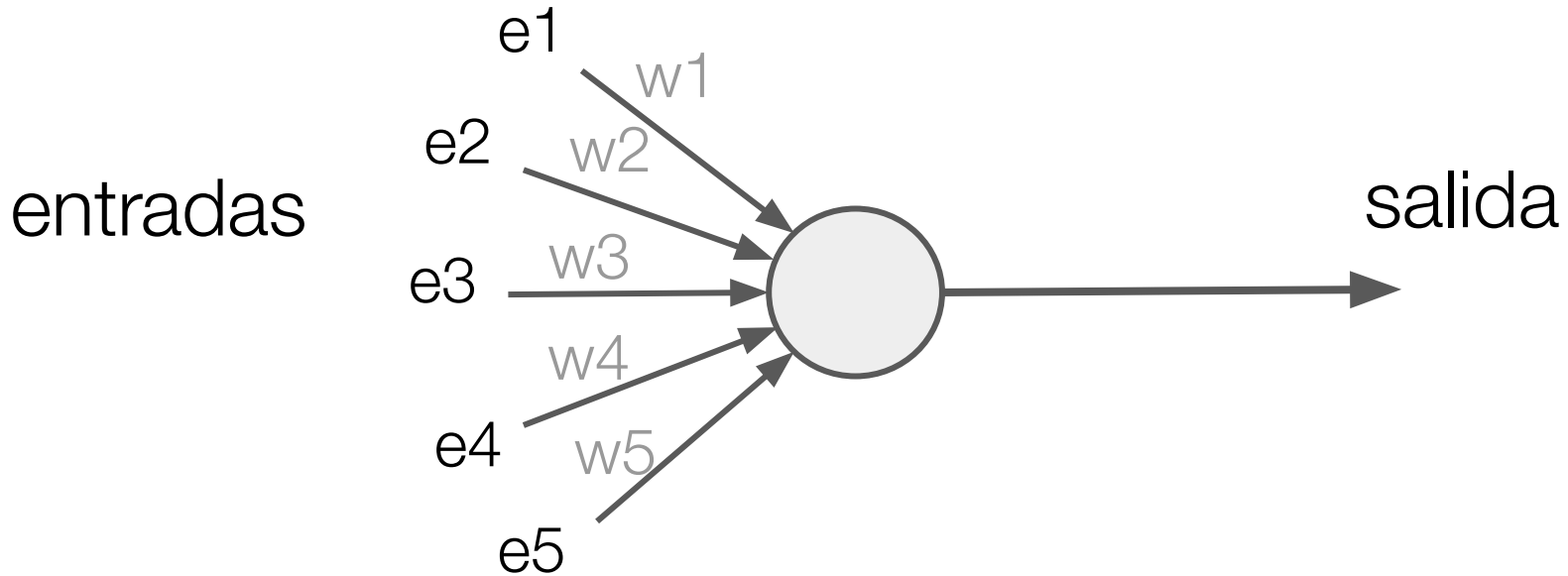
$$\text{salida} = w_1 \times e_1 + w_2 \times e_2 + \dots + w_5 \times e_5$$

Neurona artificial (perceptrón)



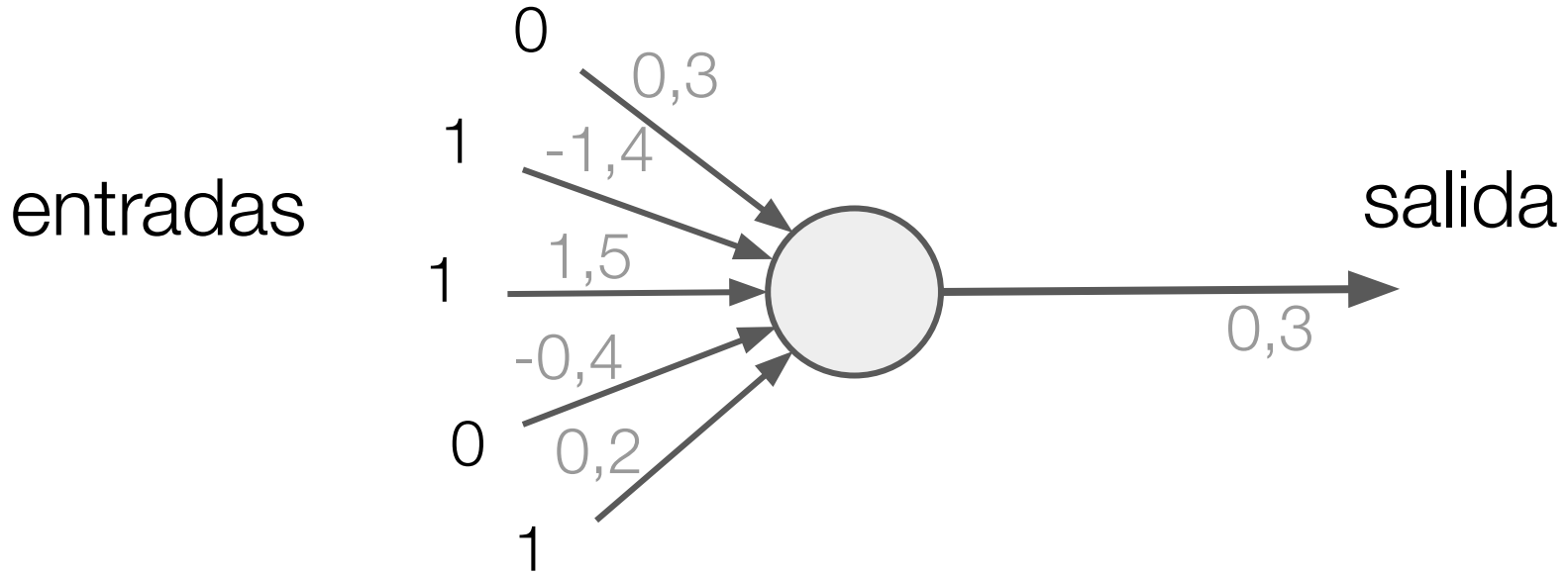
$$\text{salida} = F(w_1 \times e_1 + w_2 \times e_2 + \dots + w_5 \times e_5)$$

Neurona artificial (perceptrón)



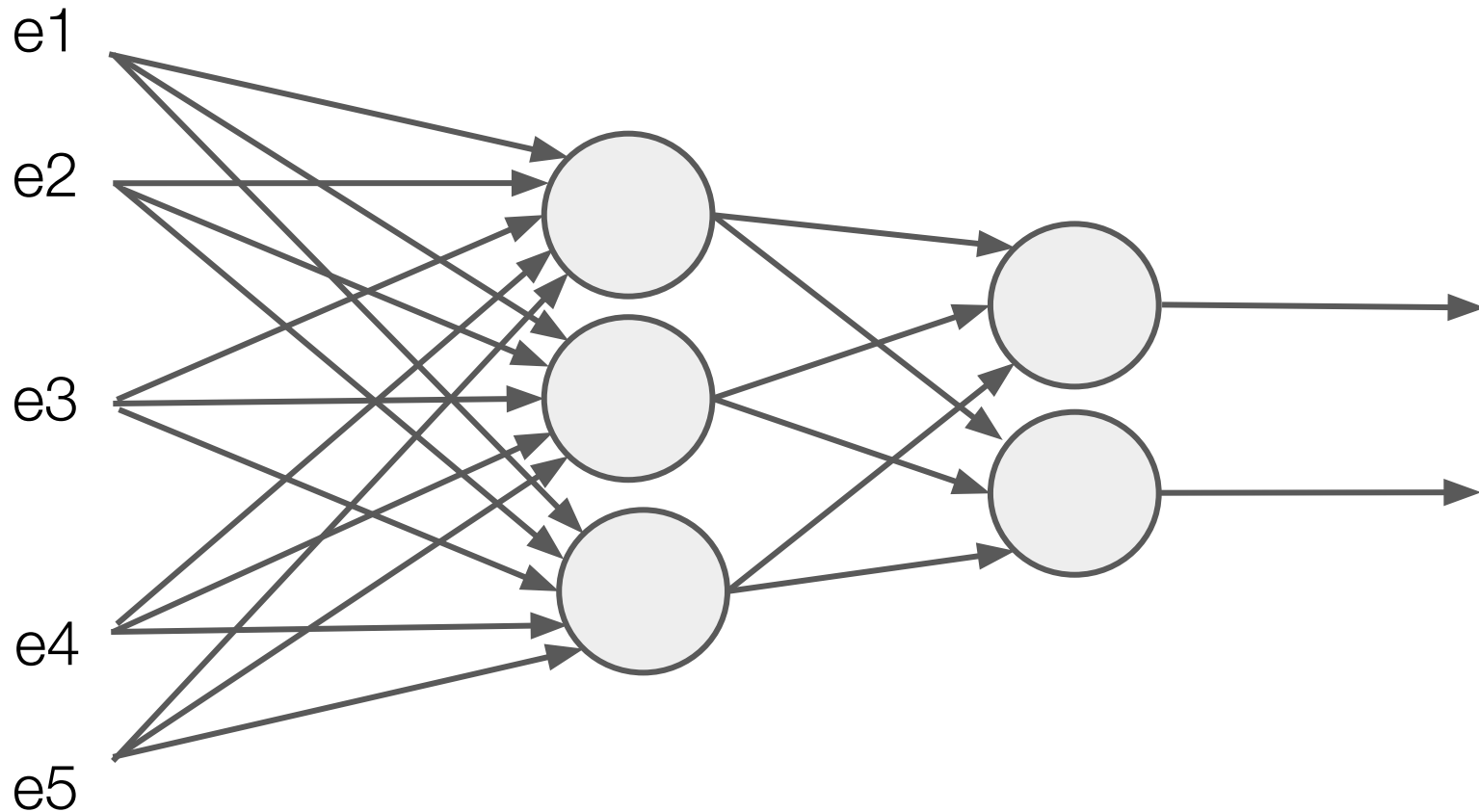
$$\text{salida} = w_1 \times e_1 + w_2 \times e_2 + \dots + w_5 \times e_5$$

Neurona artificial



$$\text{salida} = -1,4 + 1,5 + 0,2 = 0,3$$

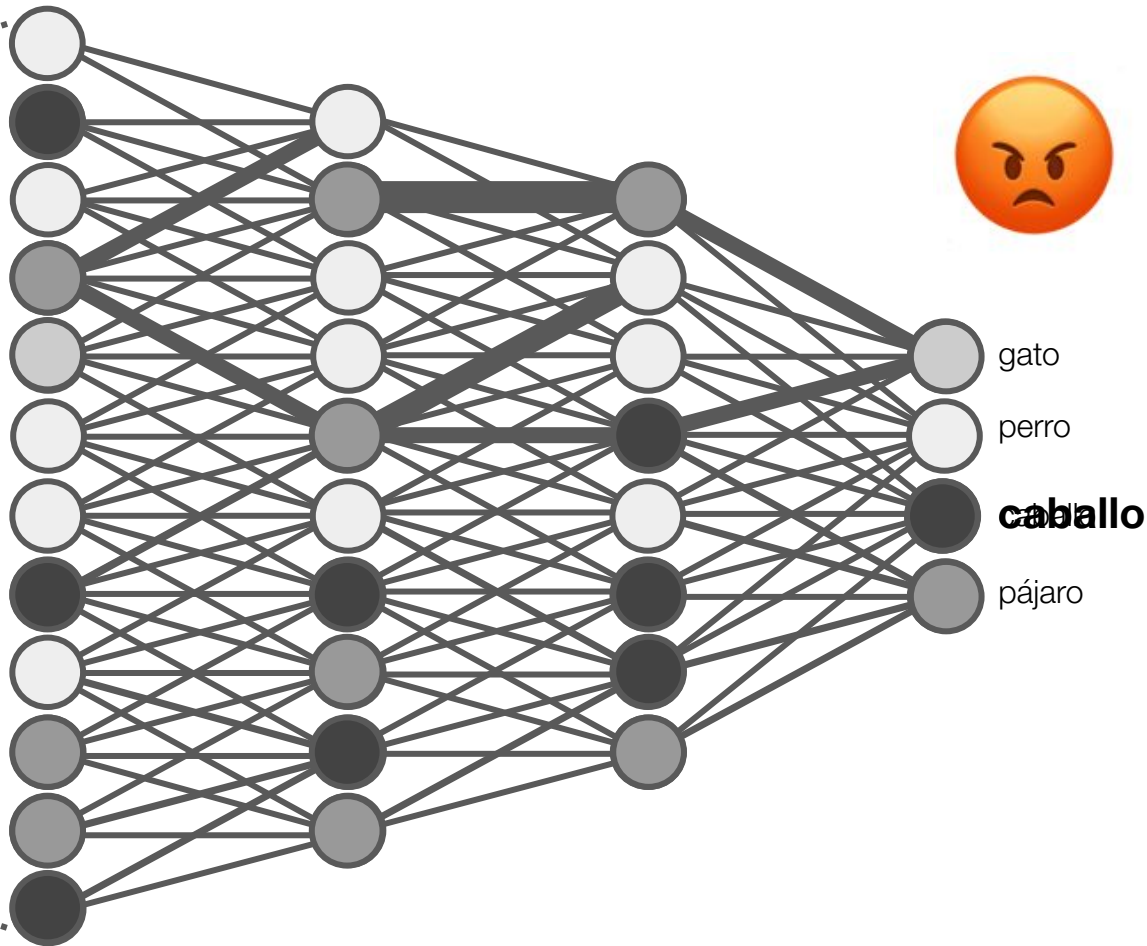
Red neuronal artificial



“Entrenando”
redes neuronales artificiales

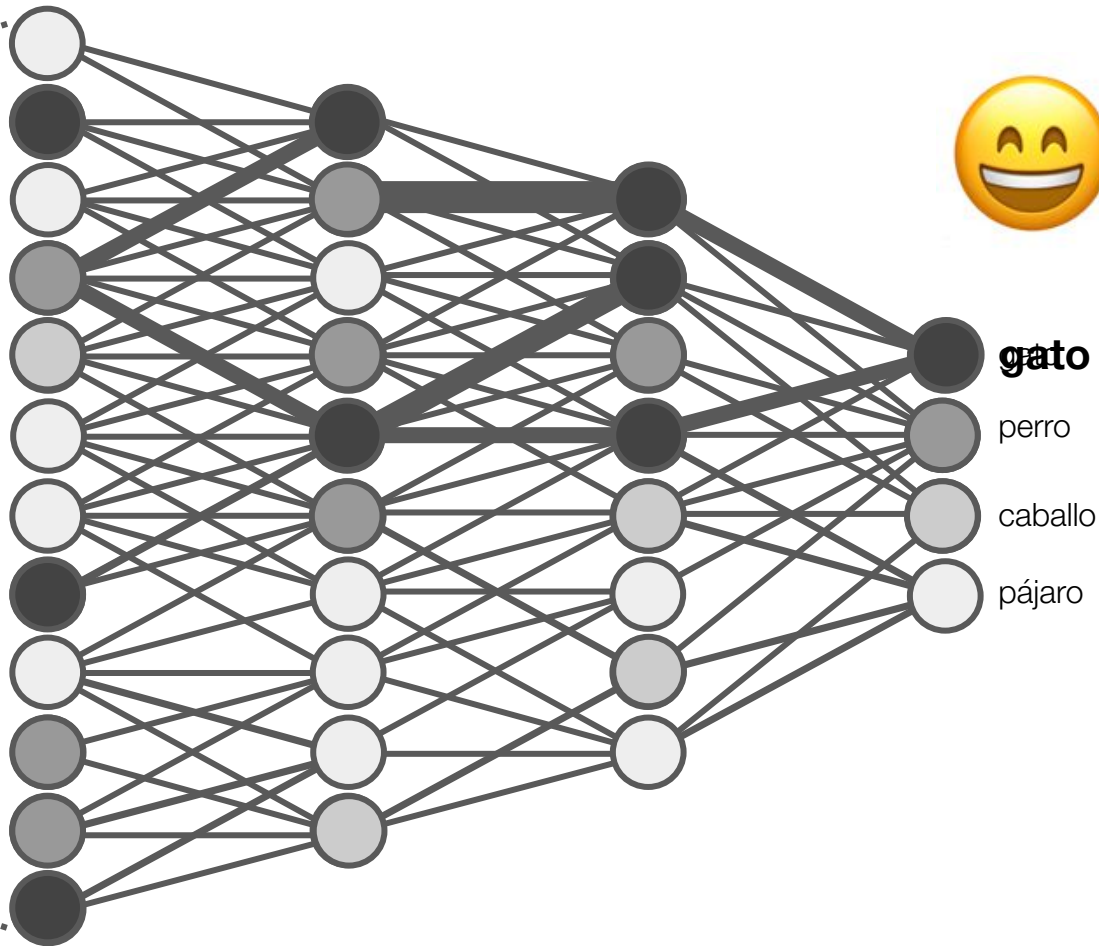


gato



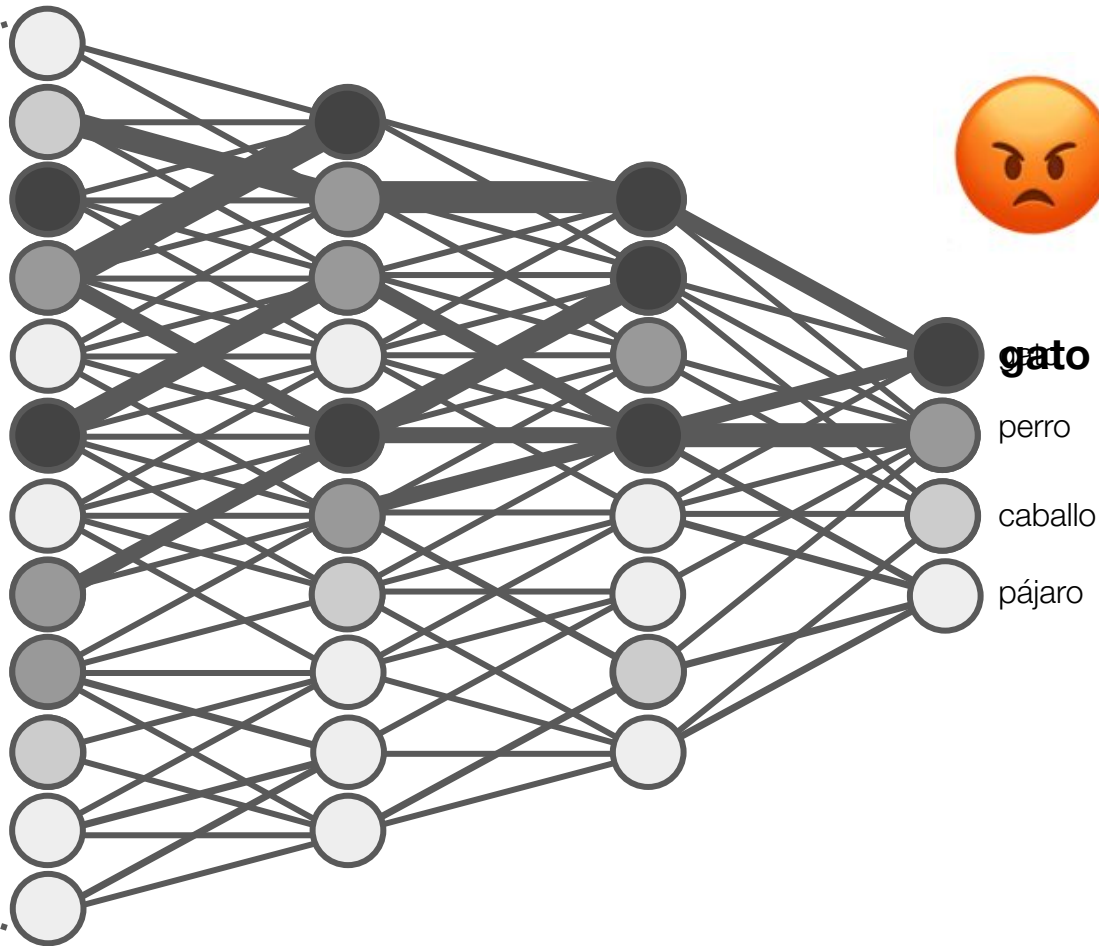


gato





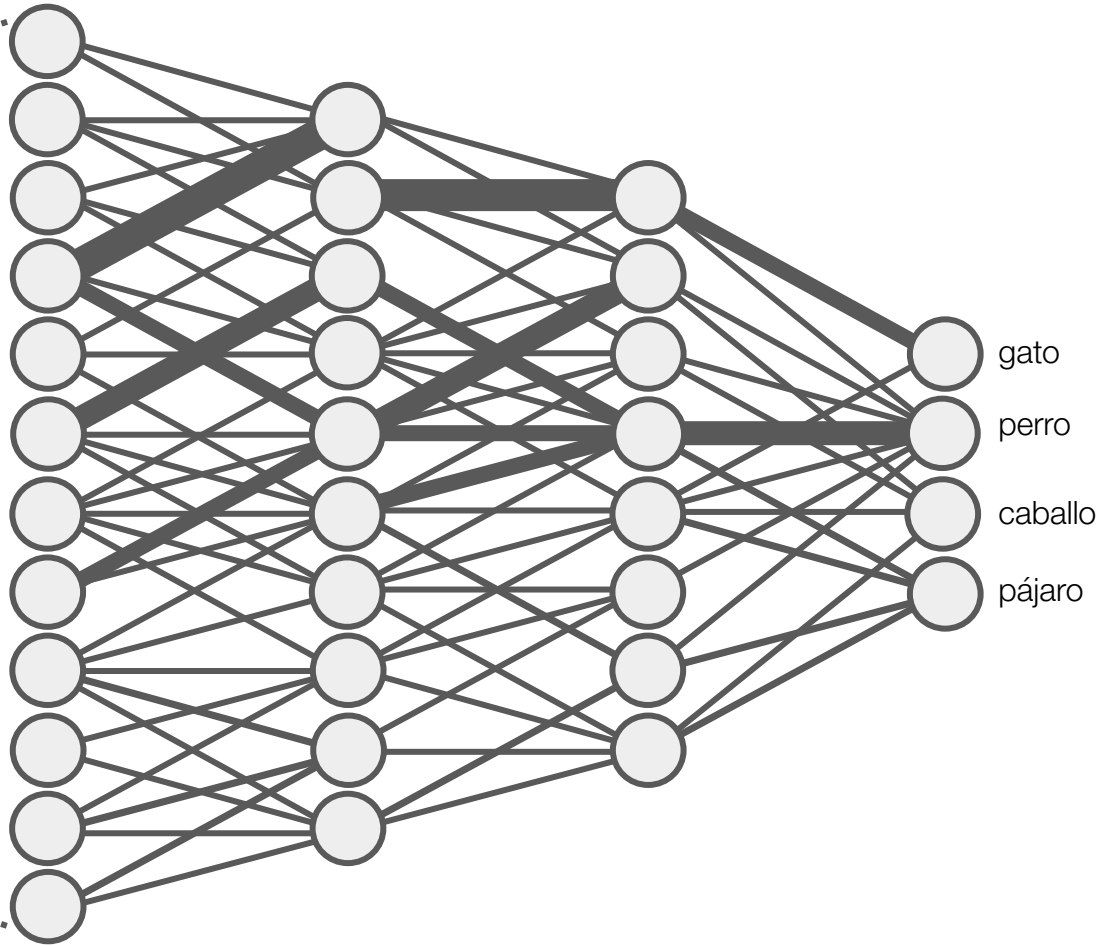
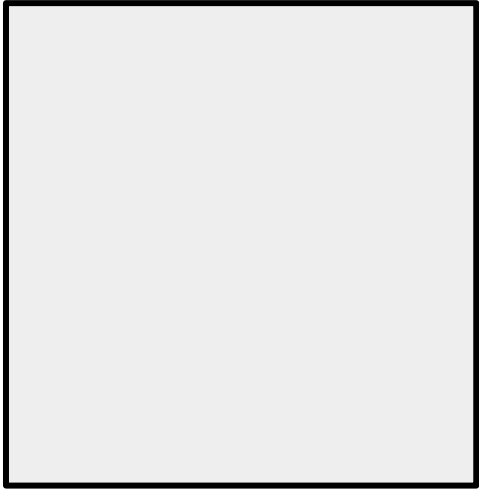
perro





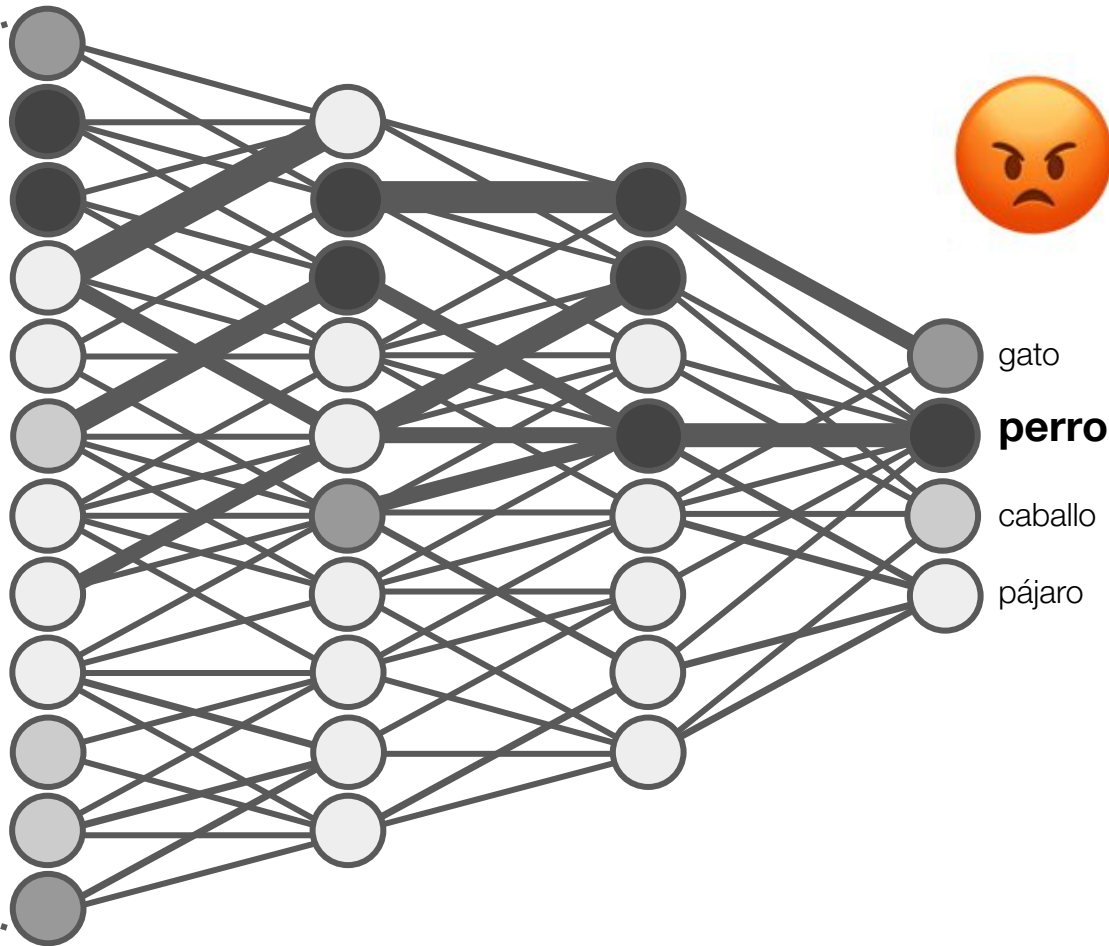
perro





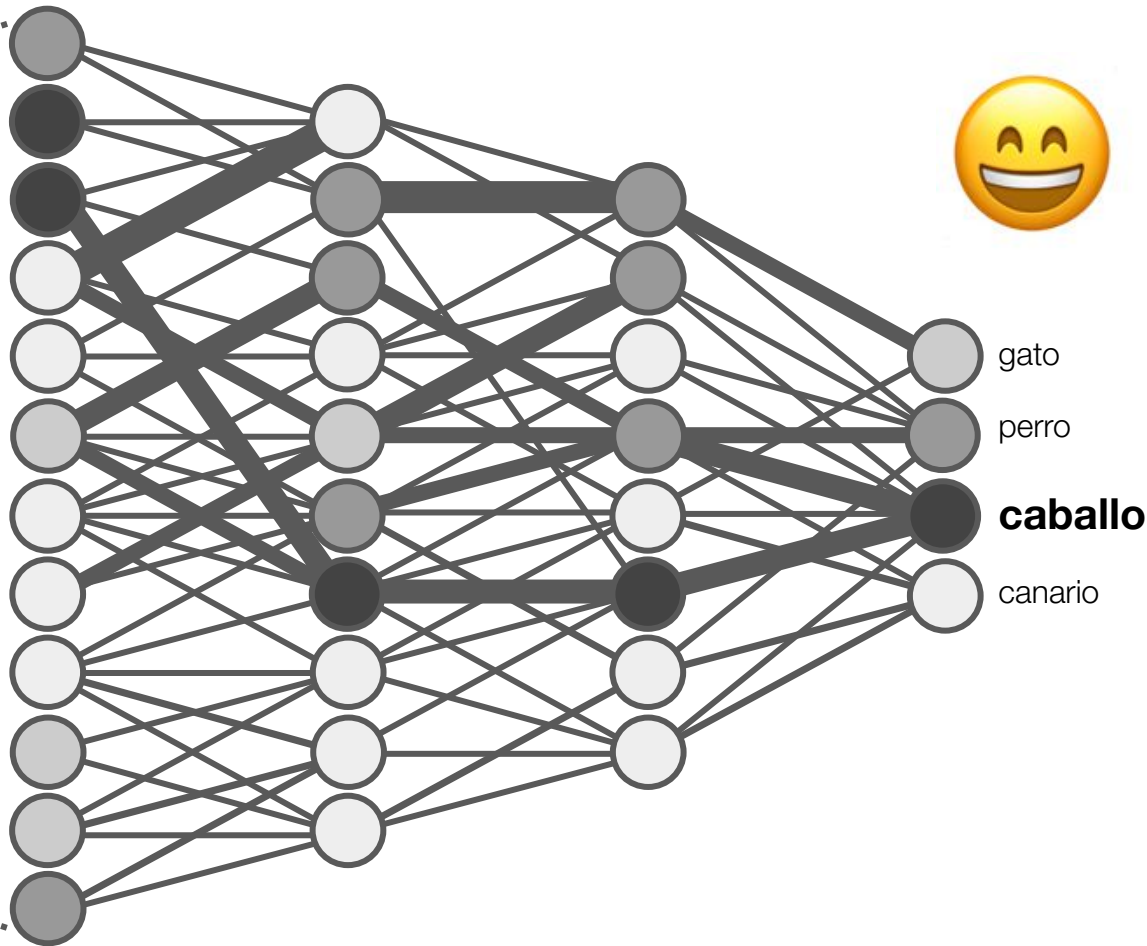


caballo



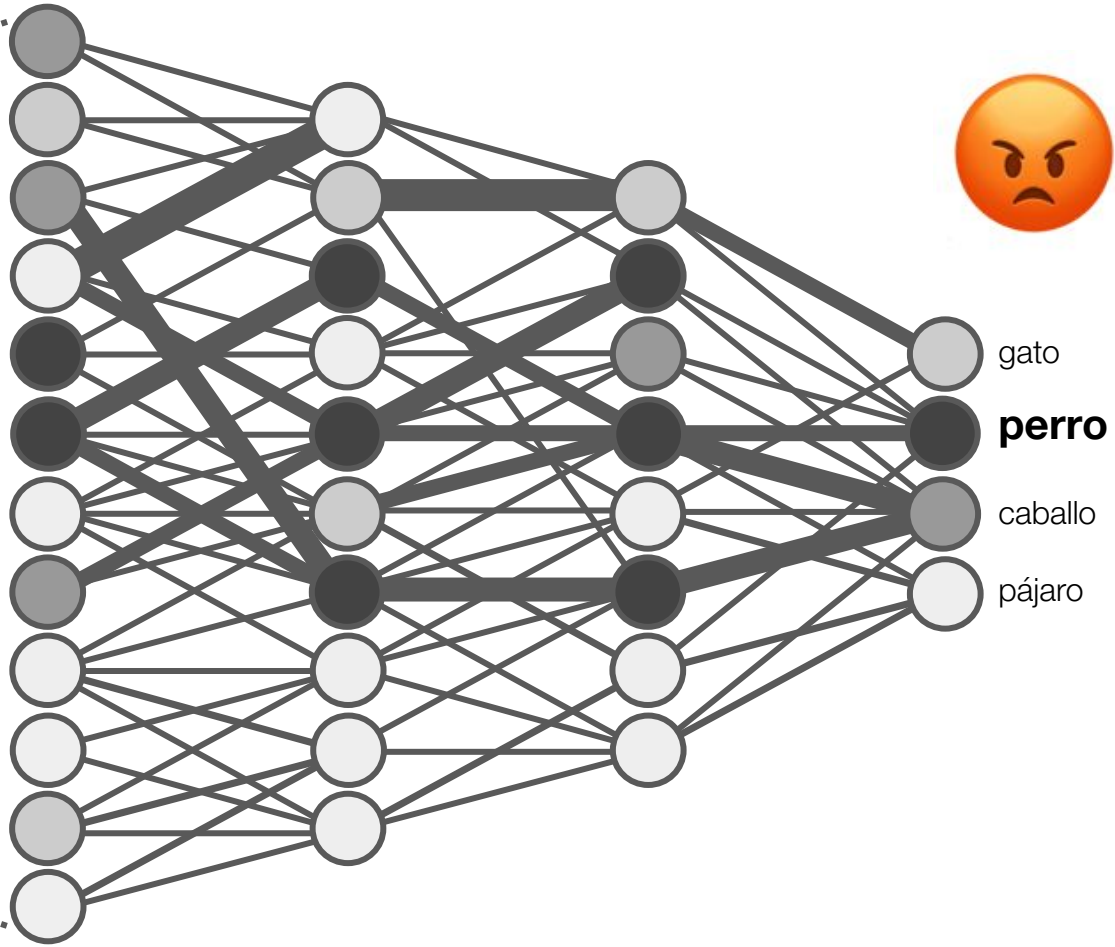


caballo



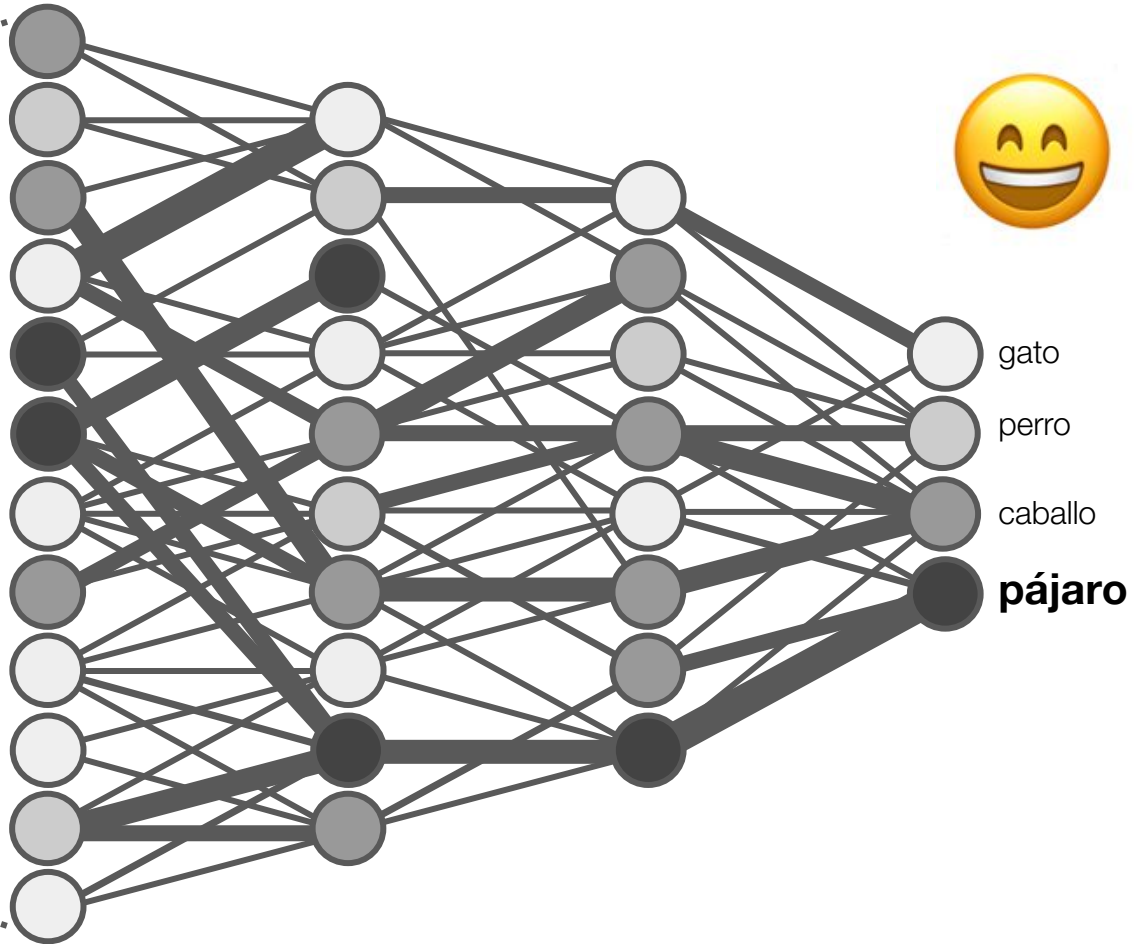


pájaro



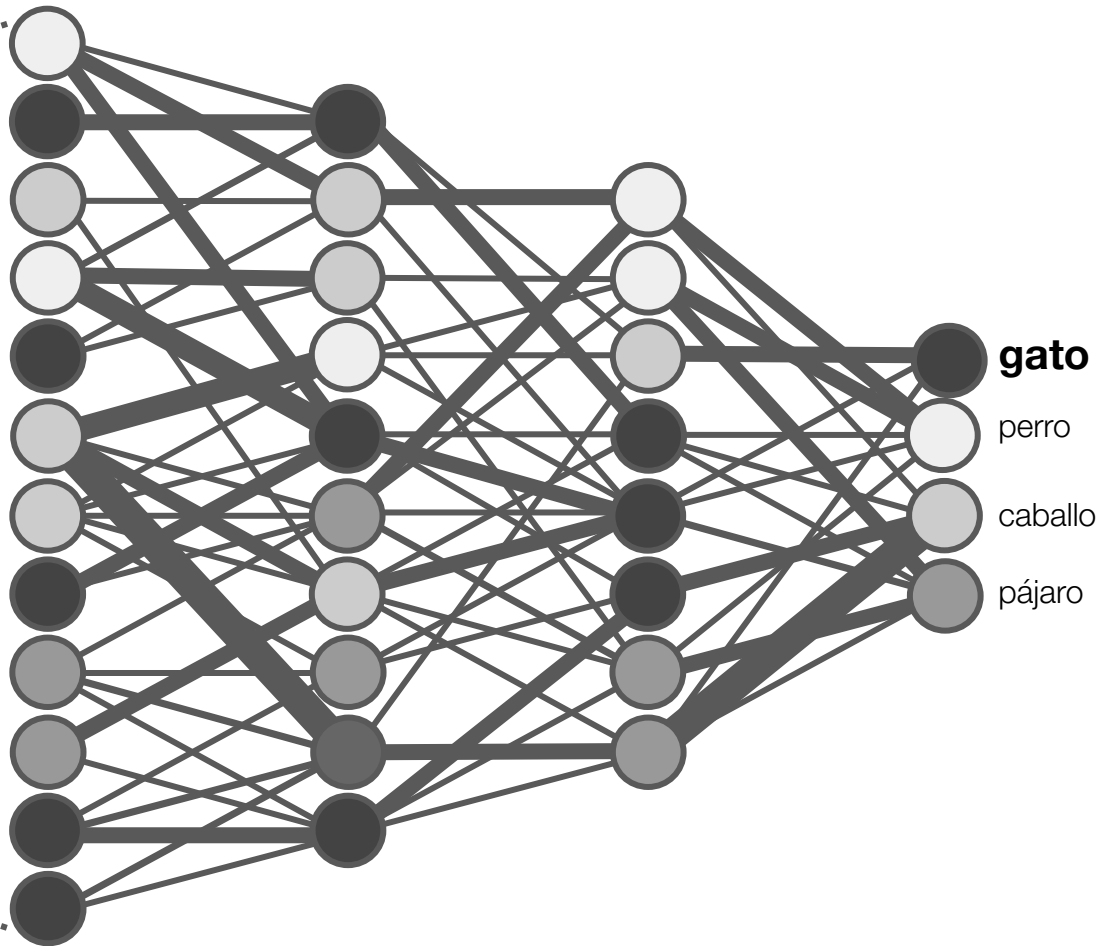


pájaro



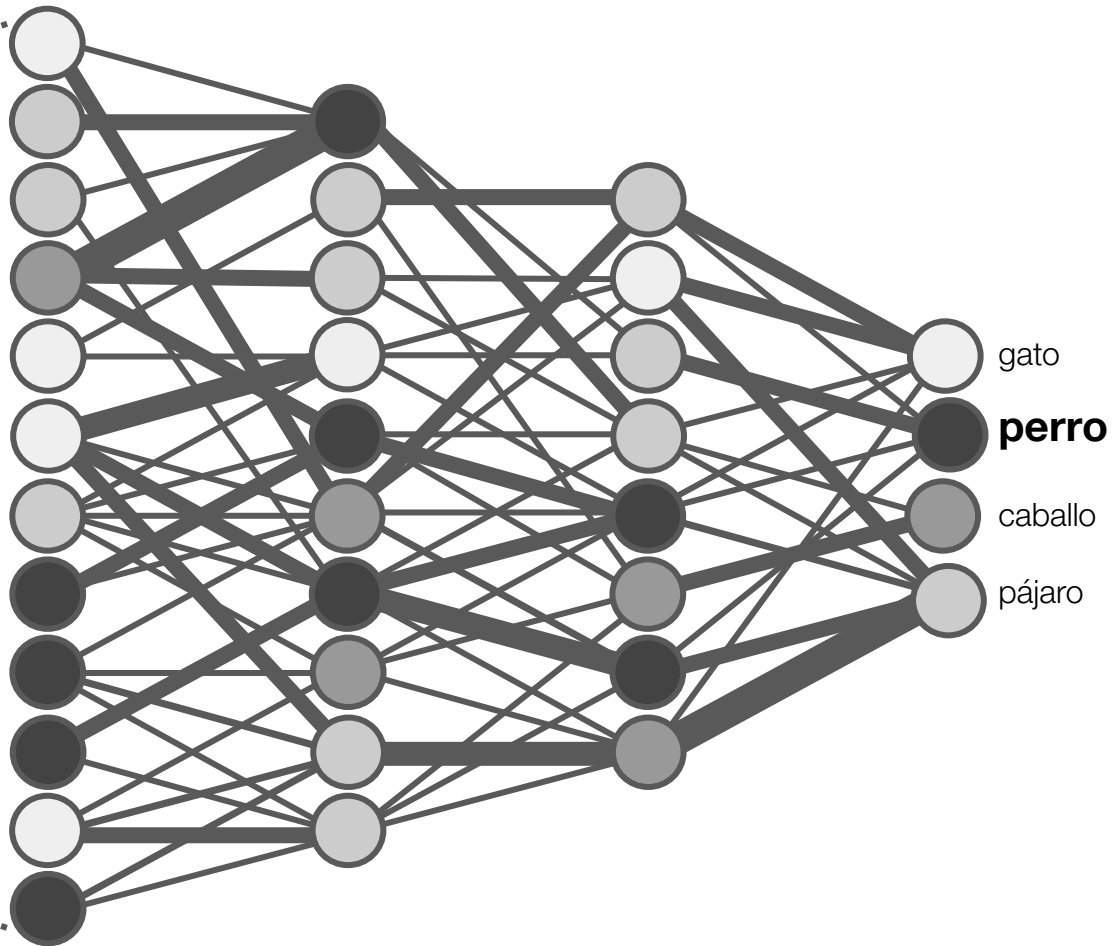


gato



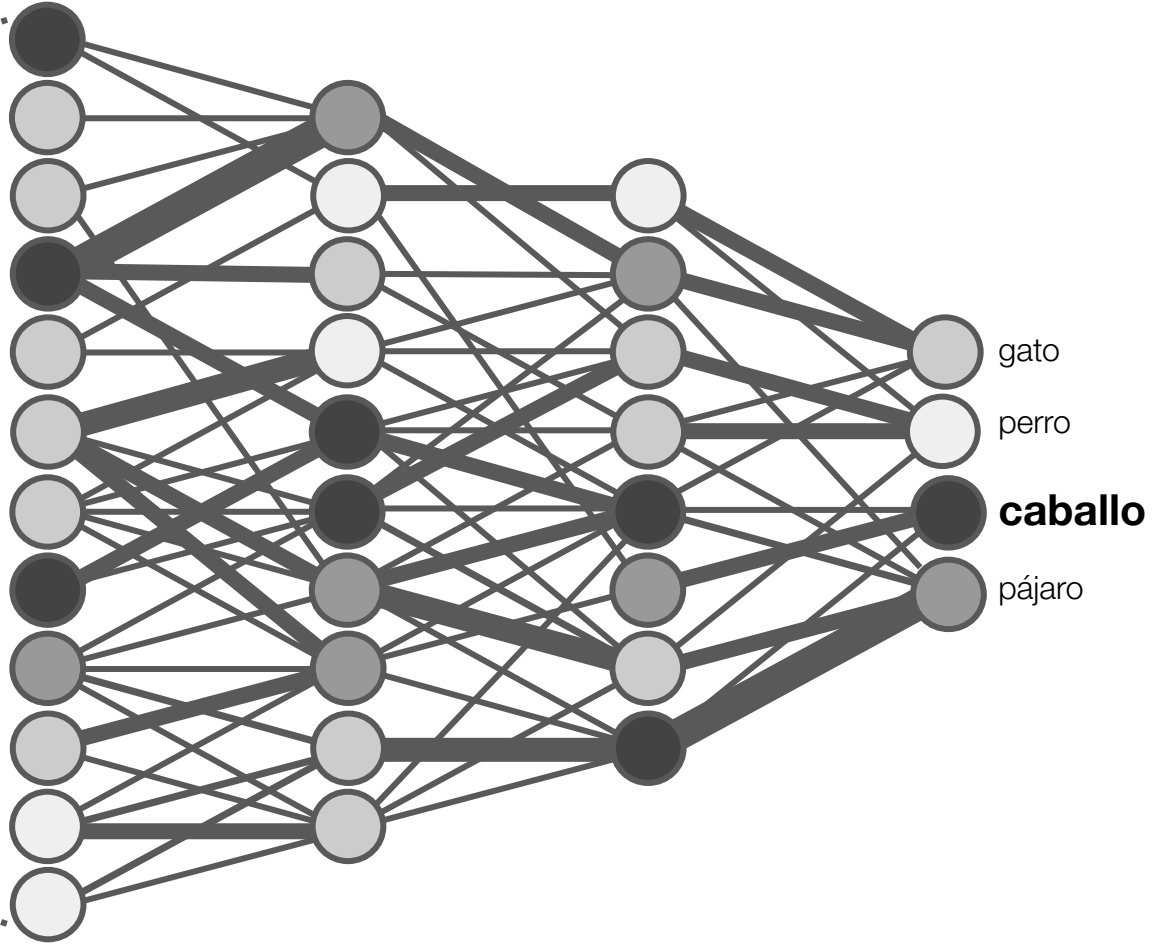


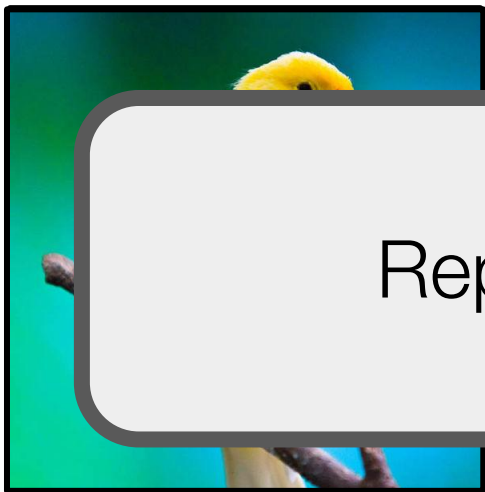
perro





caballo

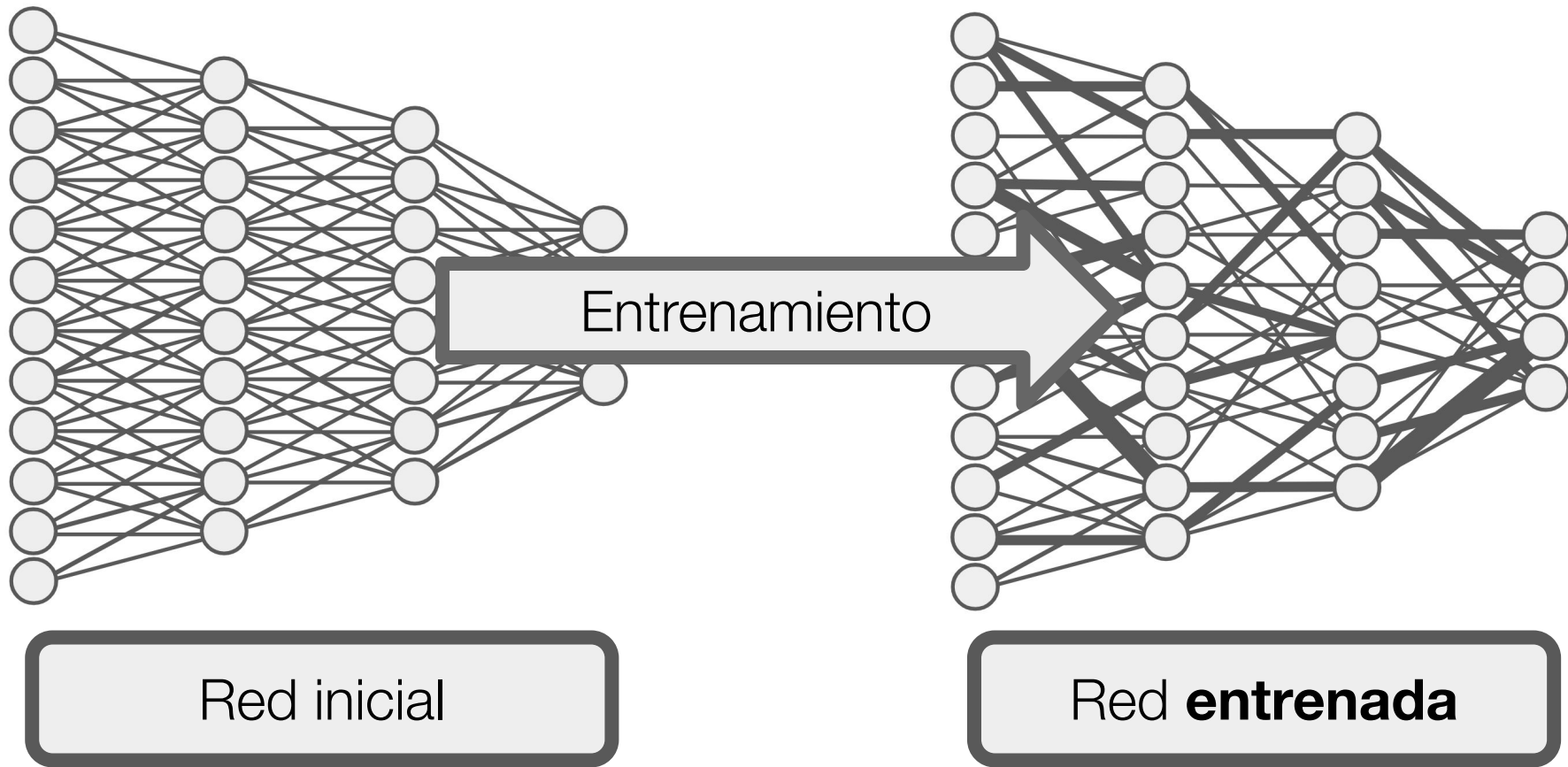




pájaro

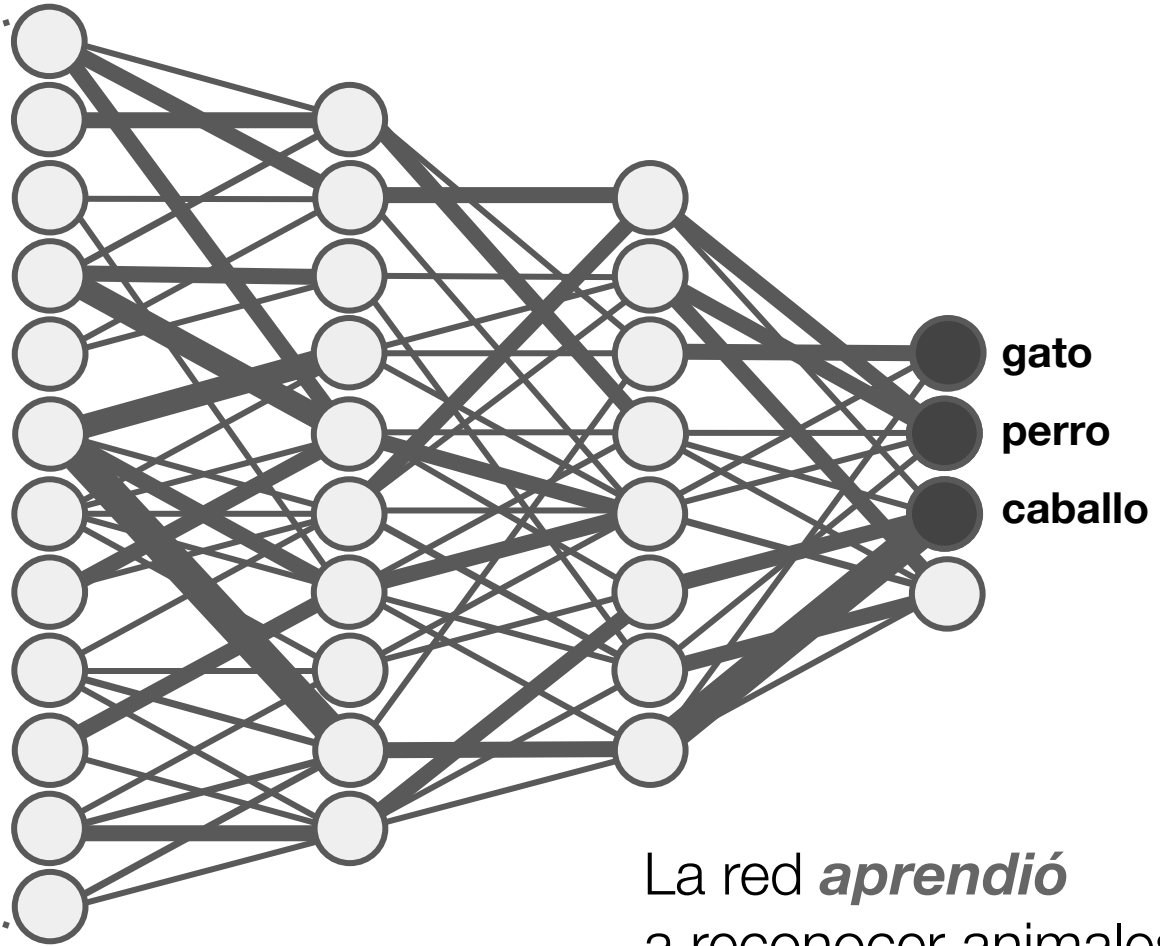
Repetimos millones de veces...







Imágenes no vistas durante el entrenamiento



La red *aprendió*
a reconocer animales

Redes neuronales y lenguaje humano

Intenté dejar la cocina tan _____ como pude

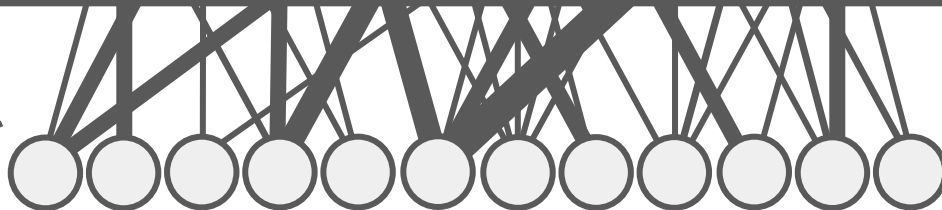
Sebastián no puede salir si no _____ su habitación

Andrés está tranquilo pues tiene la conciencia _____

limpia



Repetimos con millones de frases y palabras...



Intenté dejar la cocina tan ??? como pude

¿Cómo usamos esta idea
para generar texto?

subió

a

la

silla

“Generamos texto” con una red neuronal

el

gato

blanco

se

subió

a

la

silla



“Attention is All You Need”

Vaswani et al. 2017

silla



silla

Transformer

el

gato

blanco

se

subió

a

la

???

Attention Is All You Need

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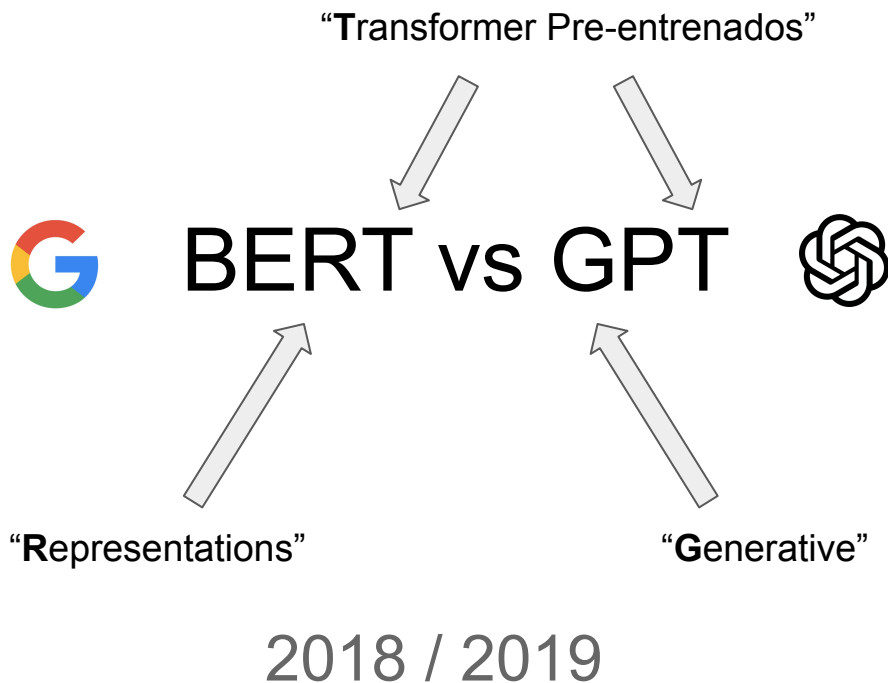


Transformers by
Google
(Dicembre 2017)

Abstract

The dominant sequence transduction models are based on complex recurrent or convolutional neural networks that include an encoder and a decoder. The best performing models also connect the encoder and decoder through an attention mechanism. We propose a new simple network architecture, the Transformer, based solely on attention mechanisms, dispensing with recurrence and convolutions entirely. Experiments on two machine translation tasks show these models to be superior in quality while being more parallelizable and requiring significantly less time to train. Our model achieves 28.4 BLEU on the WMT 2014 English-to-German translation task, improving over the existing best results, including ensembles, by over 2 BLEU. On the WMT 2014 English-to-French translation task, our model establishes a new single-model state-of-the-art BLEU score of 41.0 after training for 3.5 days on eight GPUs, a small fraction of the training costs of the best models from the literature.

¿Qué se puede hacer ahora que no se podía hacer antes?



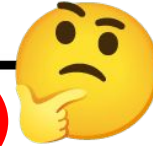
BERT:

El blanco se a la silla

GPT:

El gato blanco se subió a la

Language Models are Few-Shot Learners



Tom B. Brown*

Benjamin Mann*

Nick Ryder*

Melanie Subbiah*

OpenAI

Abstract

Recent work has demonstrated substantial gains on many NLP tasks on a large corpus of text followed by fine-tuning on a specific task. In this architecture, this method still requires task-specific fine-tuning on thousands of examples. By contrast, humans can generally perform a task from a few examples or from simple instructions – something which current NLP systems struggle to do. Here we show that scaling up language models greatly improves task performance in the few-shot setting, sometimes even reaching competitiveness with prior state-of-the-art fine-tuning approaches. Specifically, we train GPT-3, an autoregressive language model with 175 billion parameters, 10x more than any previous non-sparse language model, and test its performance in the few-shot setting. For all tasks, GPT-3 is applied without any gradient updates or fine-tuning, with tasks and few-shot demonstrations specified purely via text interaction with the model. GPT-3 achieves strong performance on many NLP datasets, including translation, question-answering, and cloze tasks, as well as several tasks that require on-the-fly reasoning or domain adaptation, such as unscrambling words, using a novel word in a sentence, or performing 3-digit arithmetic. At the same time, we also identify some datasets where GPT-3's few-shot learning still struggles, as well as some datasets where GPT-3 faces methodological issues related to training on large web corpora. Finally, we find that GPT-3 can generate samples of news articles which human evaluators have difficulty distinguishing from articles written by humans. We discuss broader societal impacts of this finding

GPT-3 by OpenAI
(Julio 2020)

¿Qué se puede hacer ahora que no se podía hacer antes?

Few-shot:

si $2+2 = 4$, $2+3 = 5$ y $4+2 = 6$

entonces $4+3 =$

One-shot:

si $4+2 = 6$ entonces $4+3 =$

Zero-shot:

$4+3 =$

¿Qué se puede hacer ahora que no se podía hacer antes?

Un par de ingredientes adicionales:

- Muchísimos más datos
- Muchos más parámetros
- RLHF ←
- Una muy buena interfaz ←

ChatGPT
(Noviembre 2022)

¿Cuál es el rol de un *emprendedor tecnológico* en este nuevo escenario?

Solucionar un dolor gigante de su cliente

(o equivalente)

Hacer algo que la gente ame

cero

<https://cero.ai>

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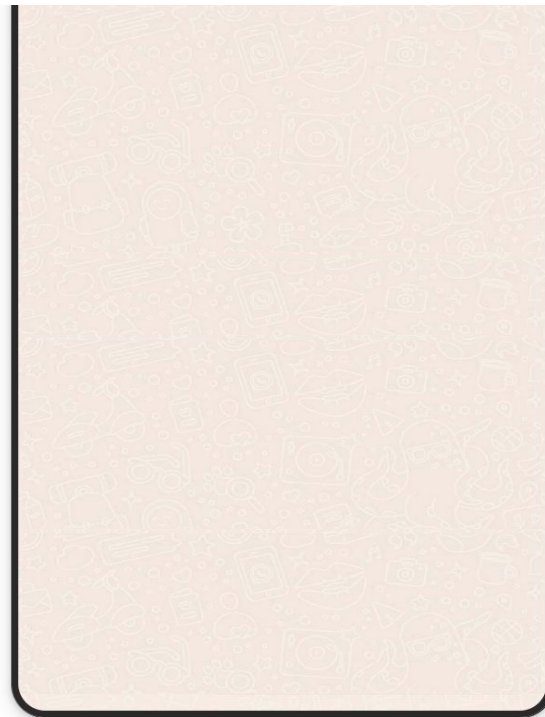
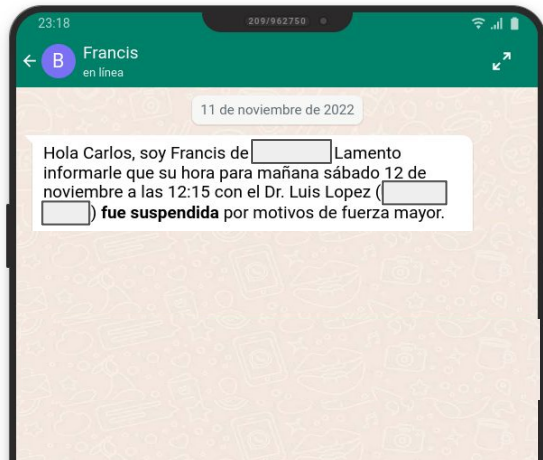
ST>RT-UPCHILE

Coordinamos

+1.8M citas médicas al mes

mediante comunicación

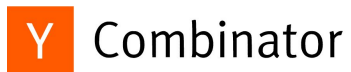
fluida y natural con los pacientes



cero

perez@cero.ai

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