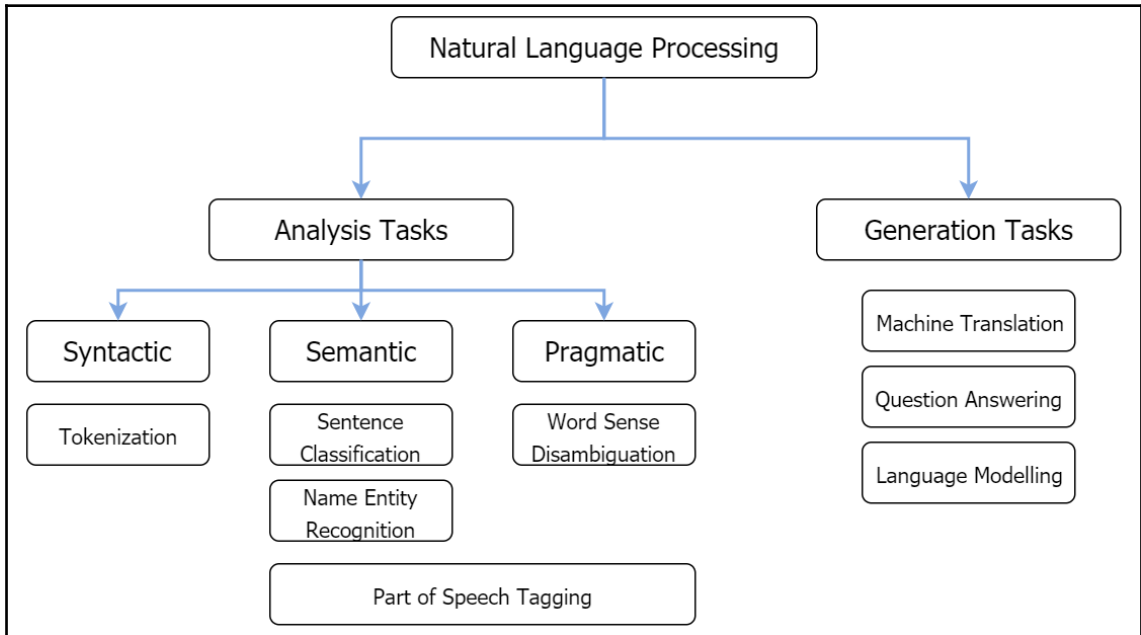
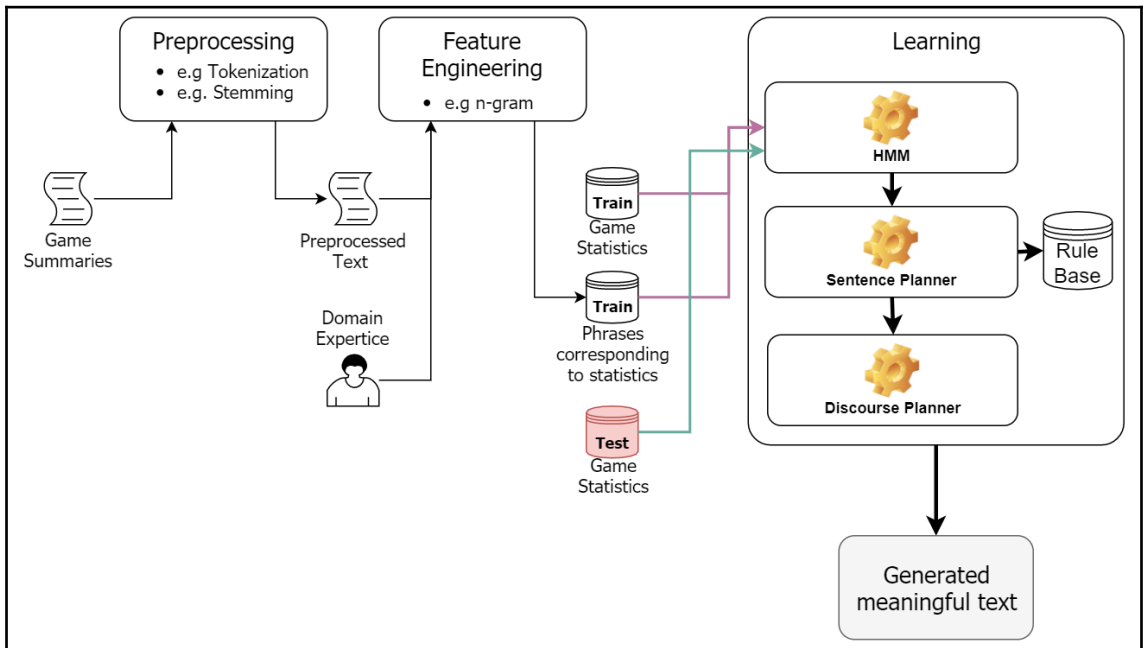
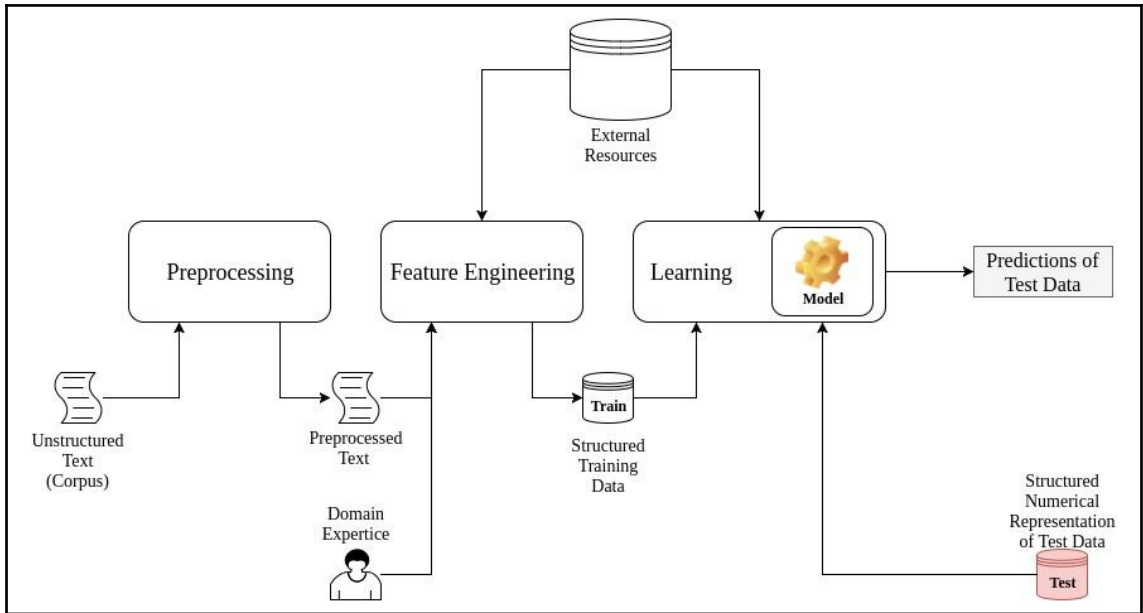
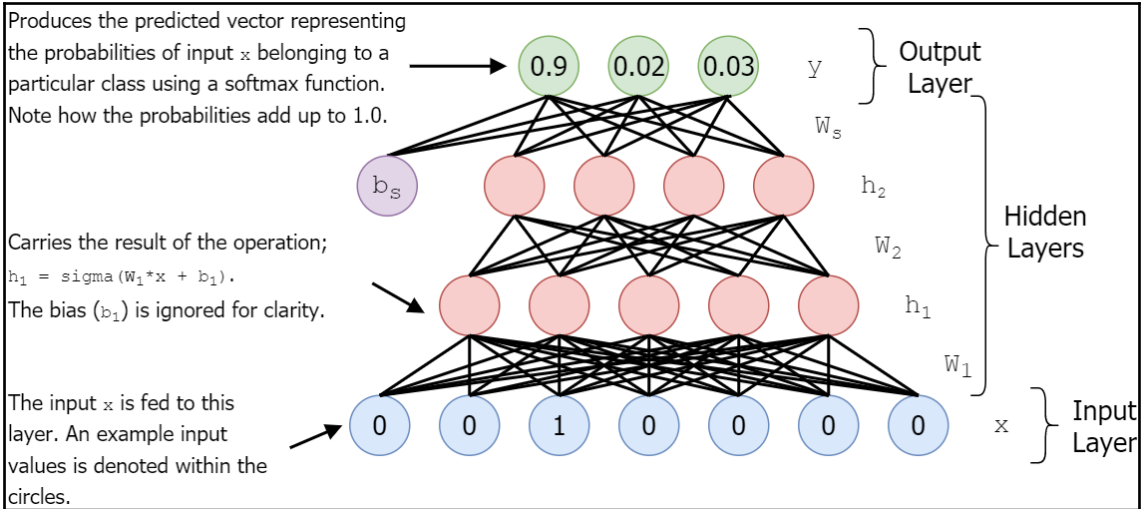
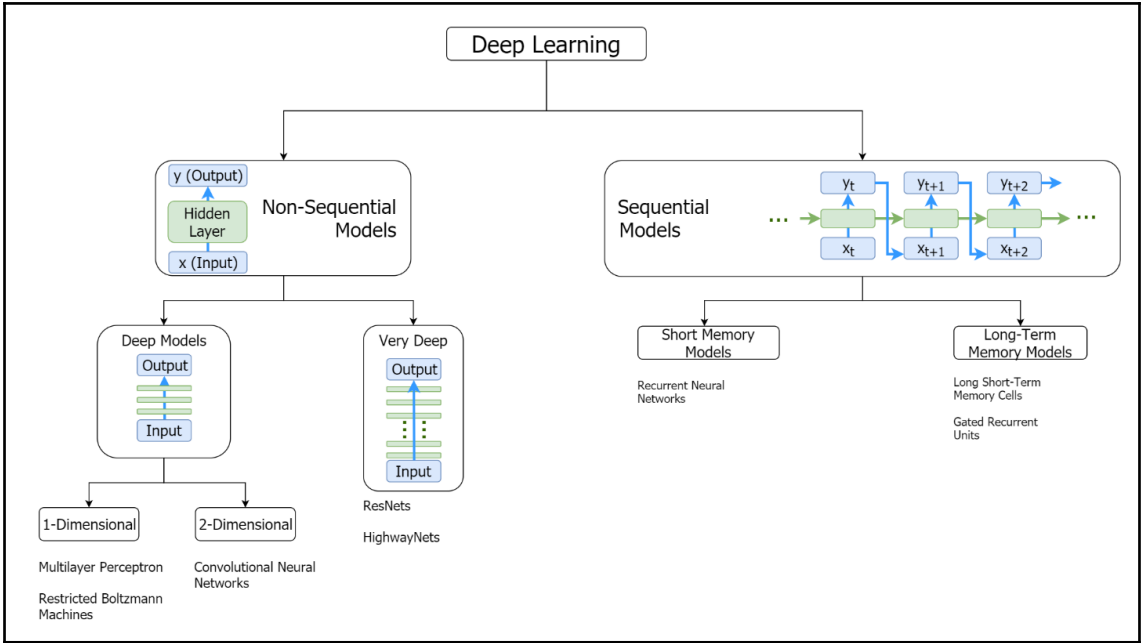


# Chapter 1: Introduction to Natural Language Processing







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jupyter Logout

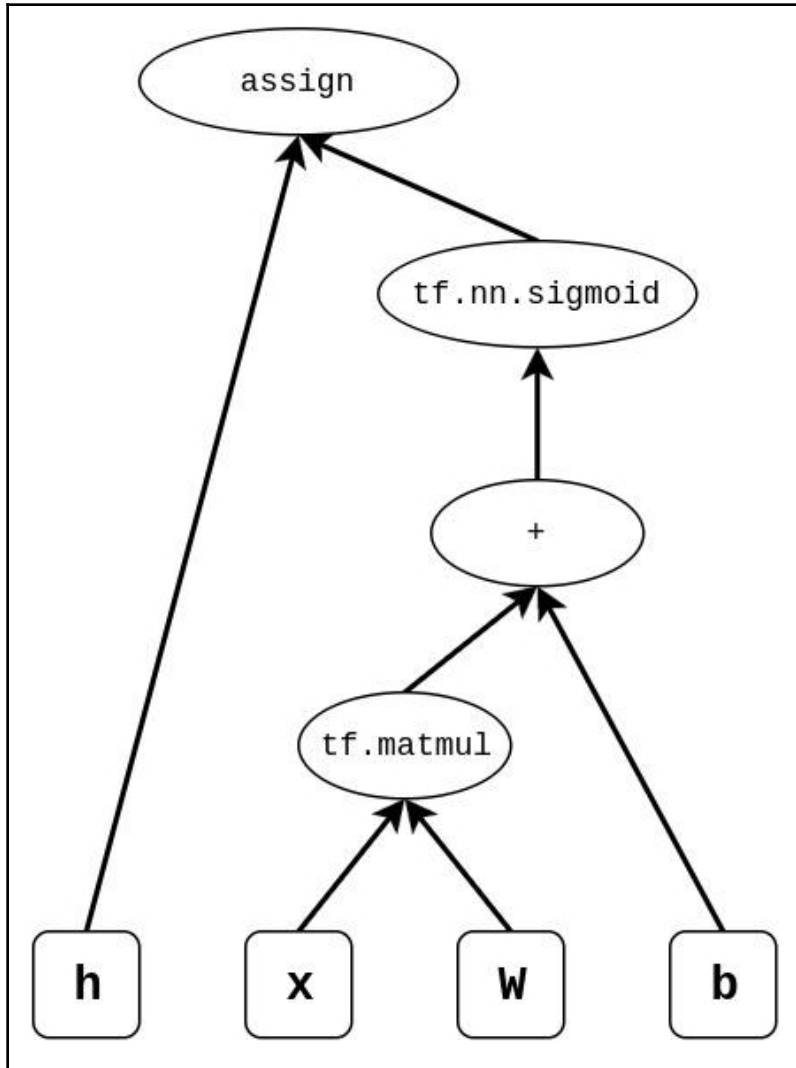
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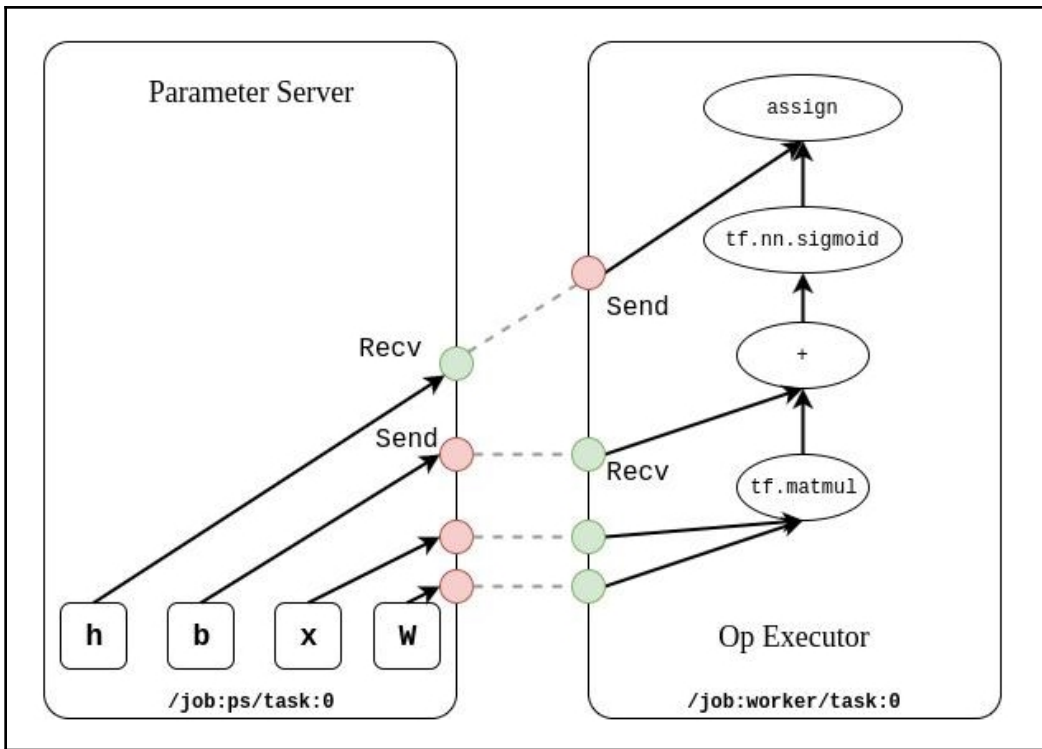
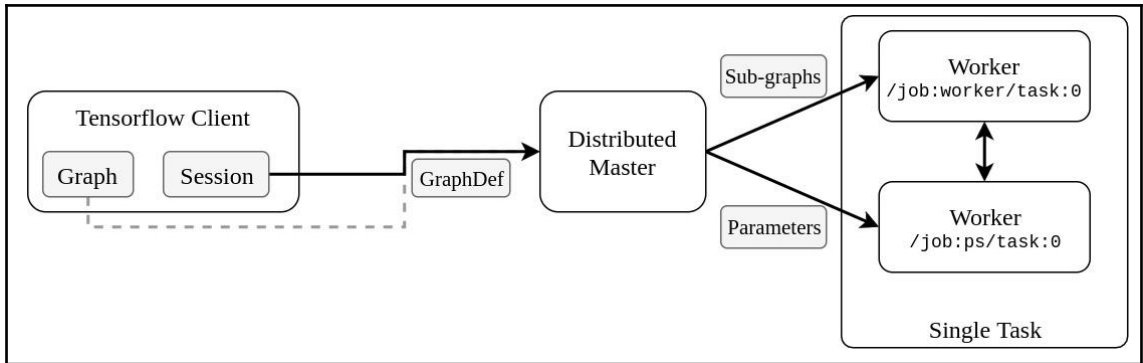
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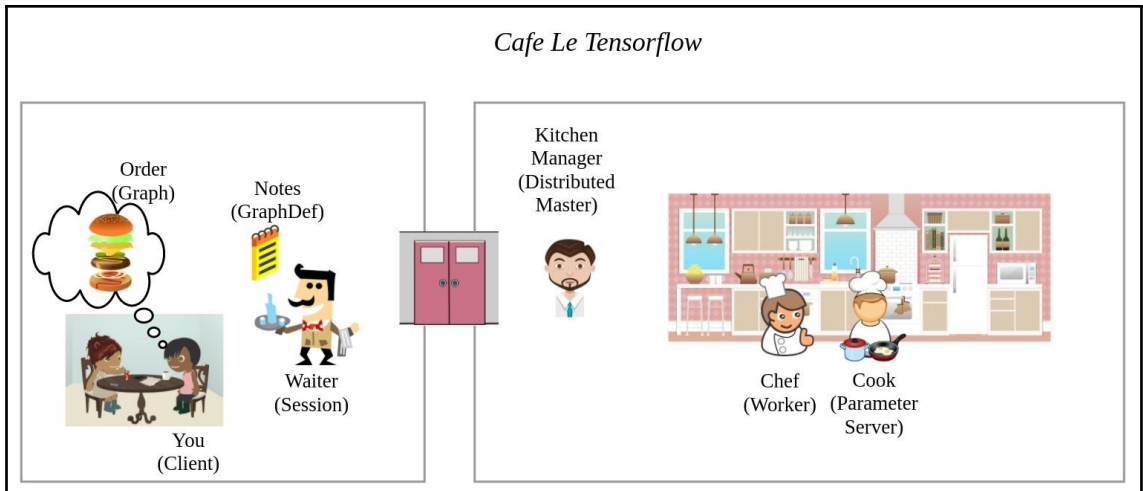
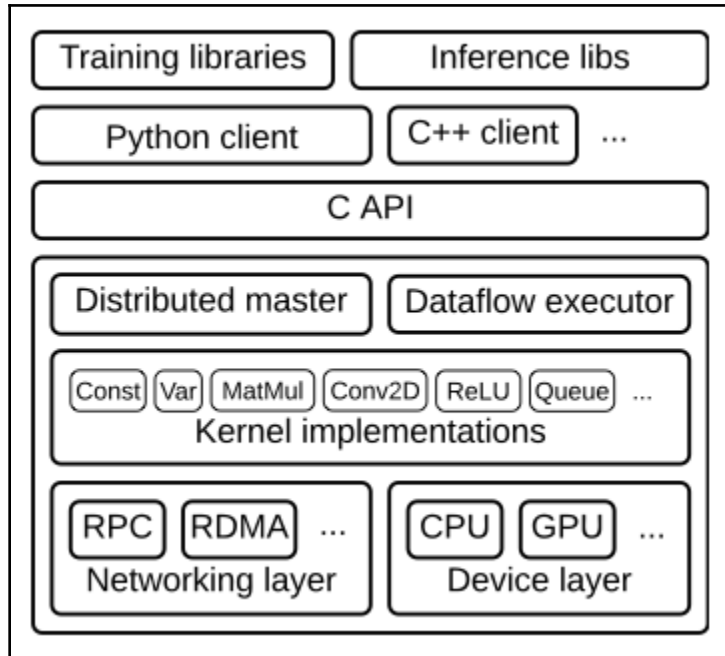
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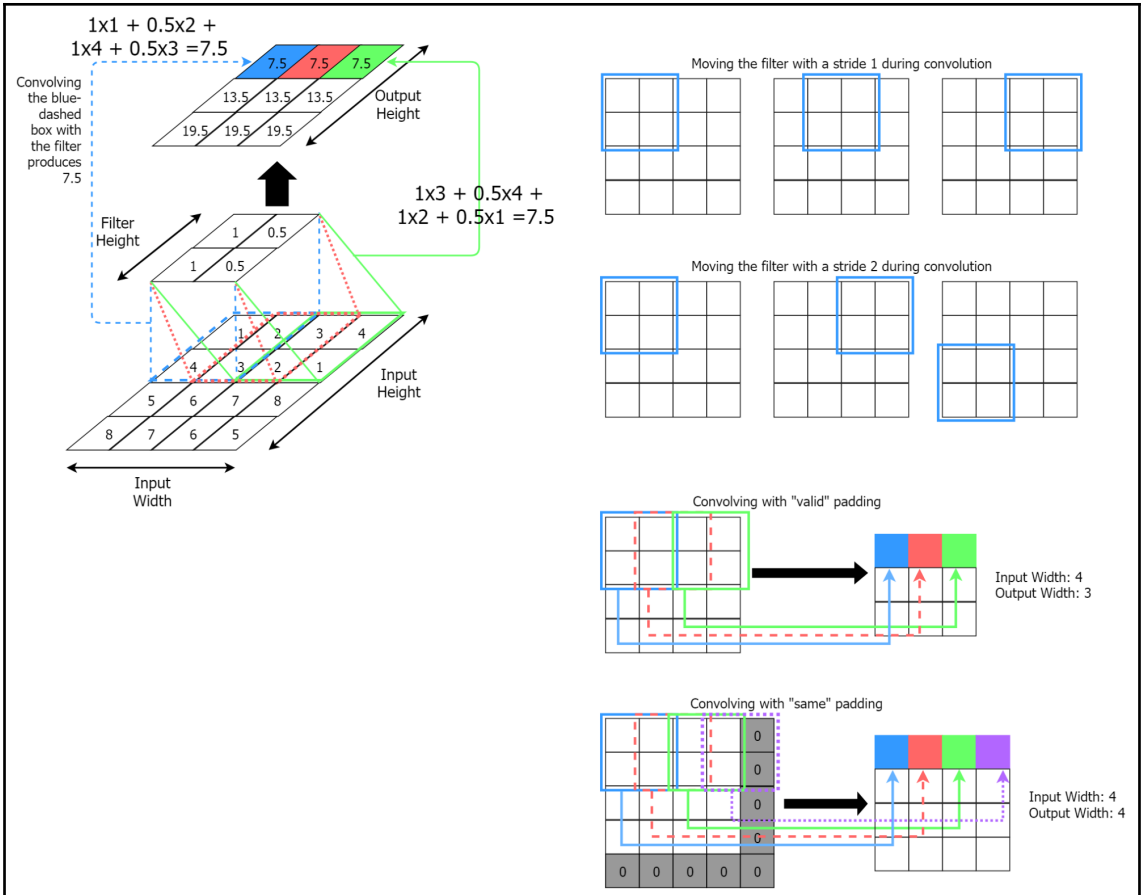
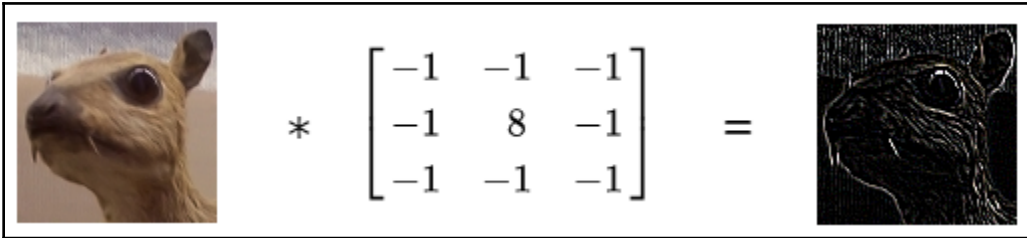
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## Chapter 2: Understanding TensorFlow

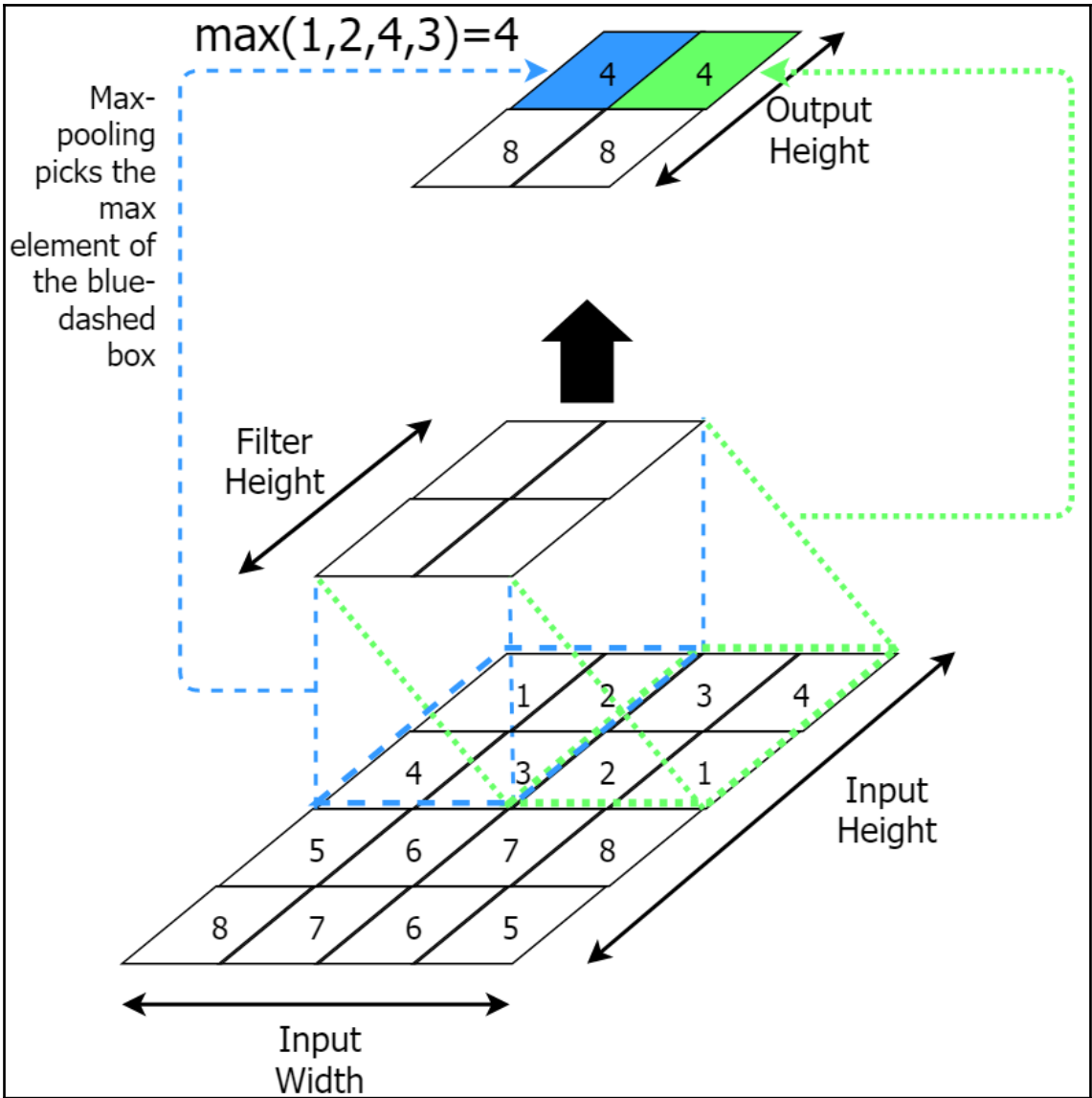


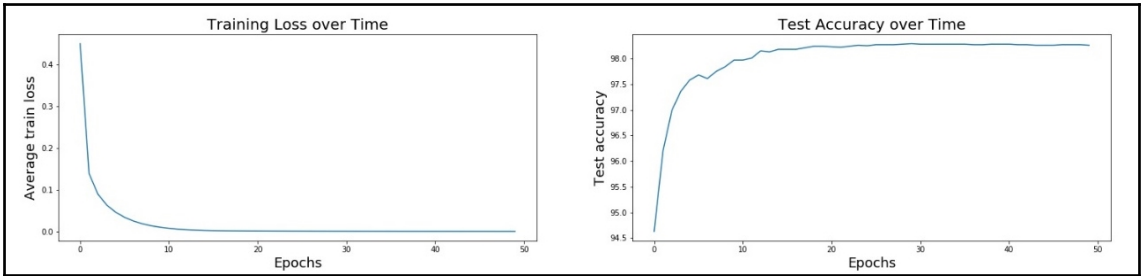
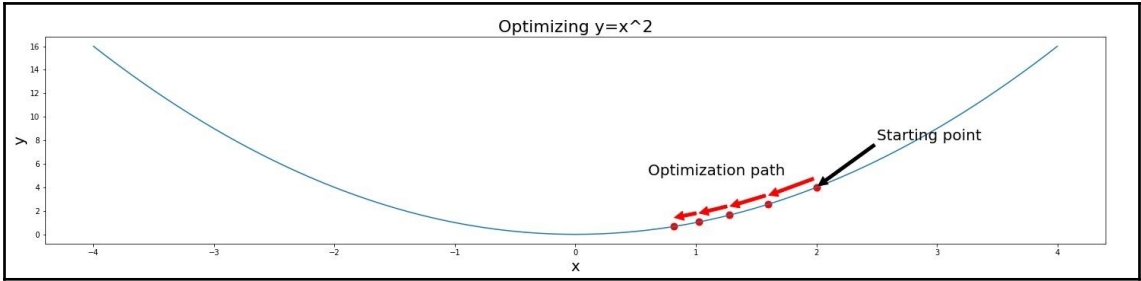




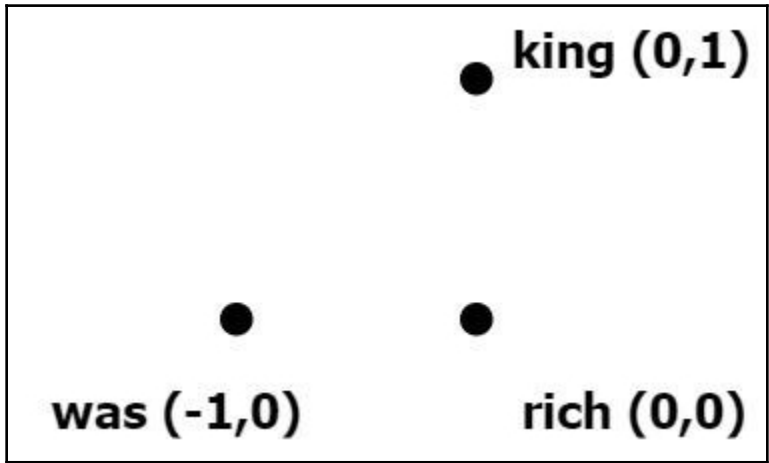
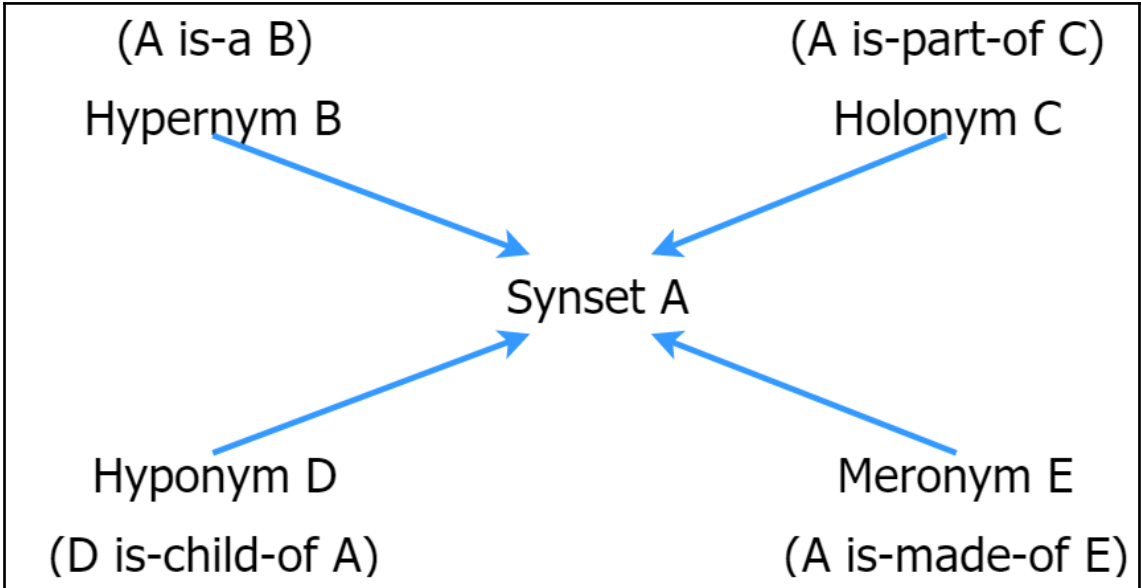


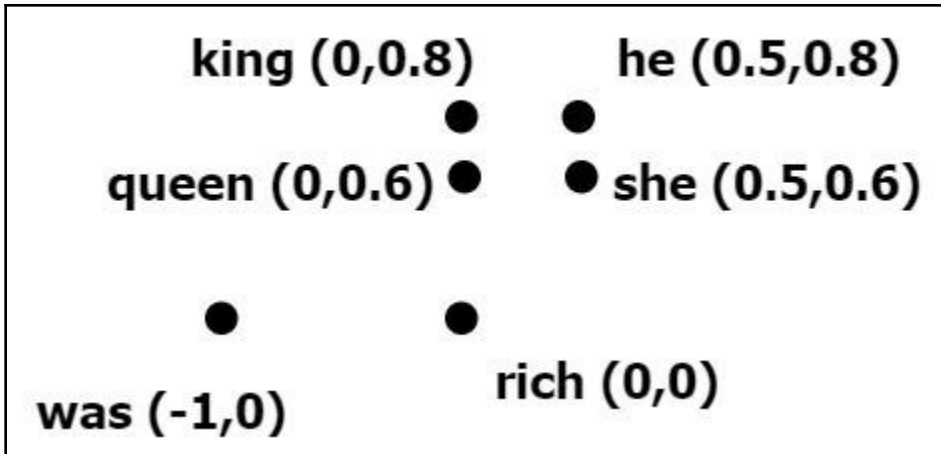
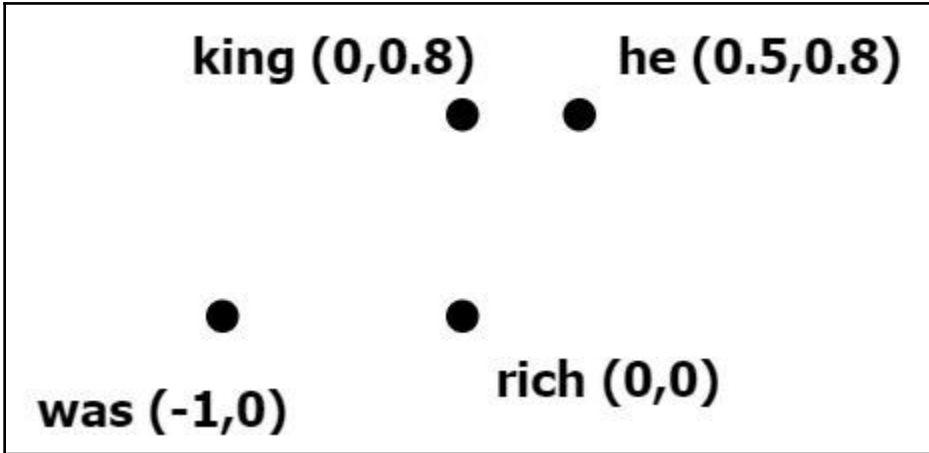


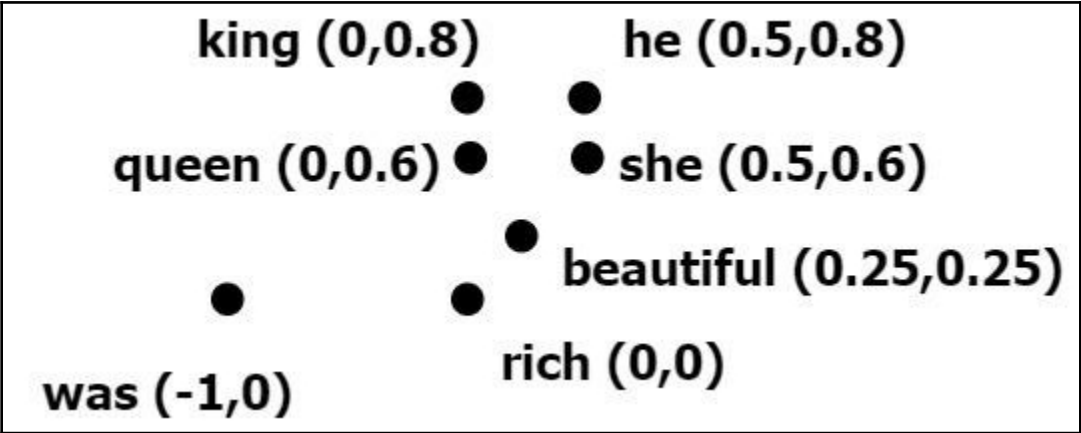


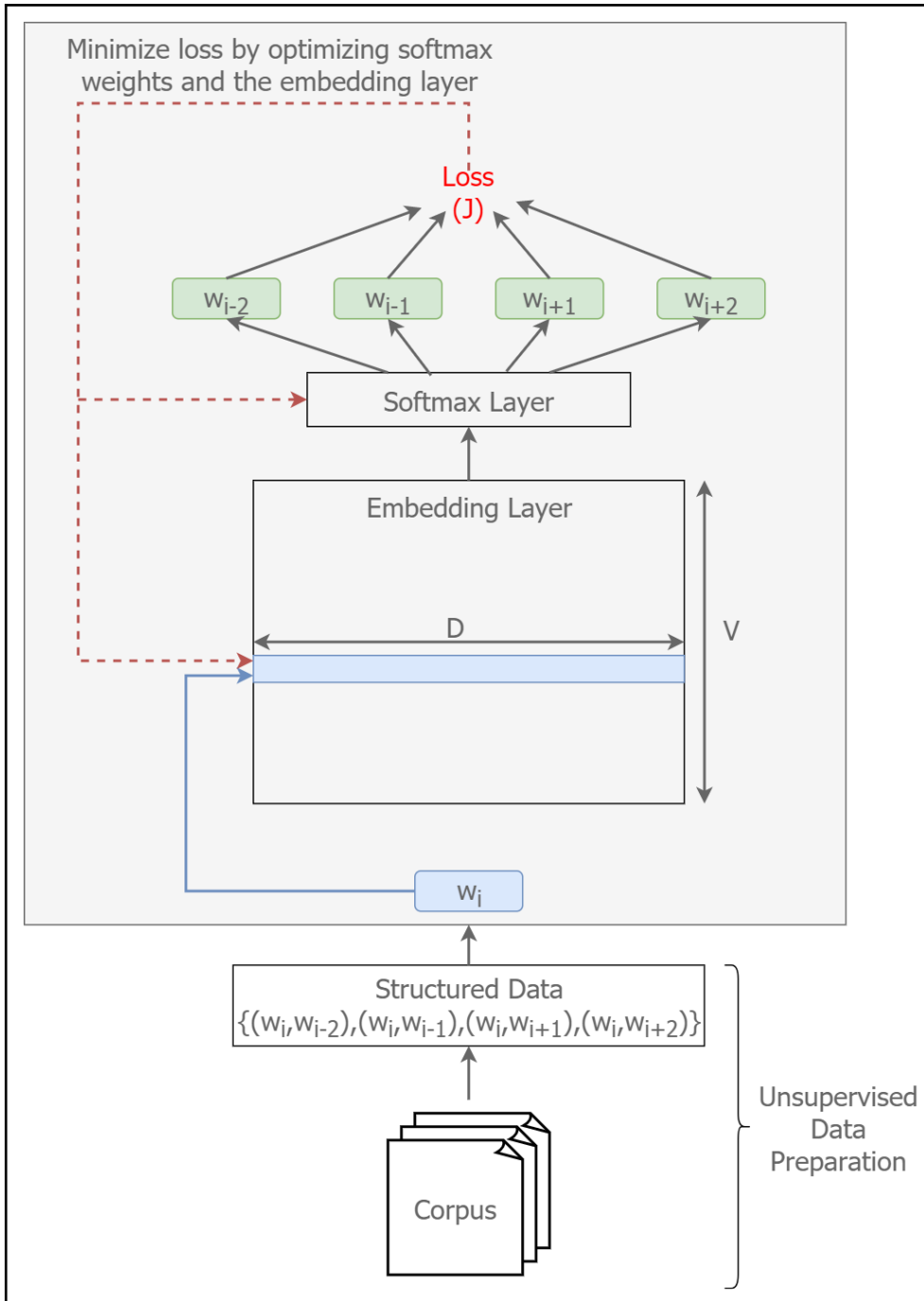


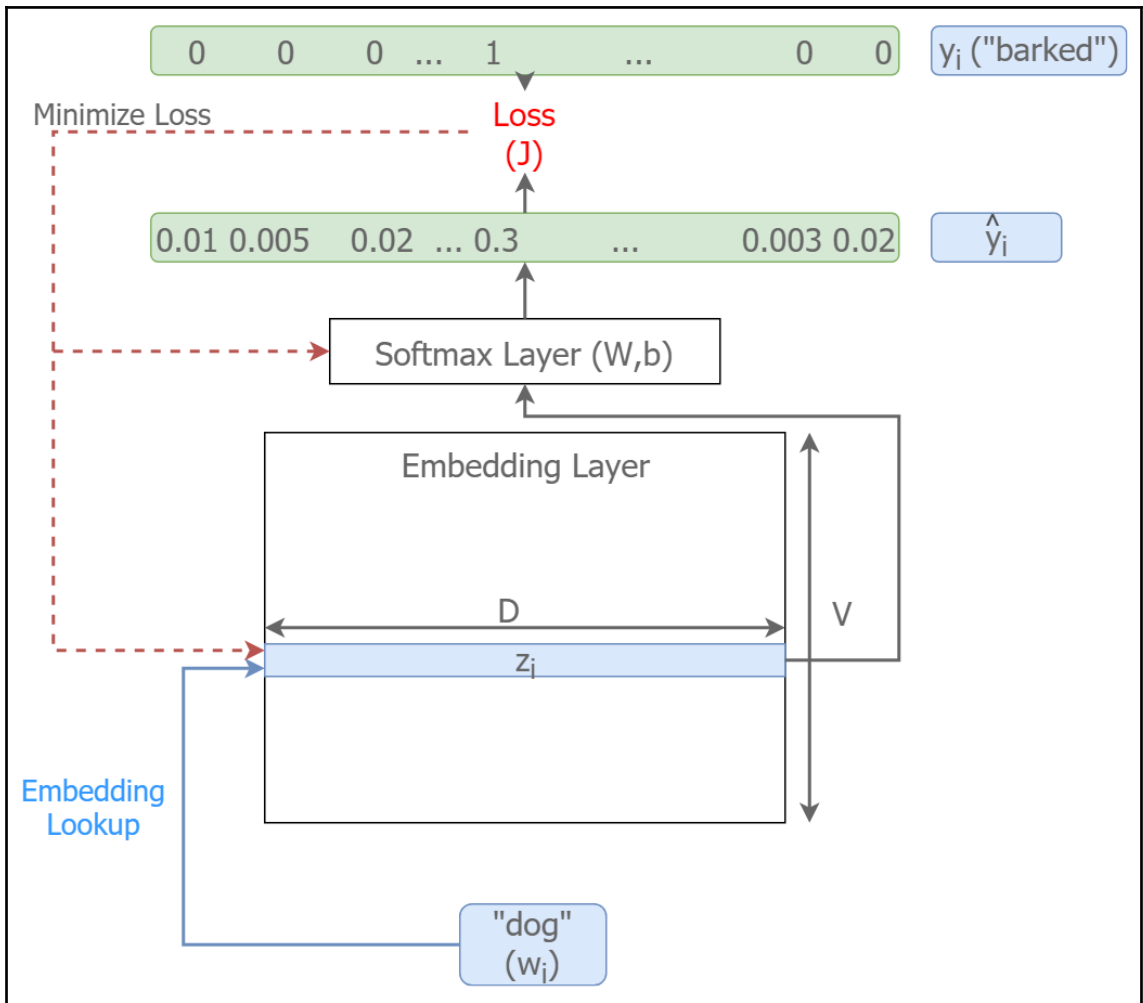






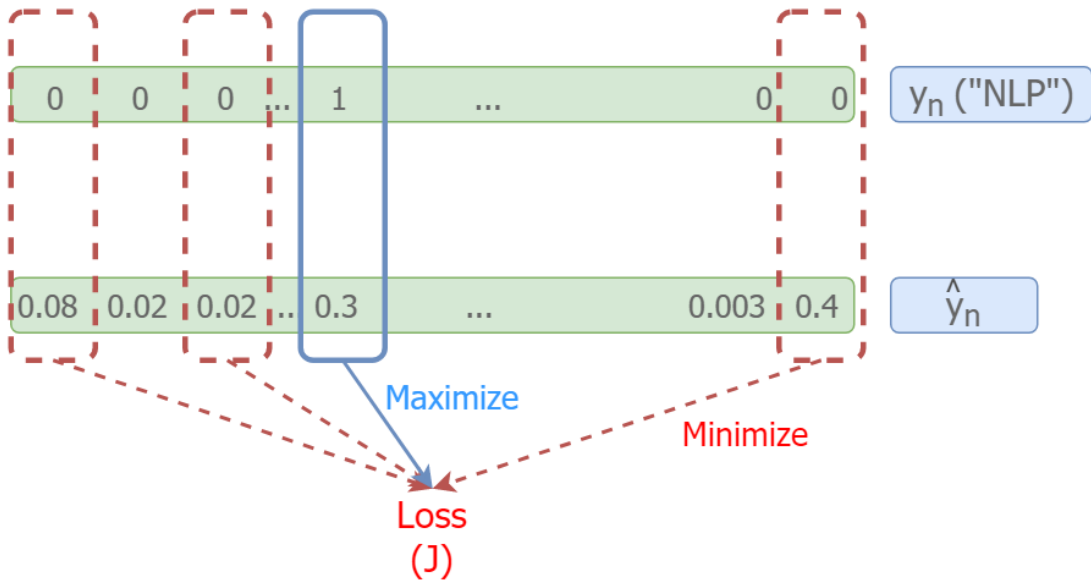








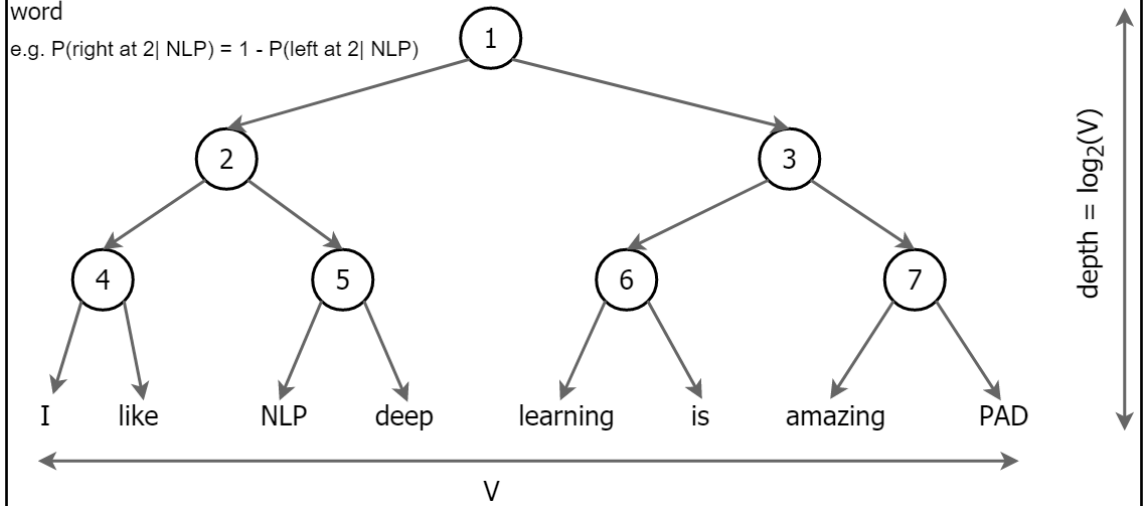
### Negative Sampling with Three Negative Samples

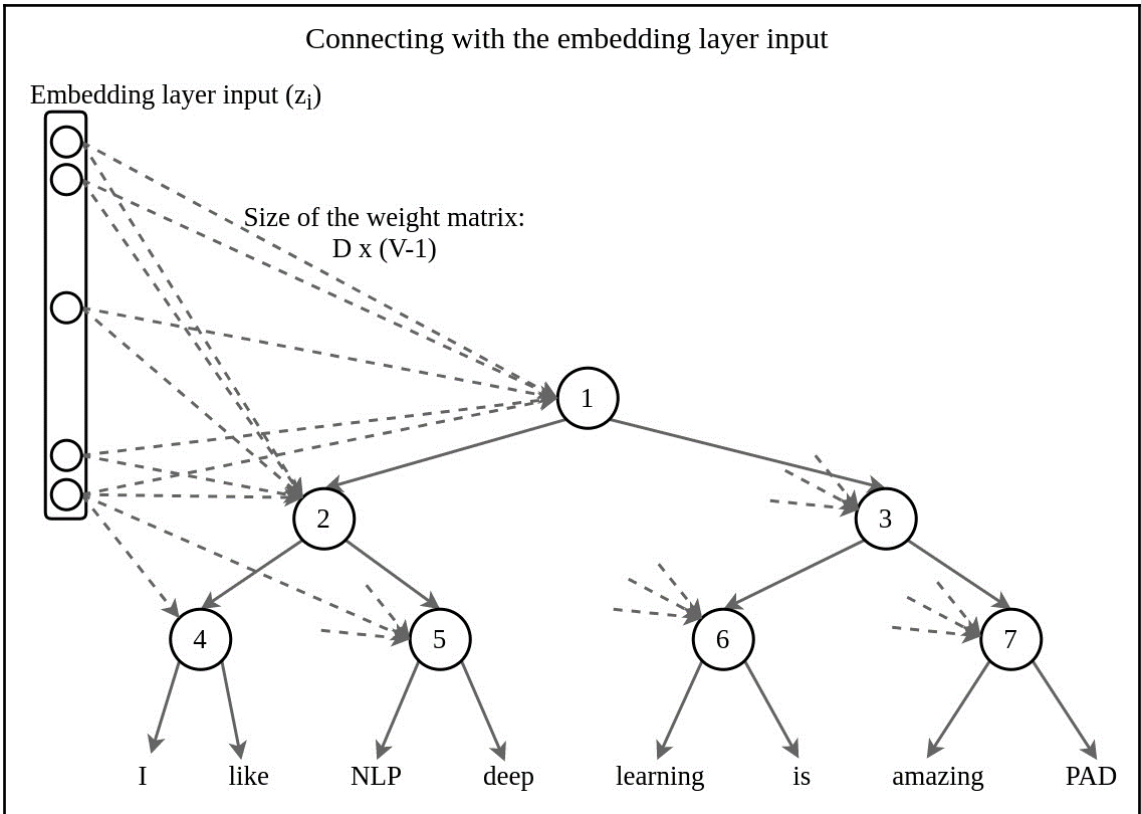


\* Here, the solid box denotes the true data sample where dashed boxes denote negative (that is, noise) samples

Each softmax node represents the probability of choosing left/right branch for a given word

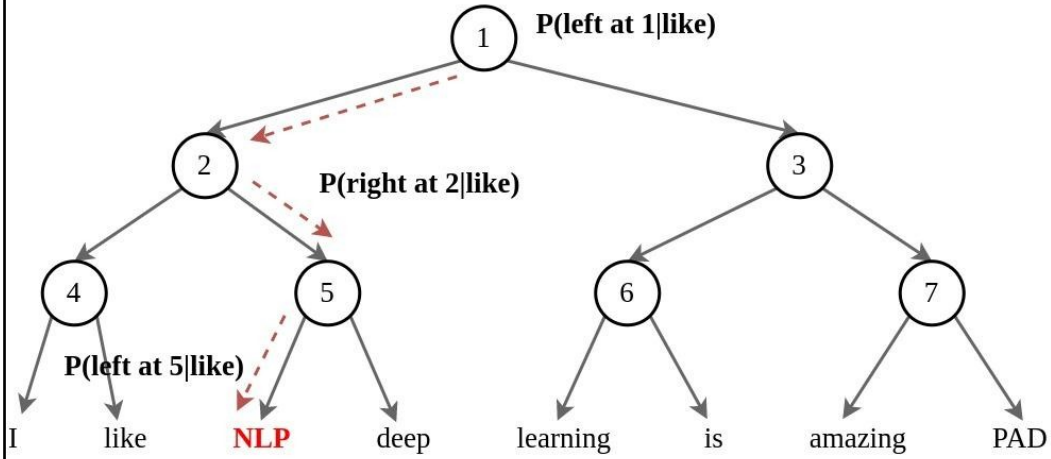
e.g.  $P(\text{right at 2} | \text{NLP}) = 1 - P(\text{left at 2} | \text{NLP})$



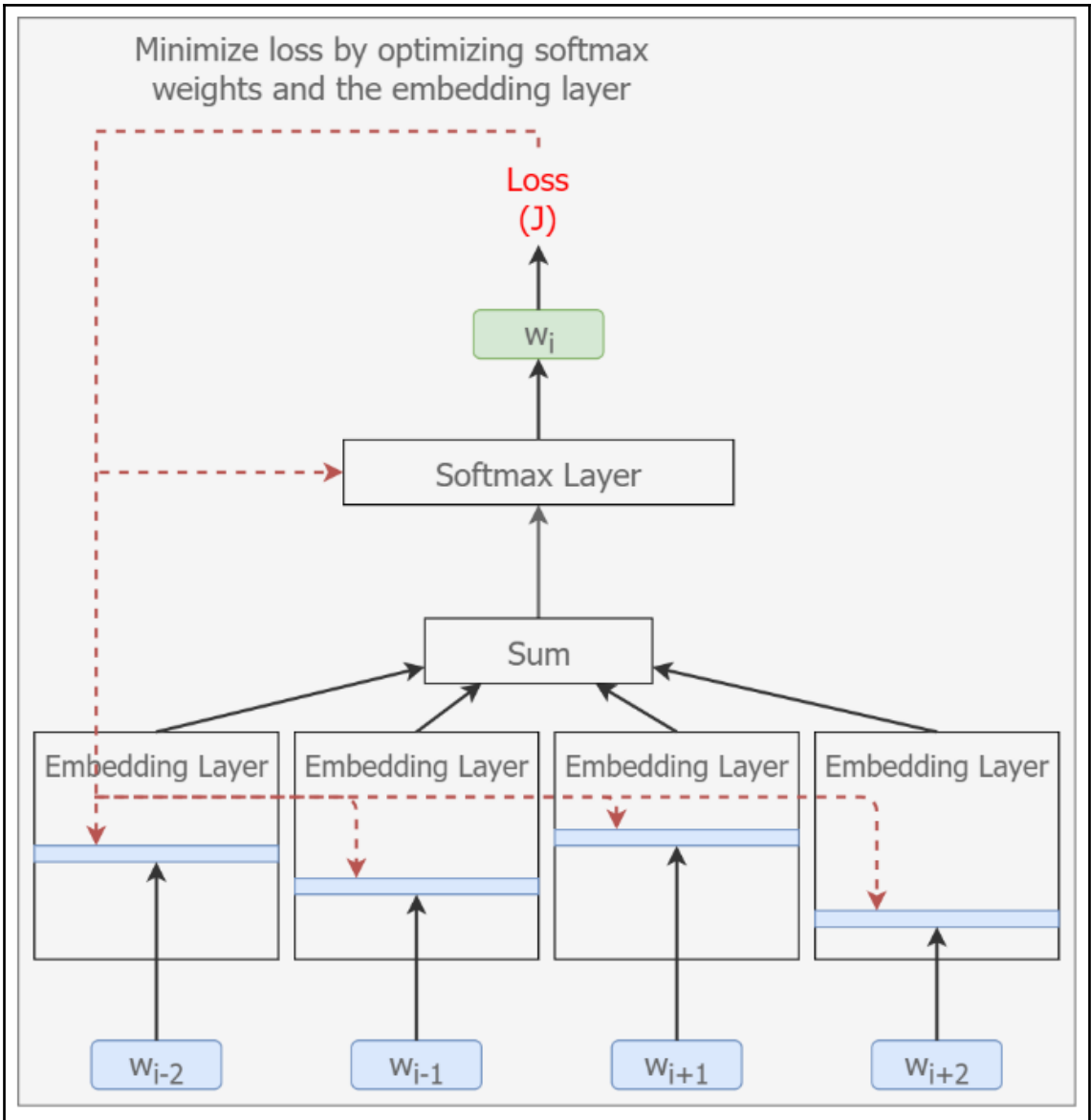


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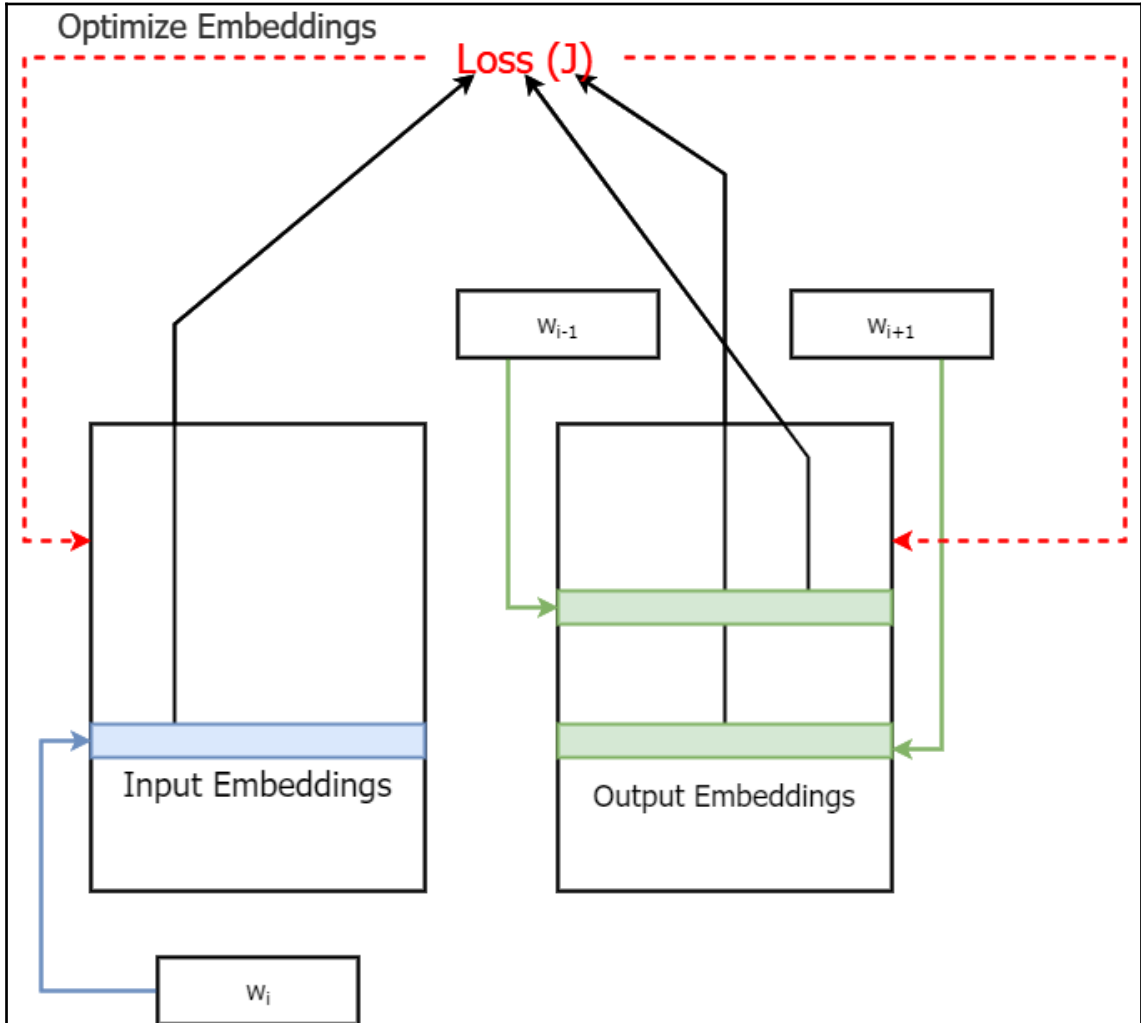
Calculating  $P(\text{NLP}|\text{like})$

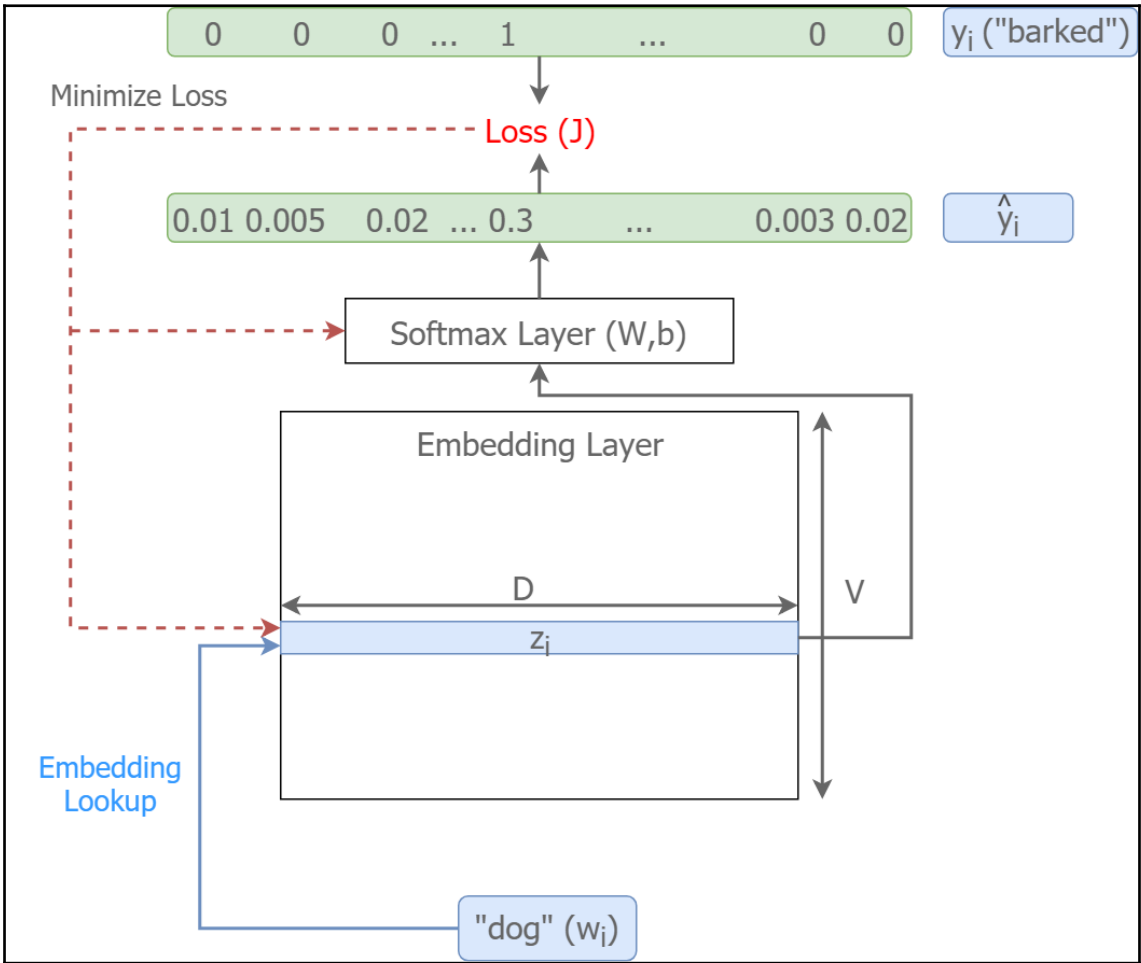
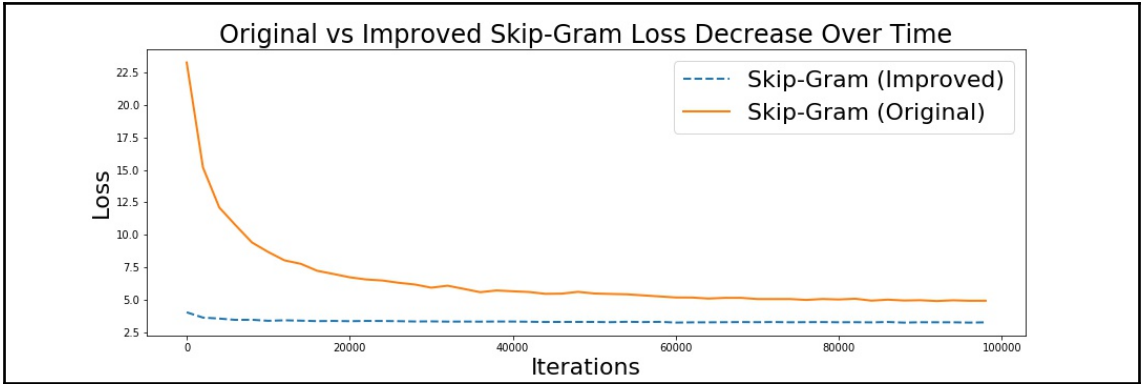


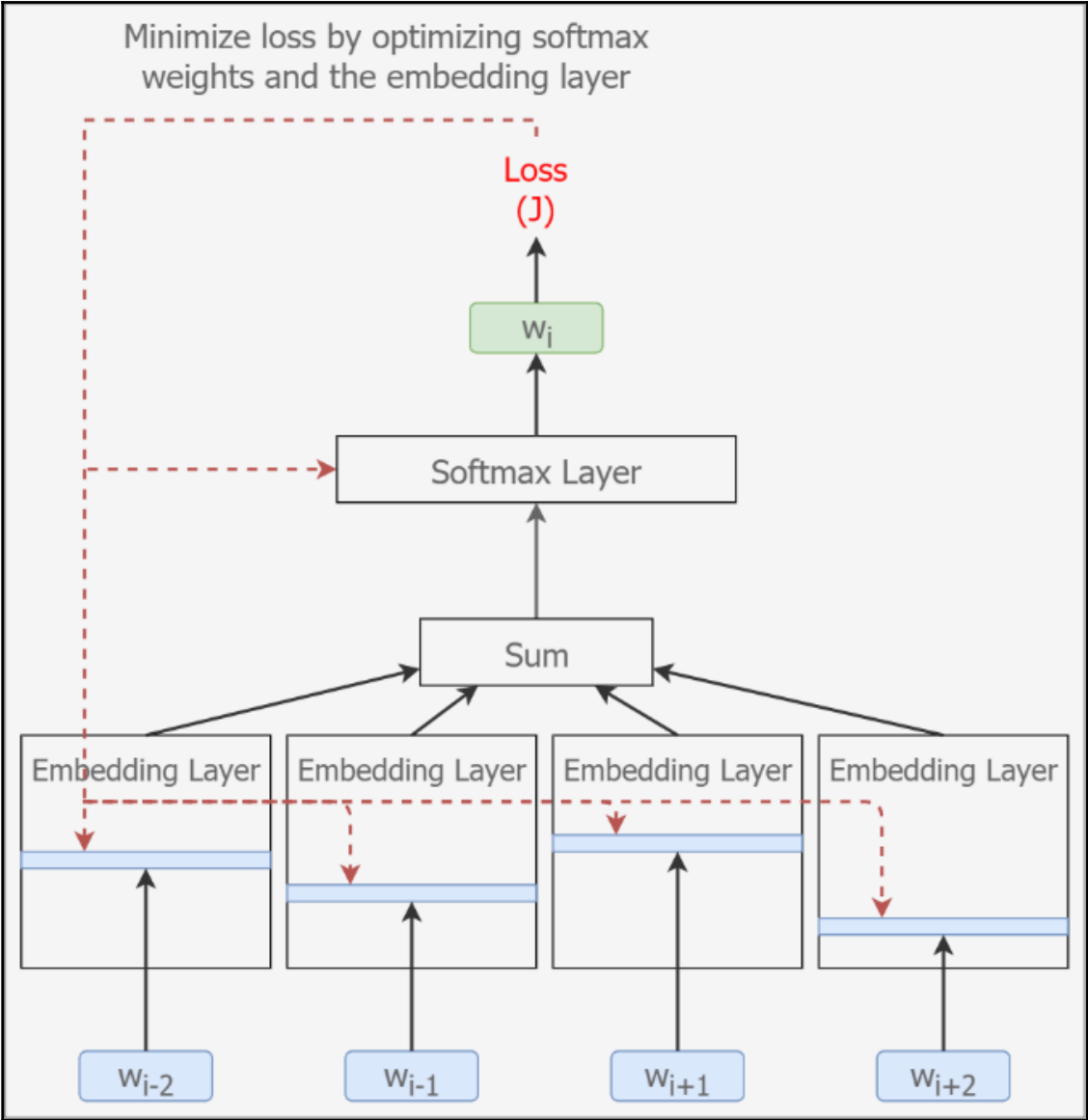
$$P(\text{NLP}|\text{like}) = P(\text{left at 1}|\text{like}) \times P(\text{right at 2}|\text{like}) \times P(\text{left at 5}|\text{like})$$



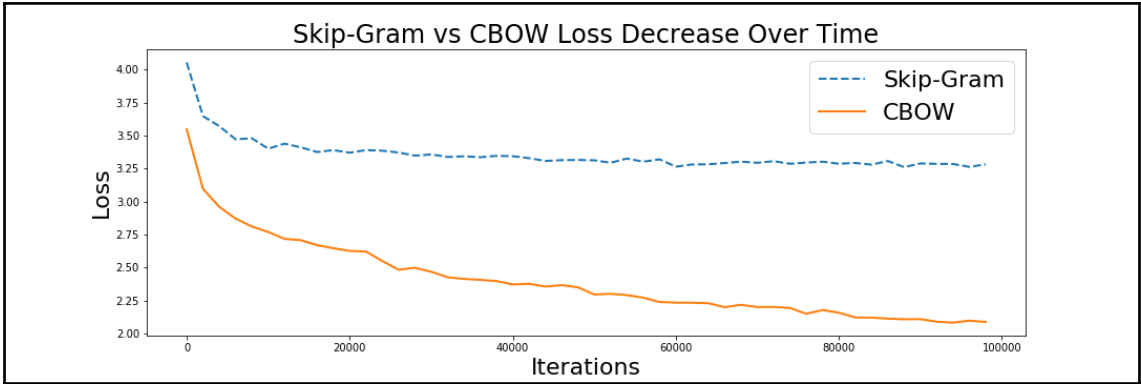
## Chapter 4: Advanced Word2vec



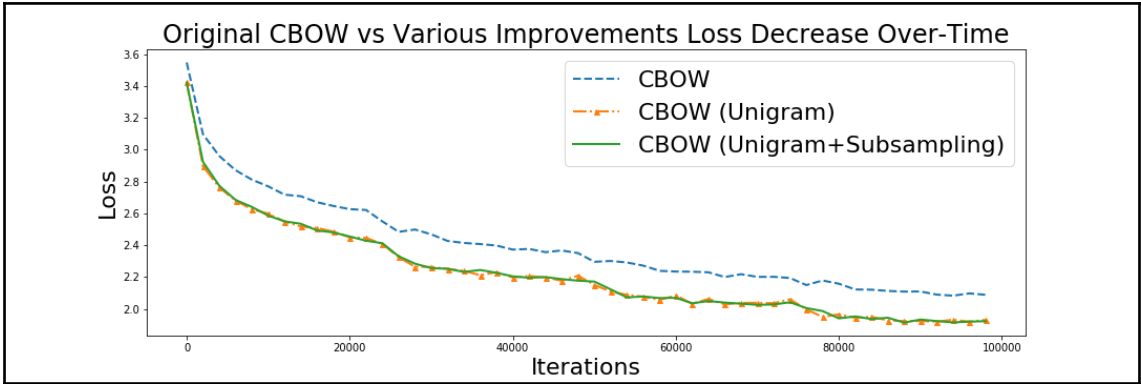




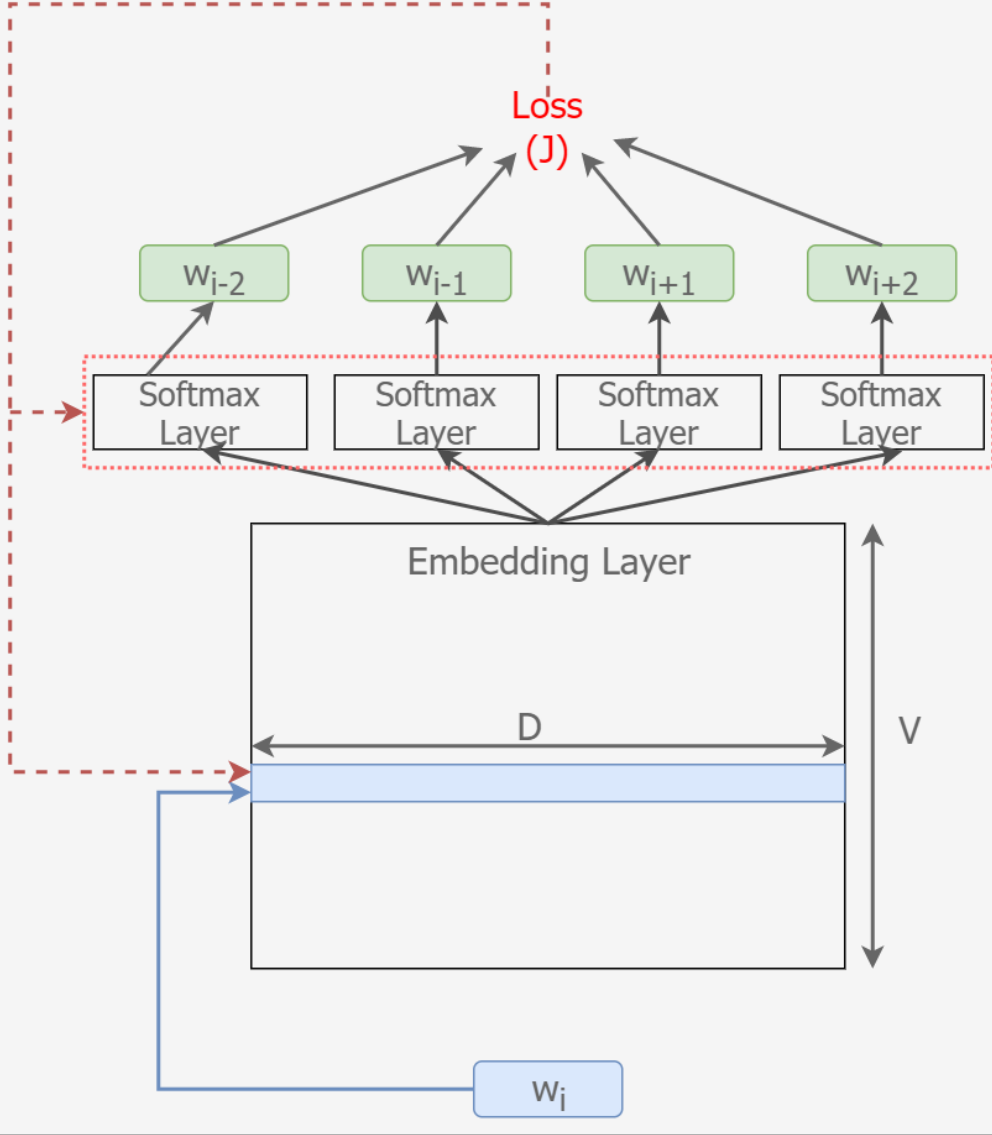


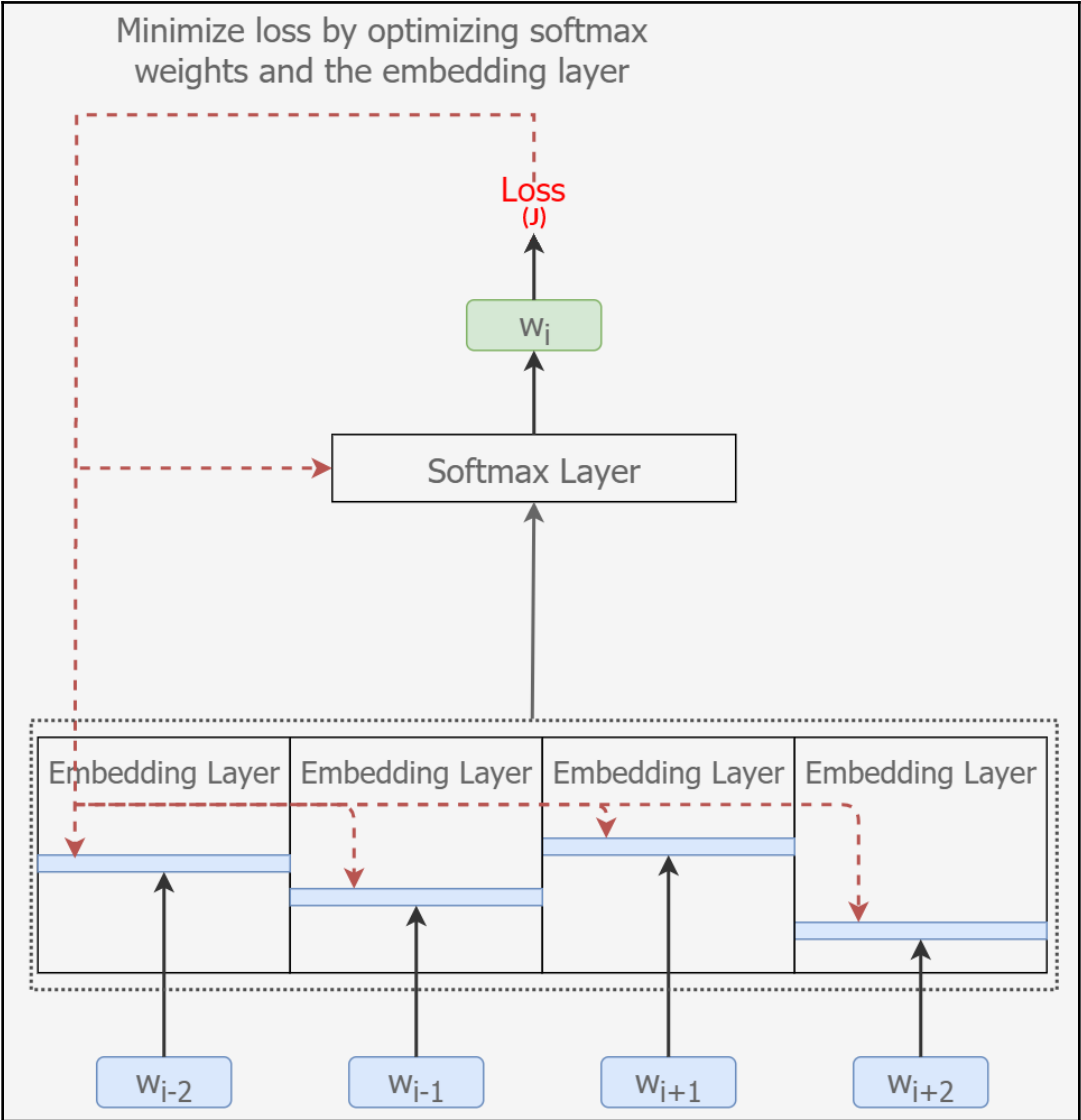


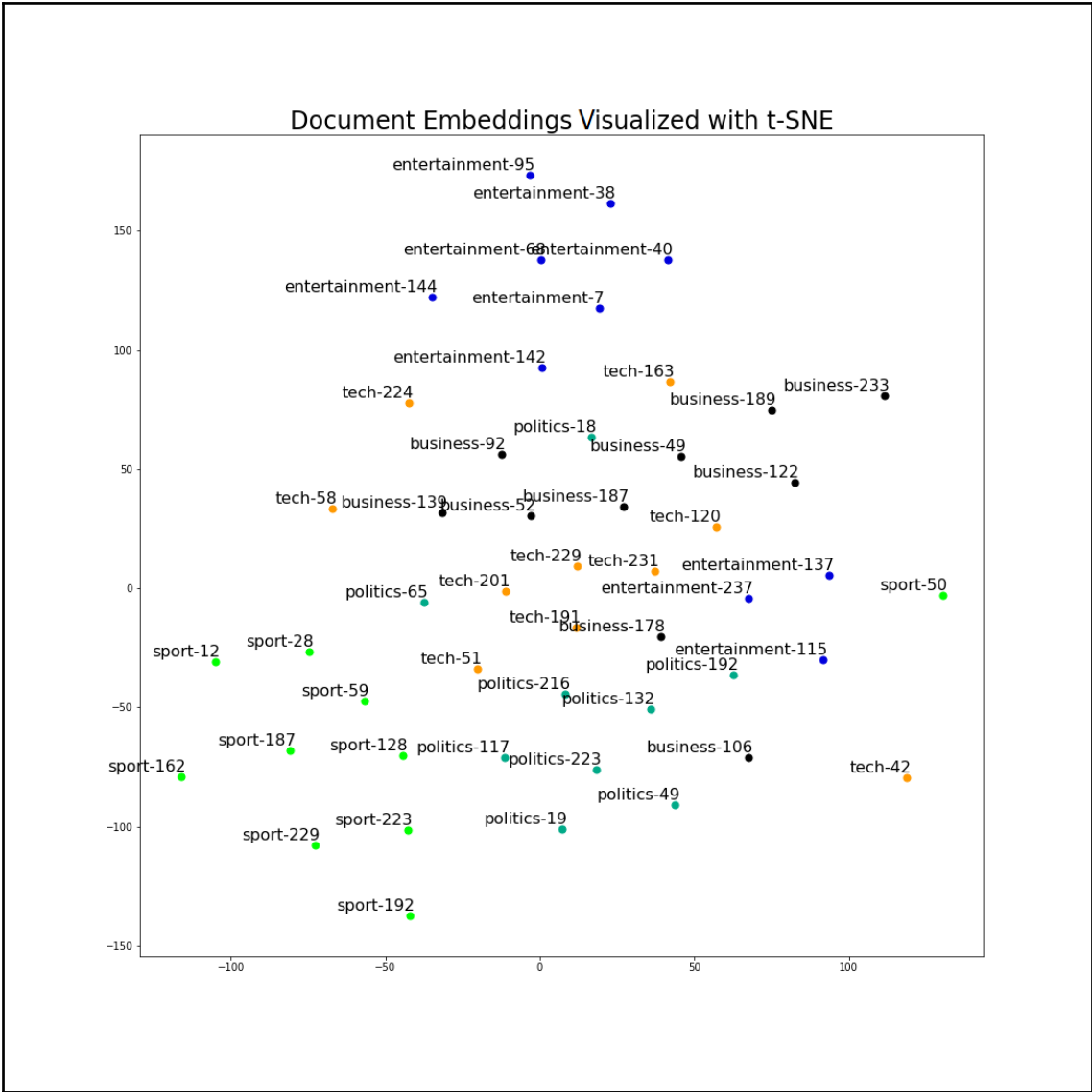




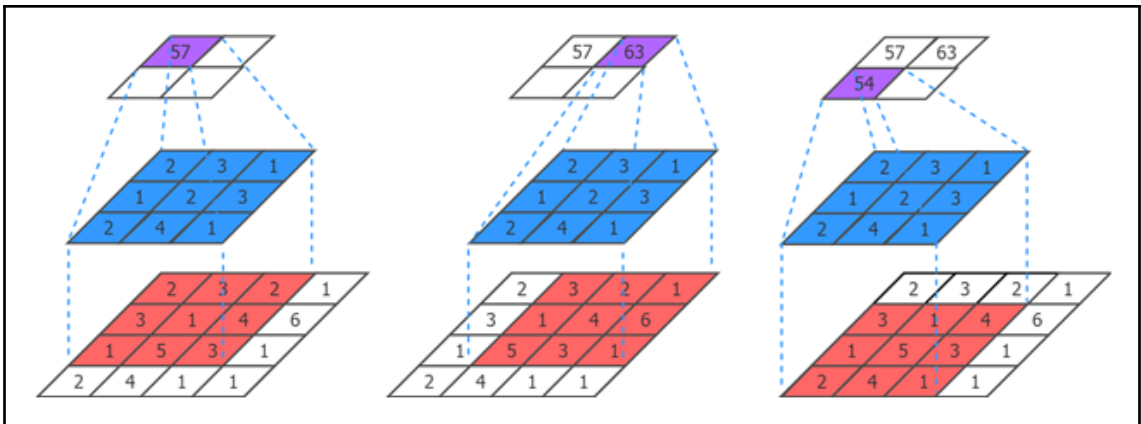
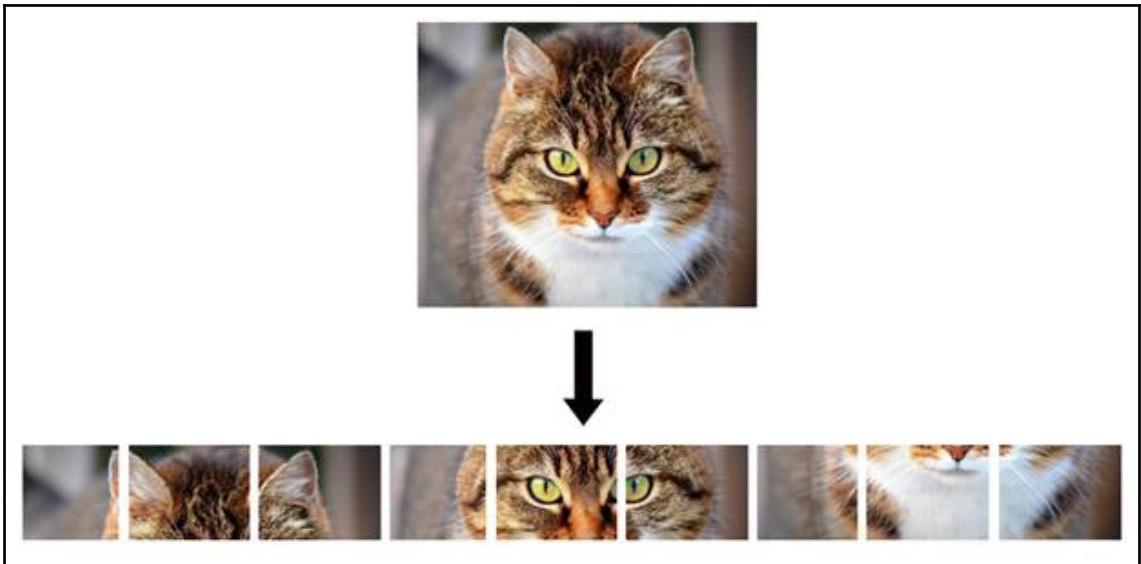
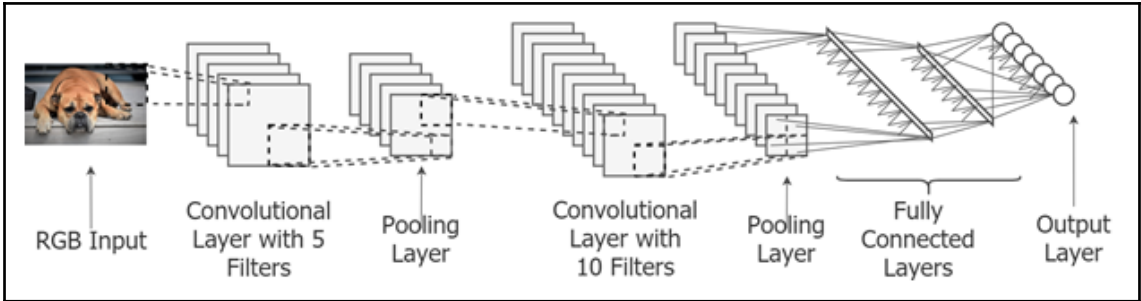
Minimize loss by optimizing softmax weights and the embedding layer



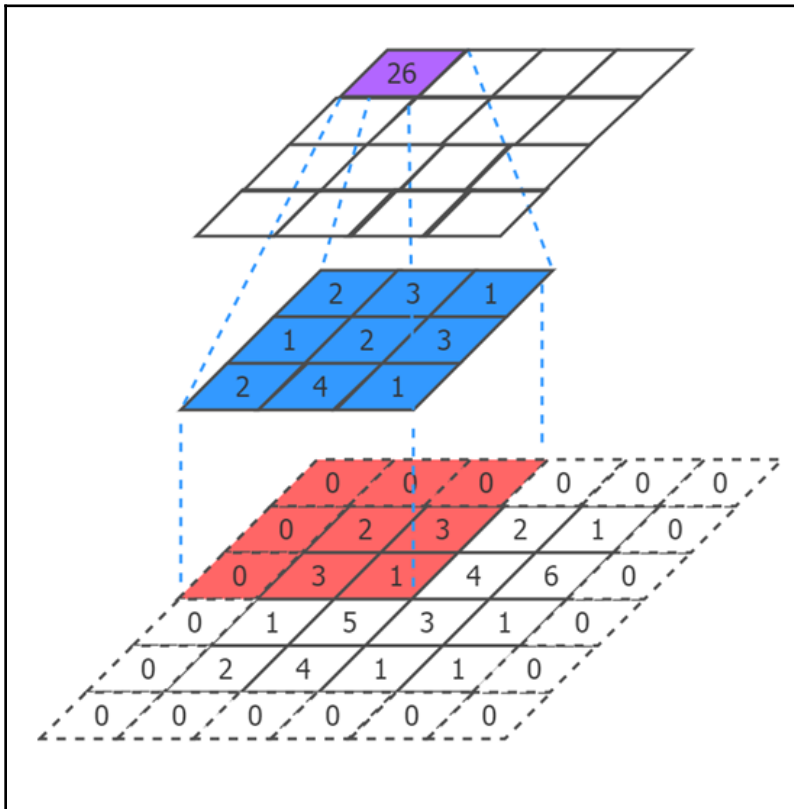
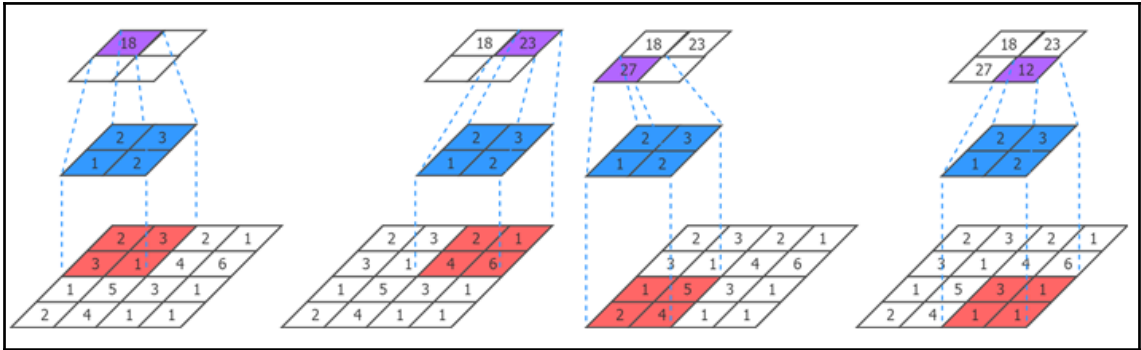


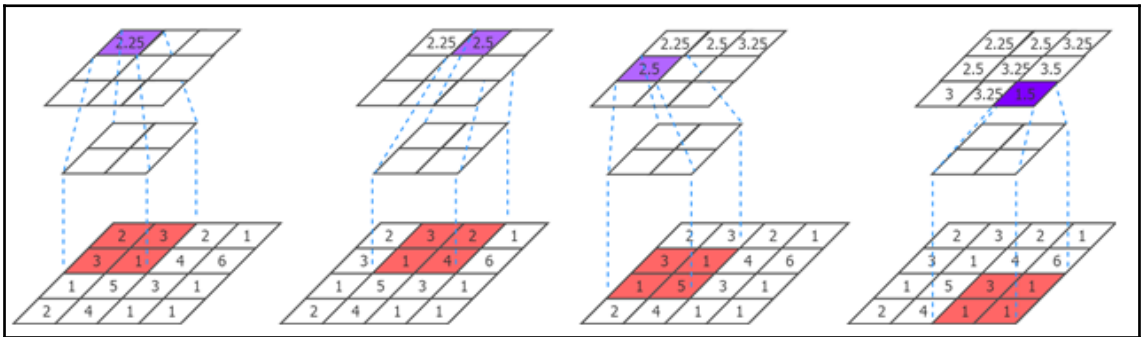
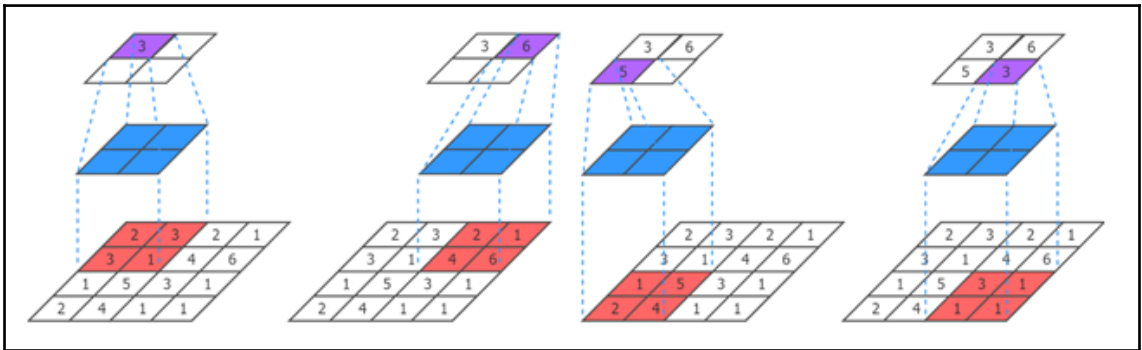
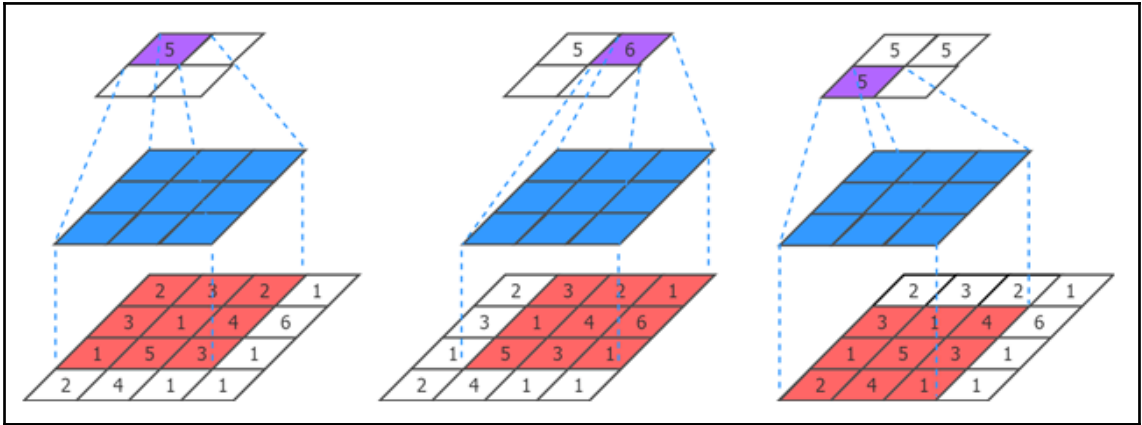


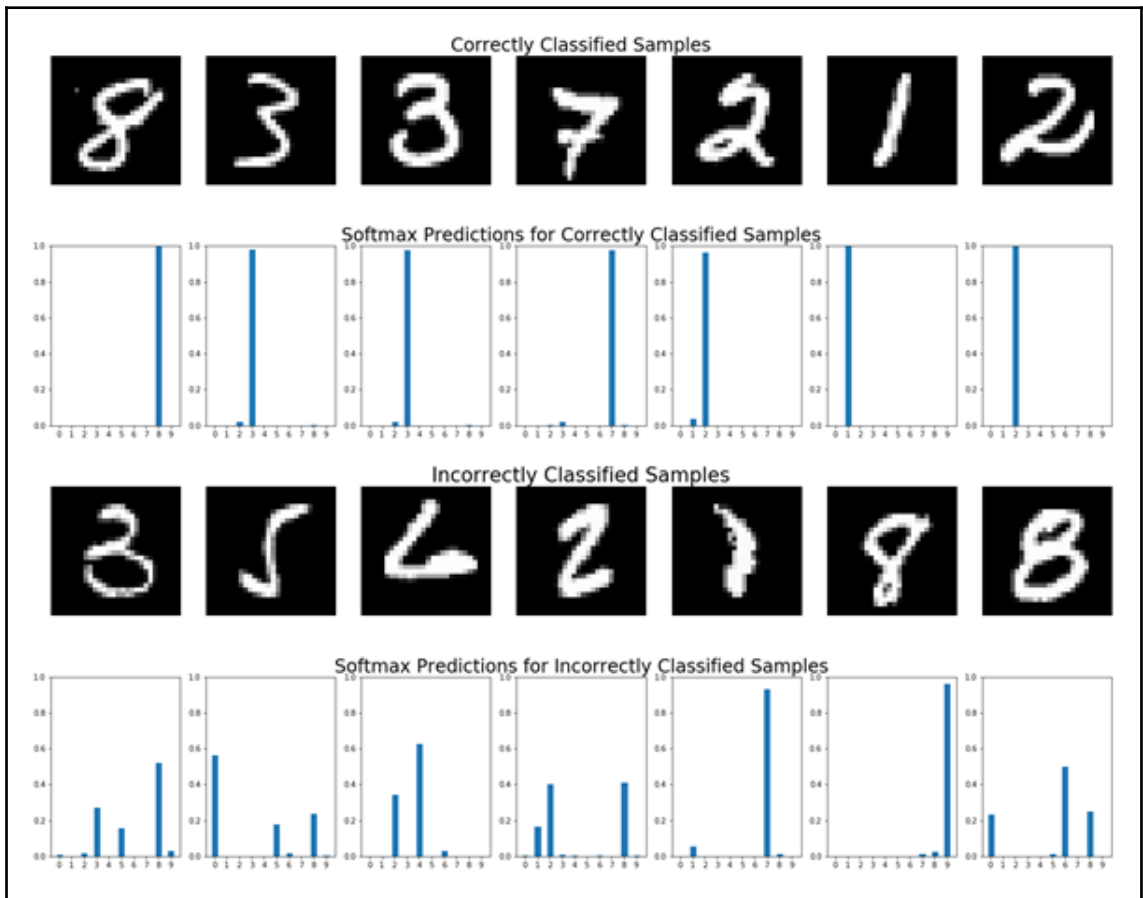
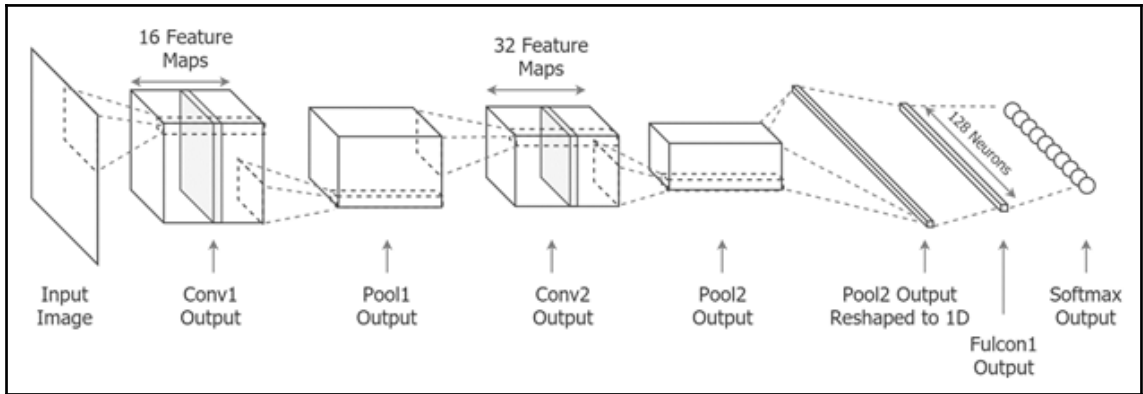




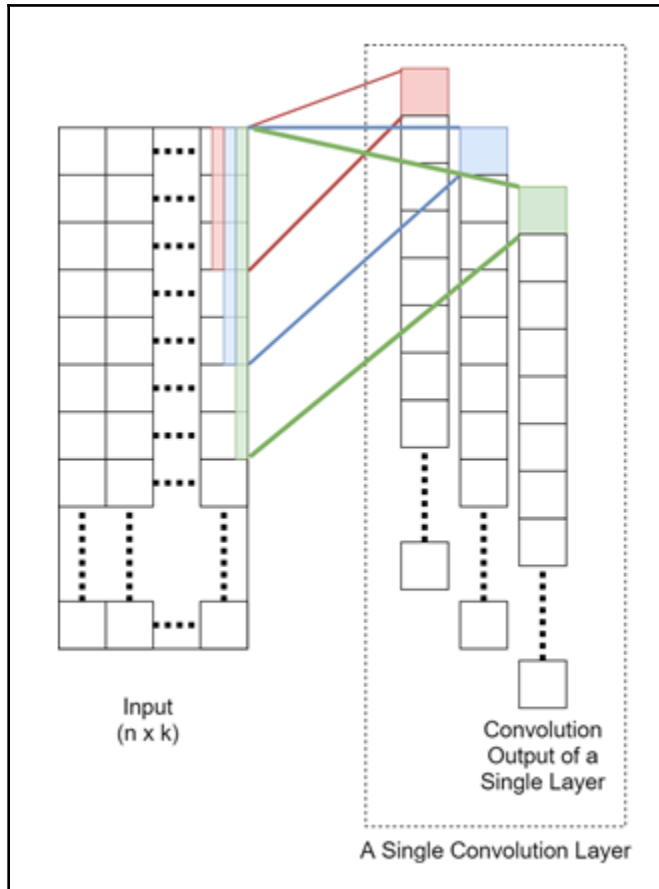


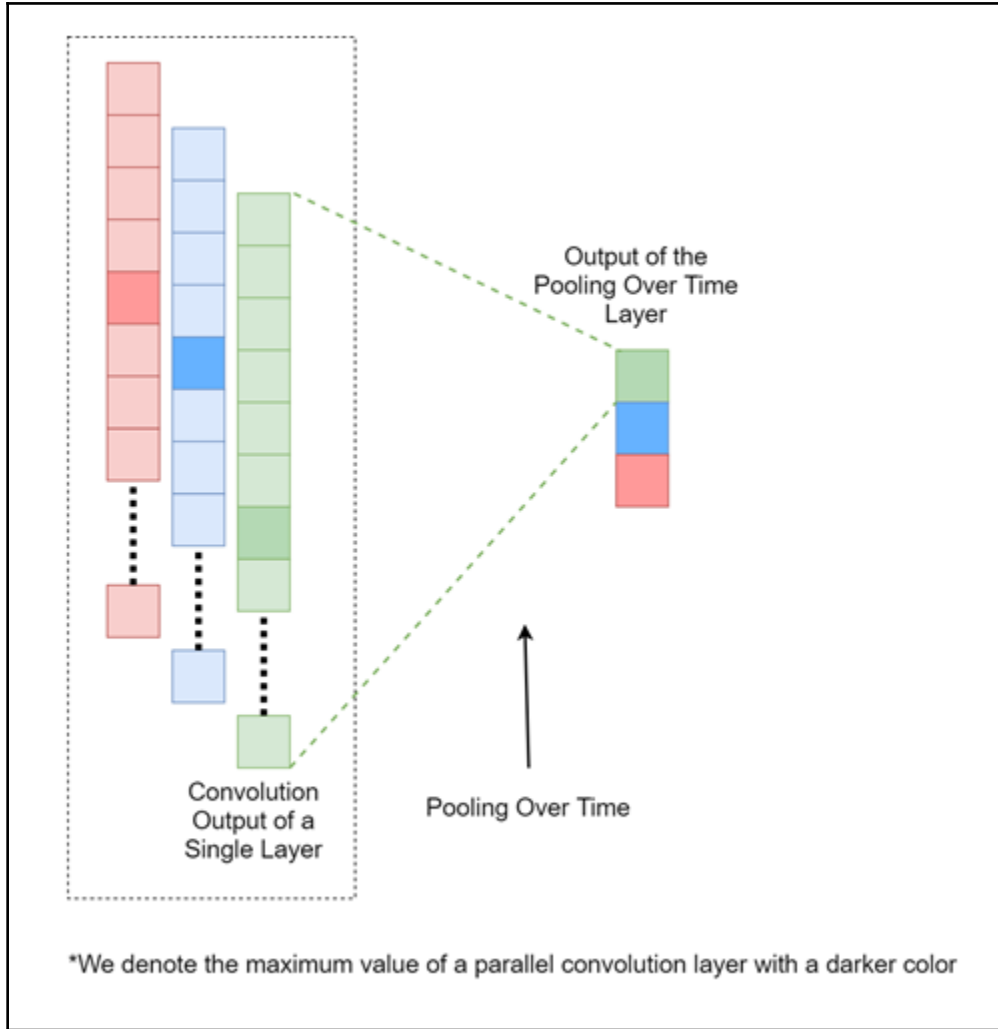


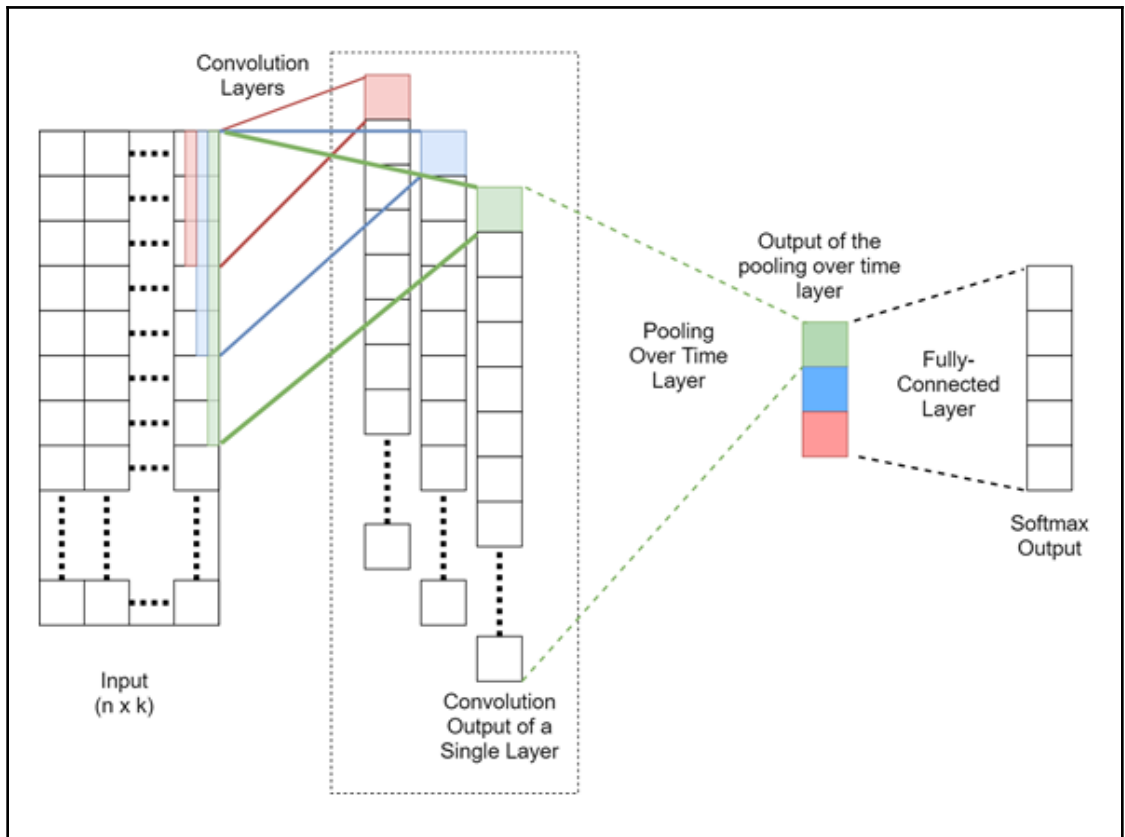






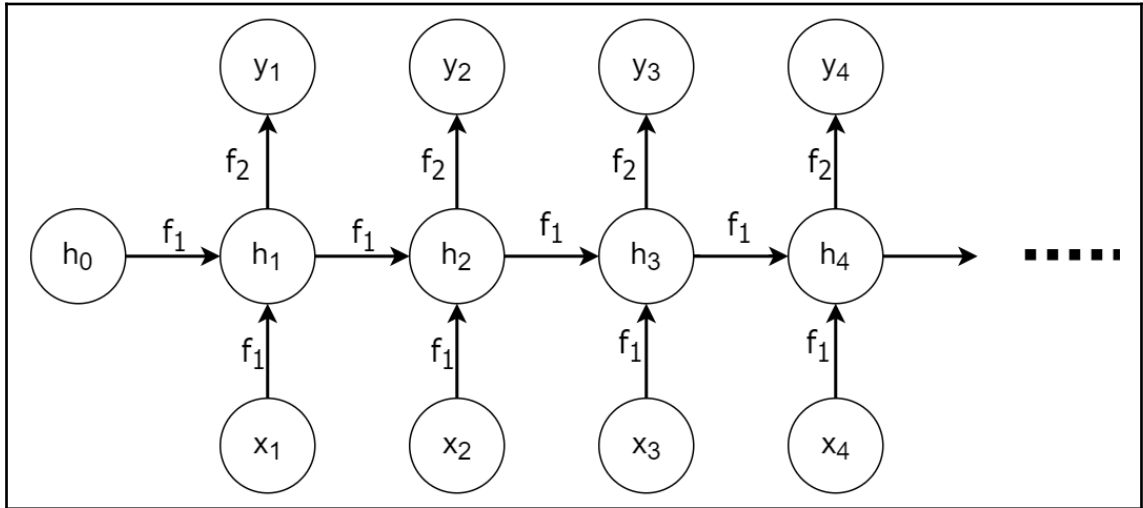




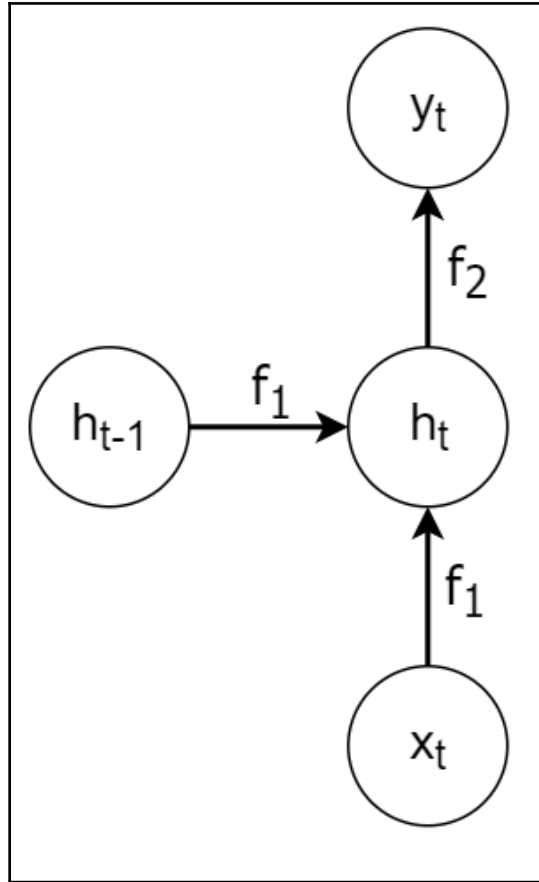


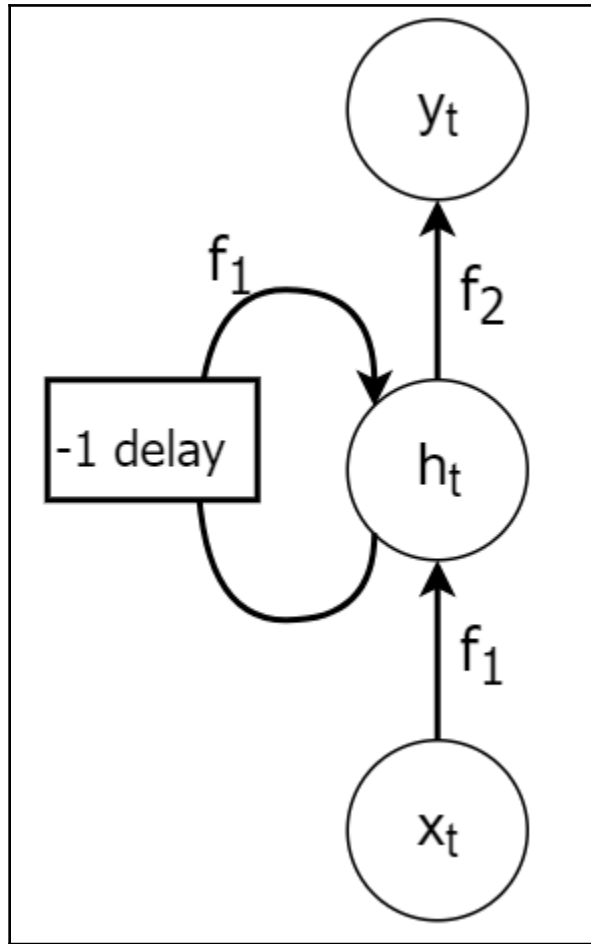
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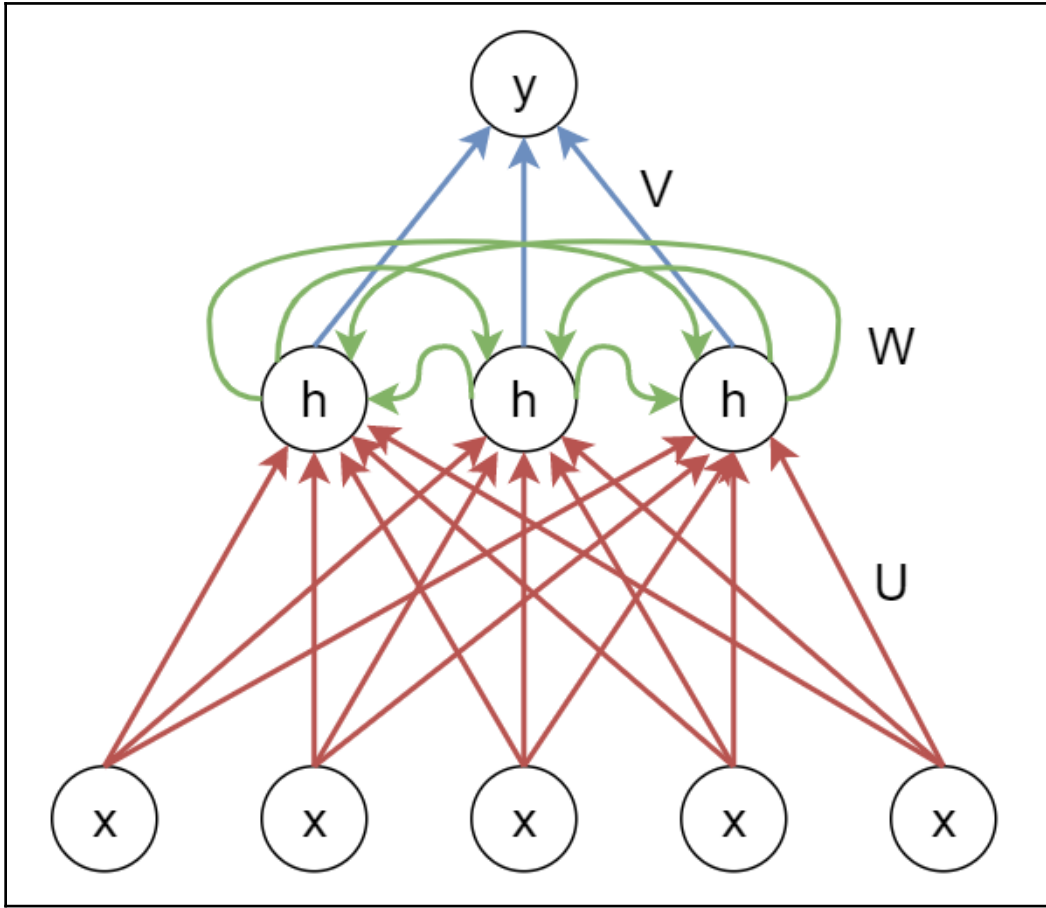
## Chapter 6: Recurrent Neural Networks

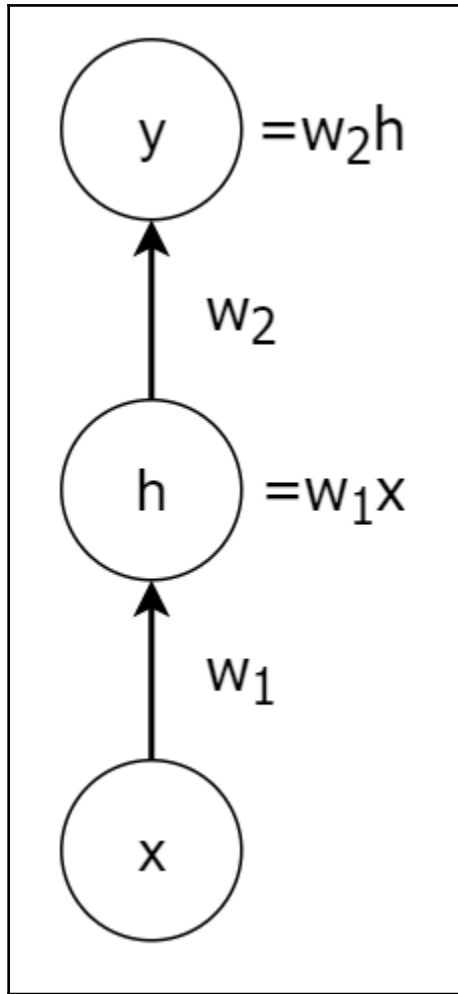


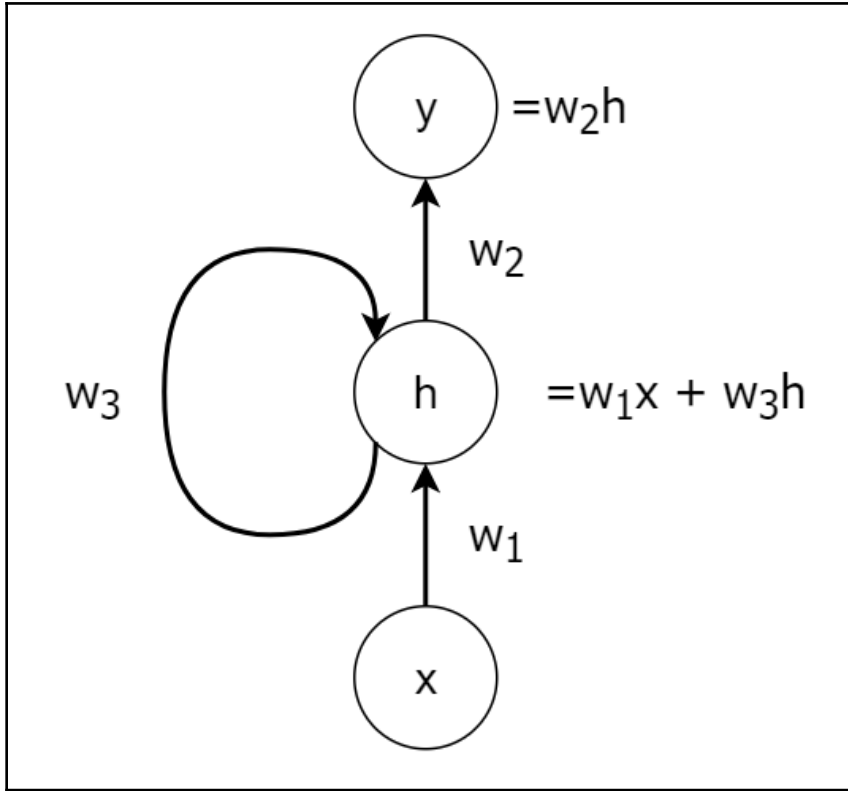


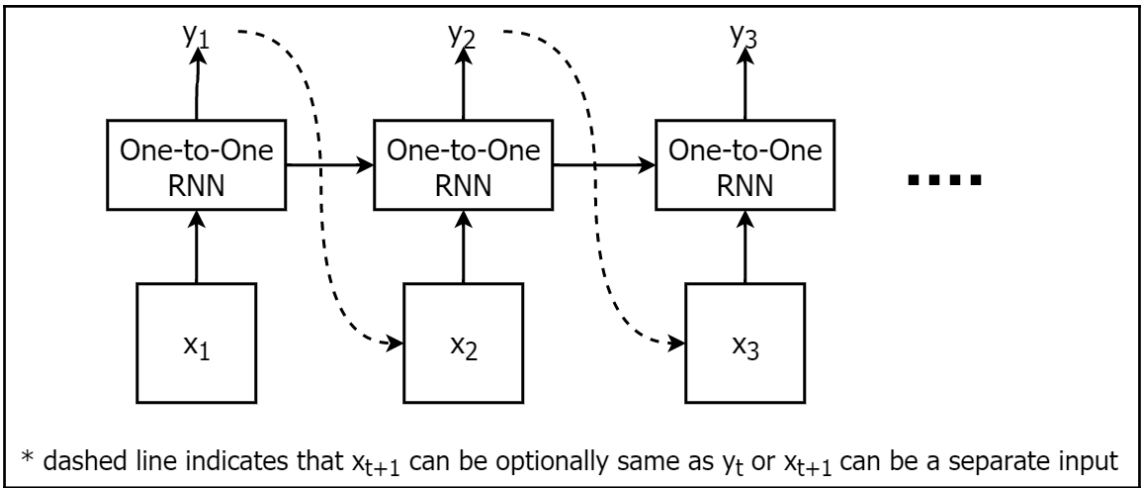
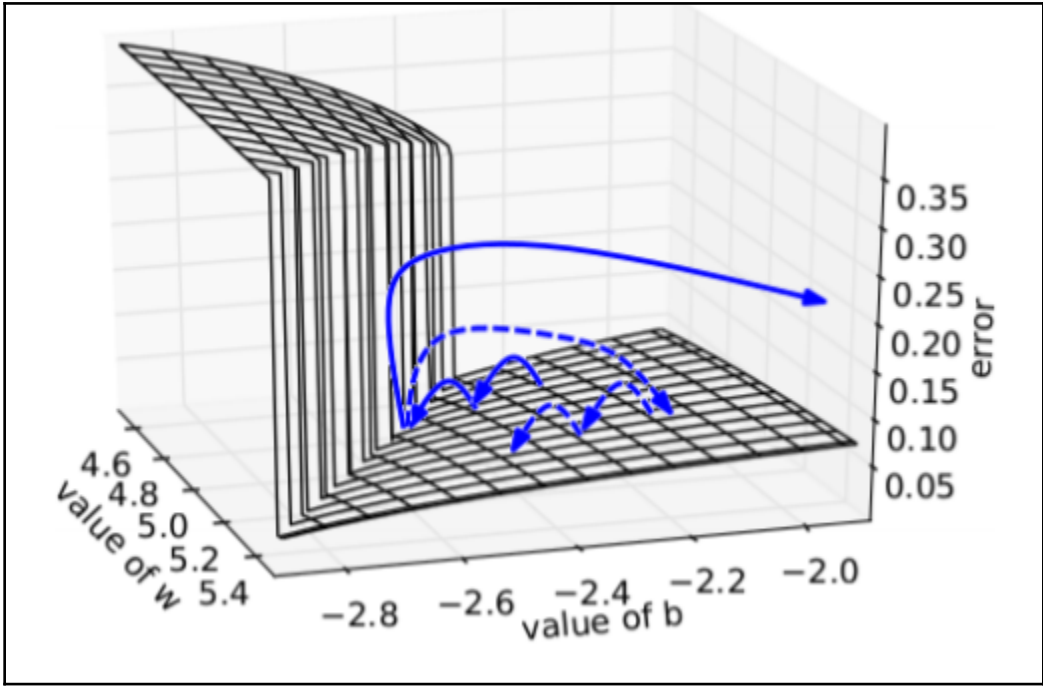


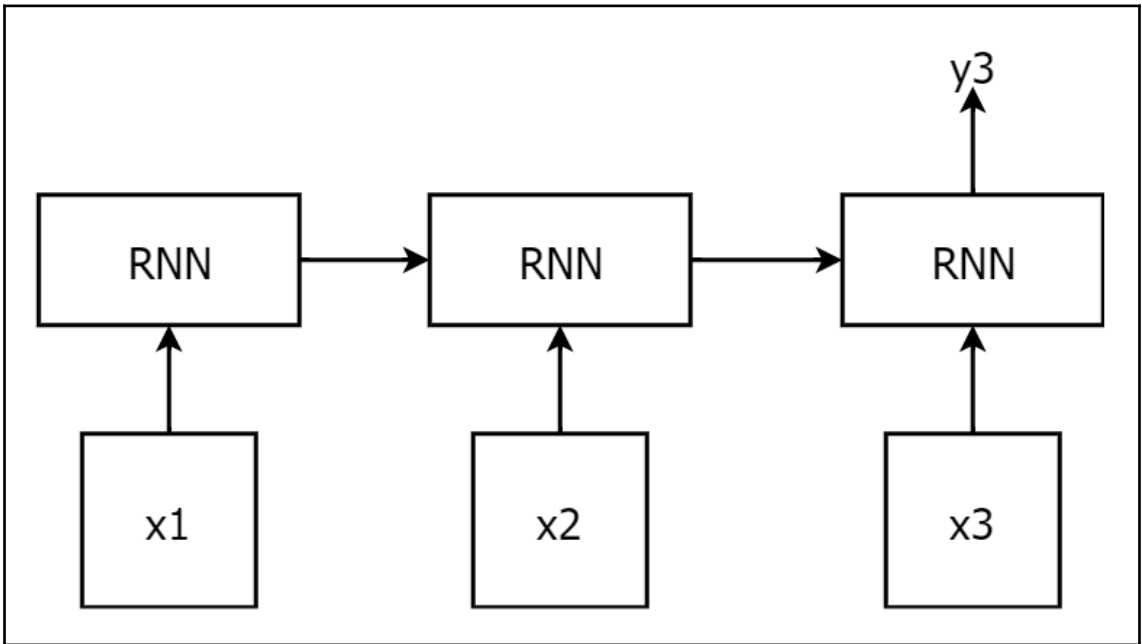
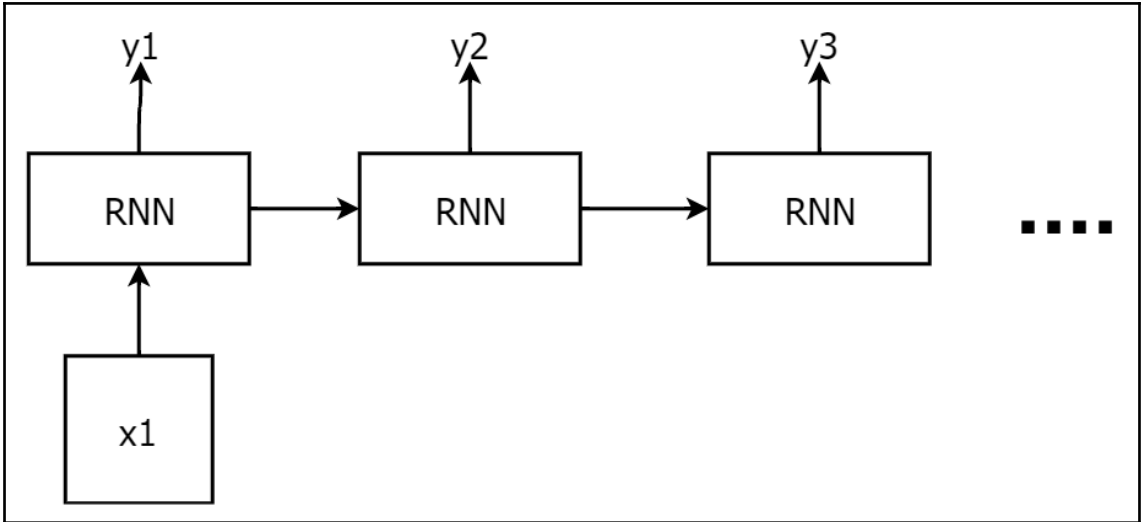


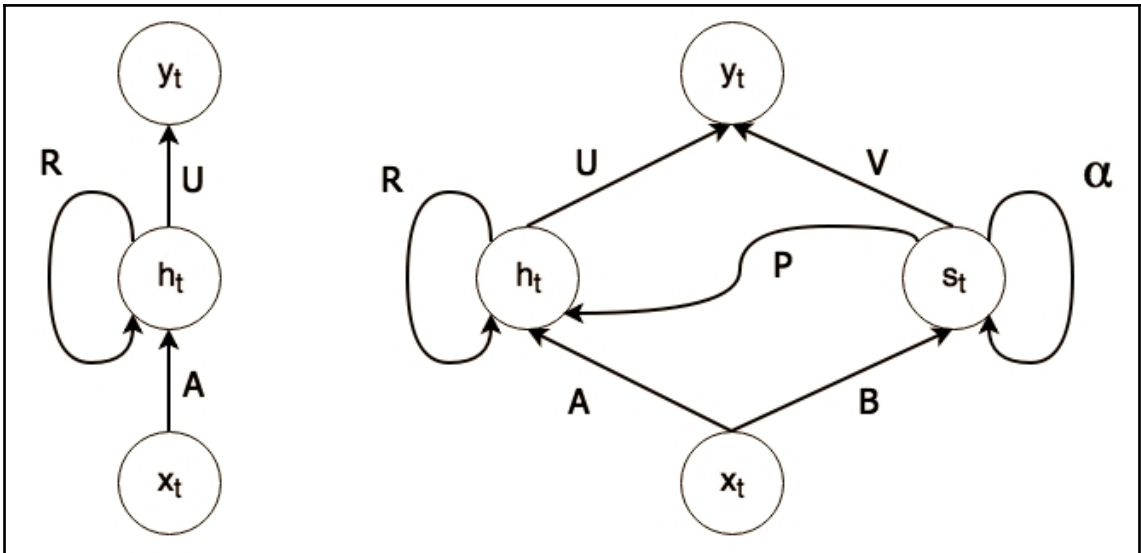
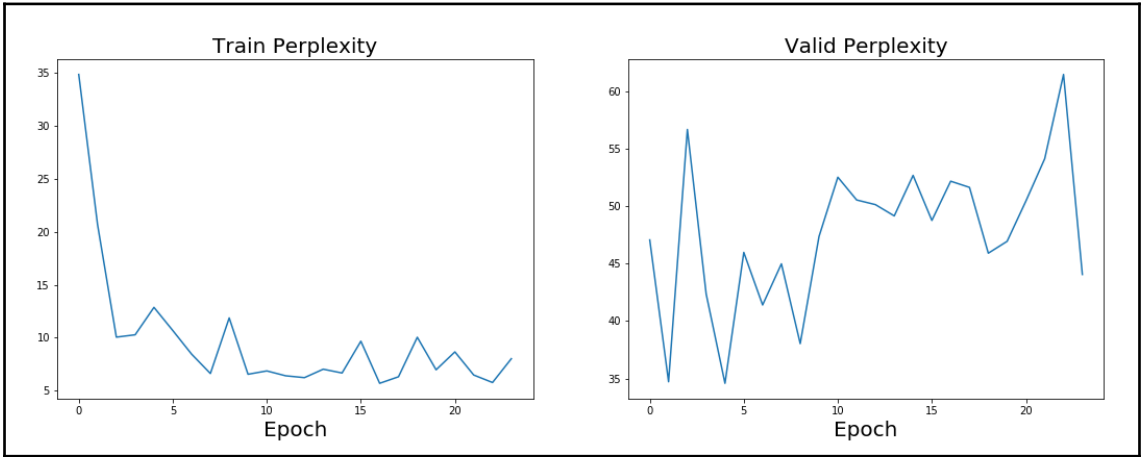
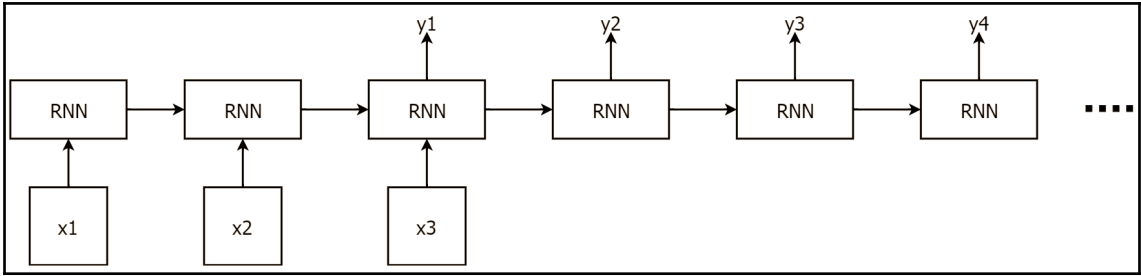




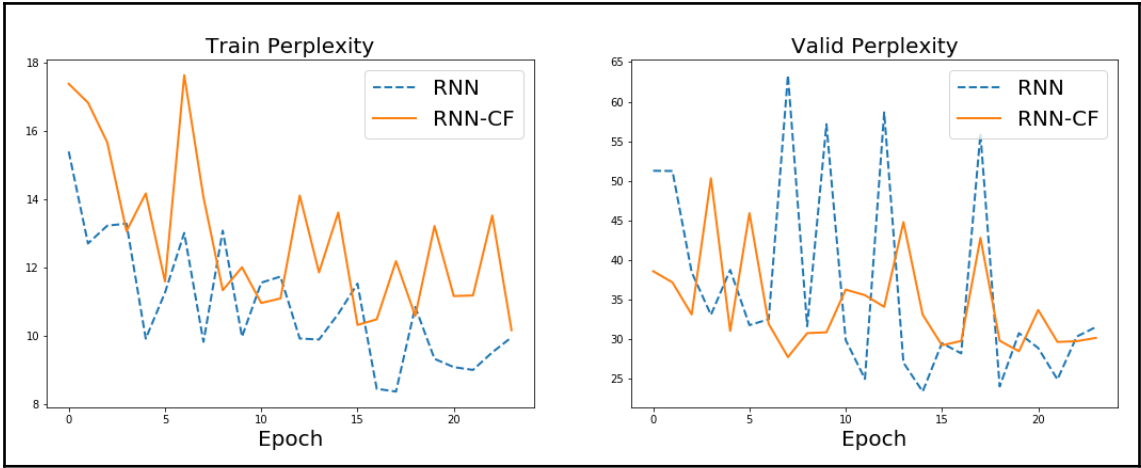




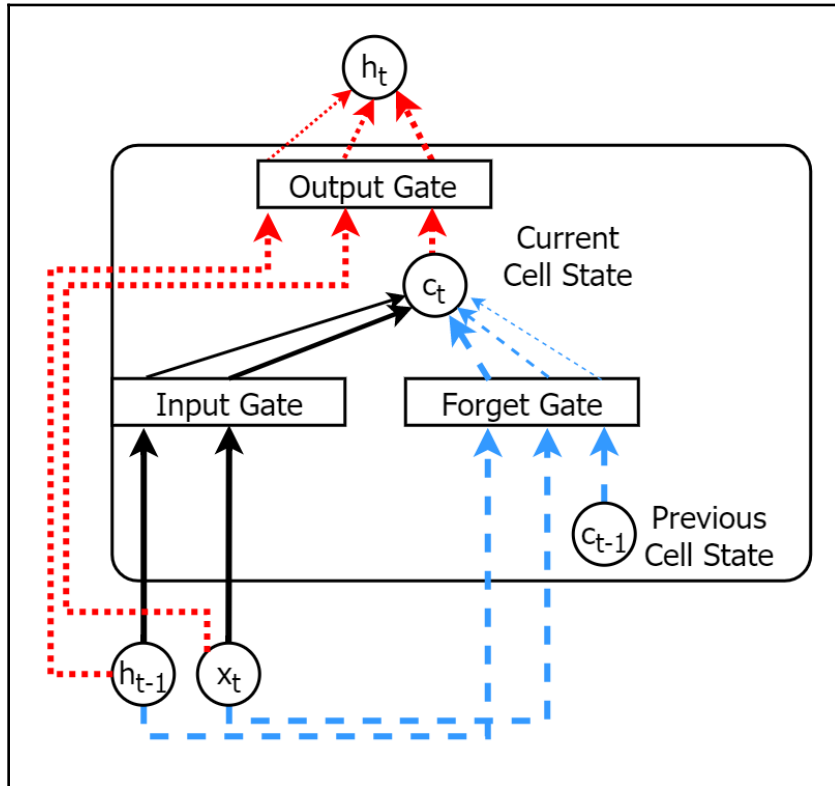


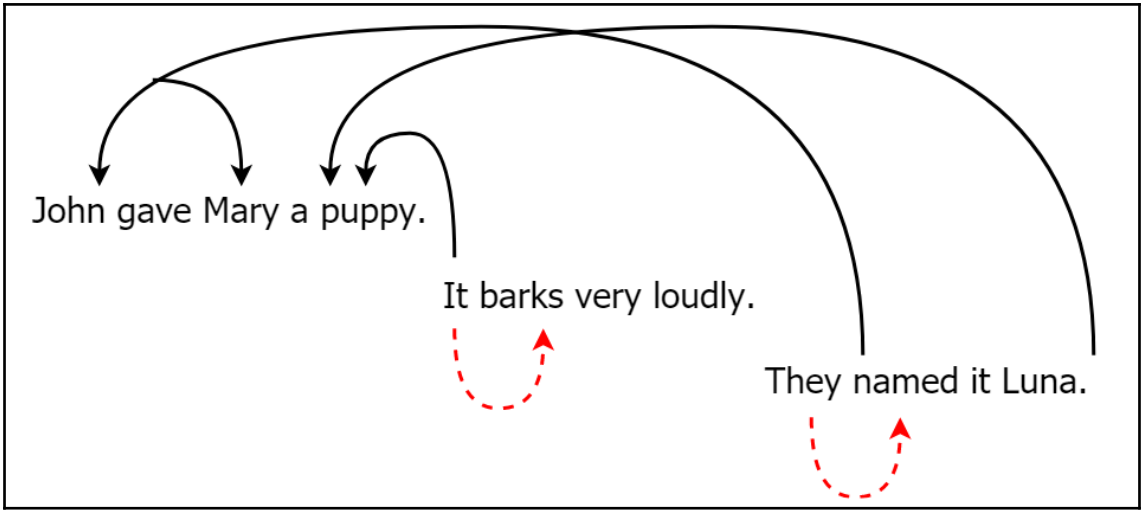
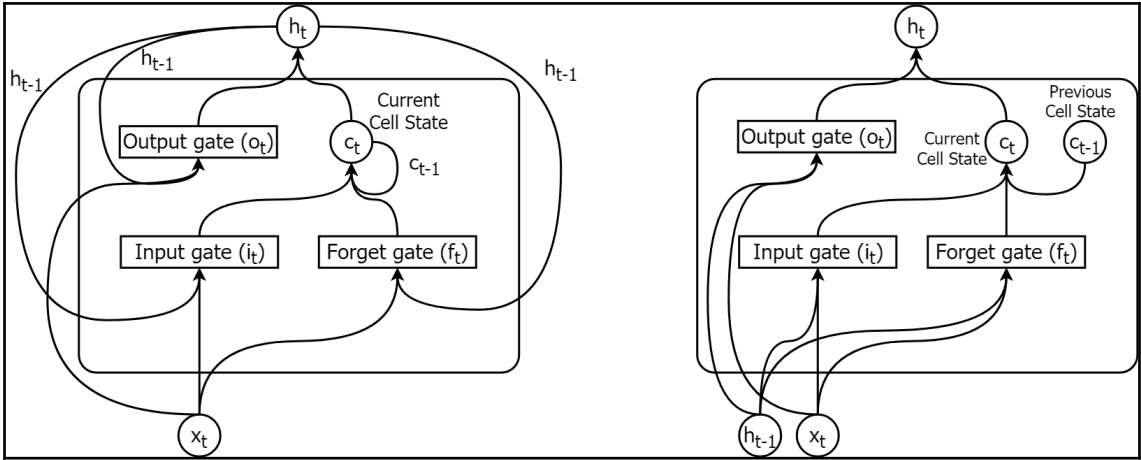


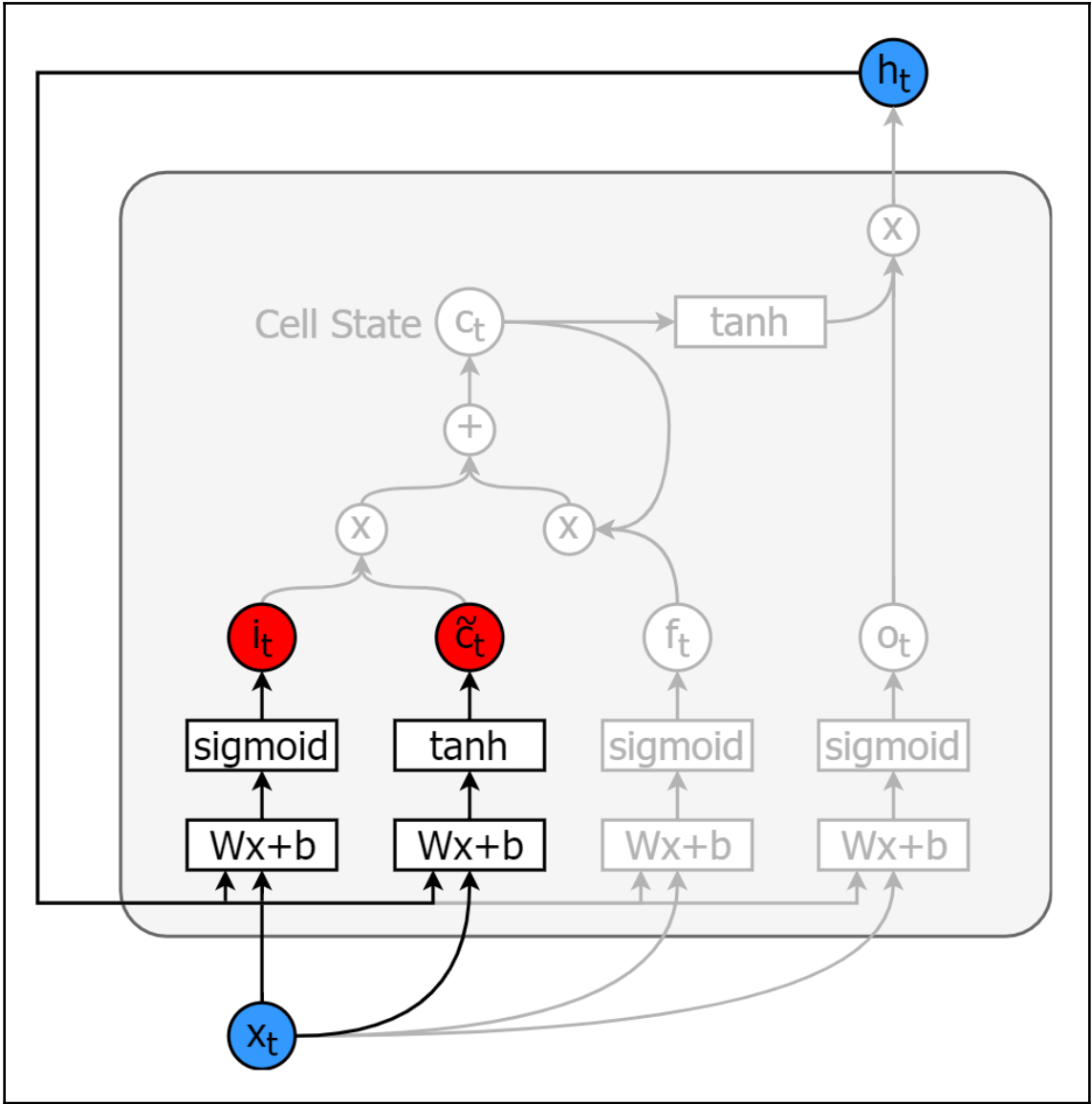


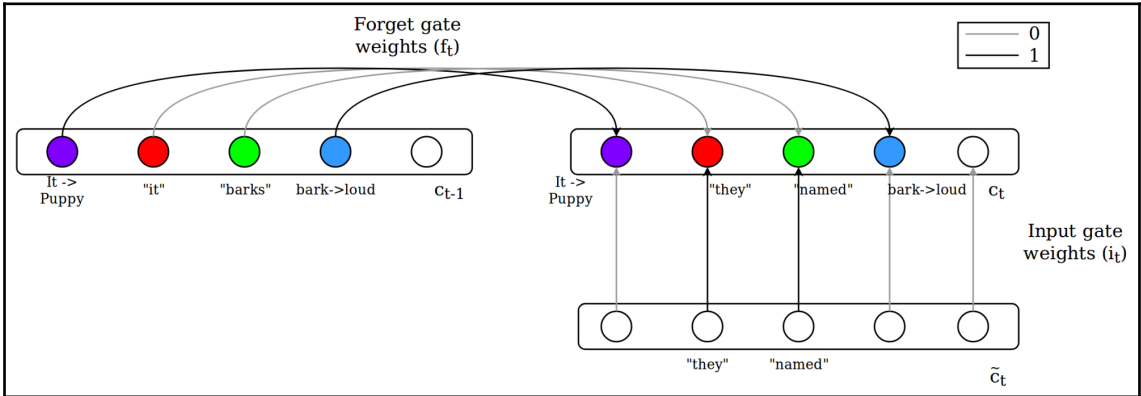
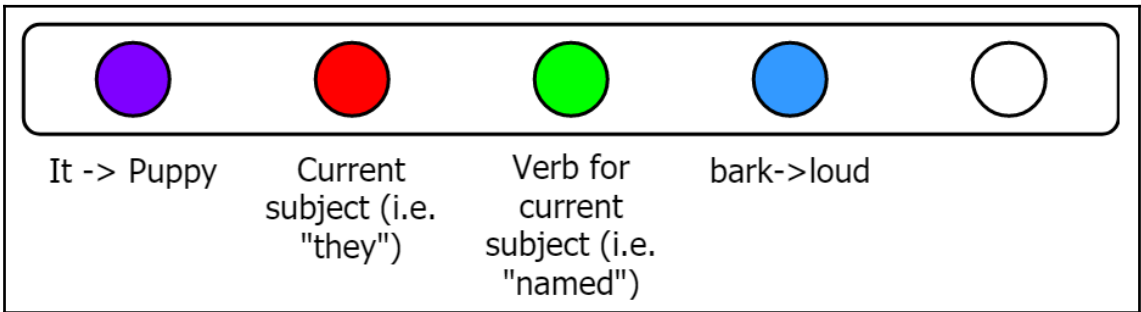
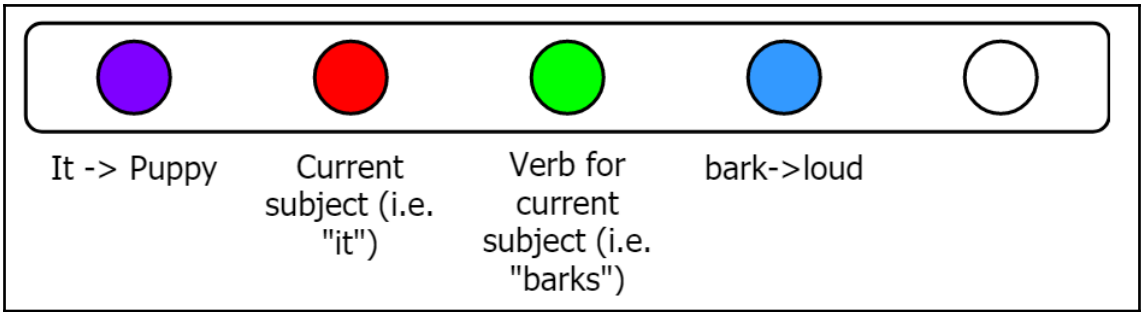


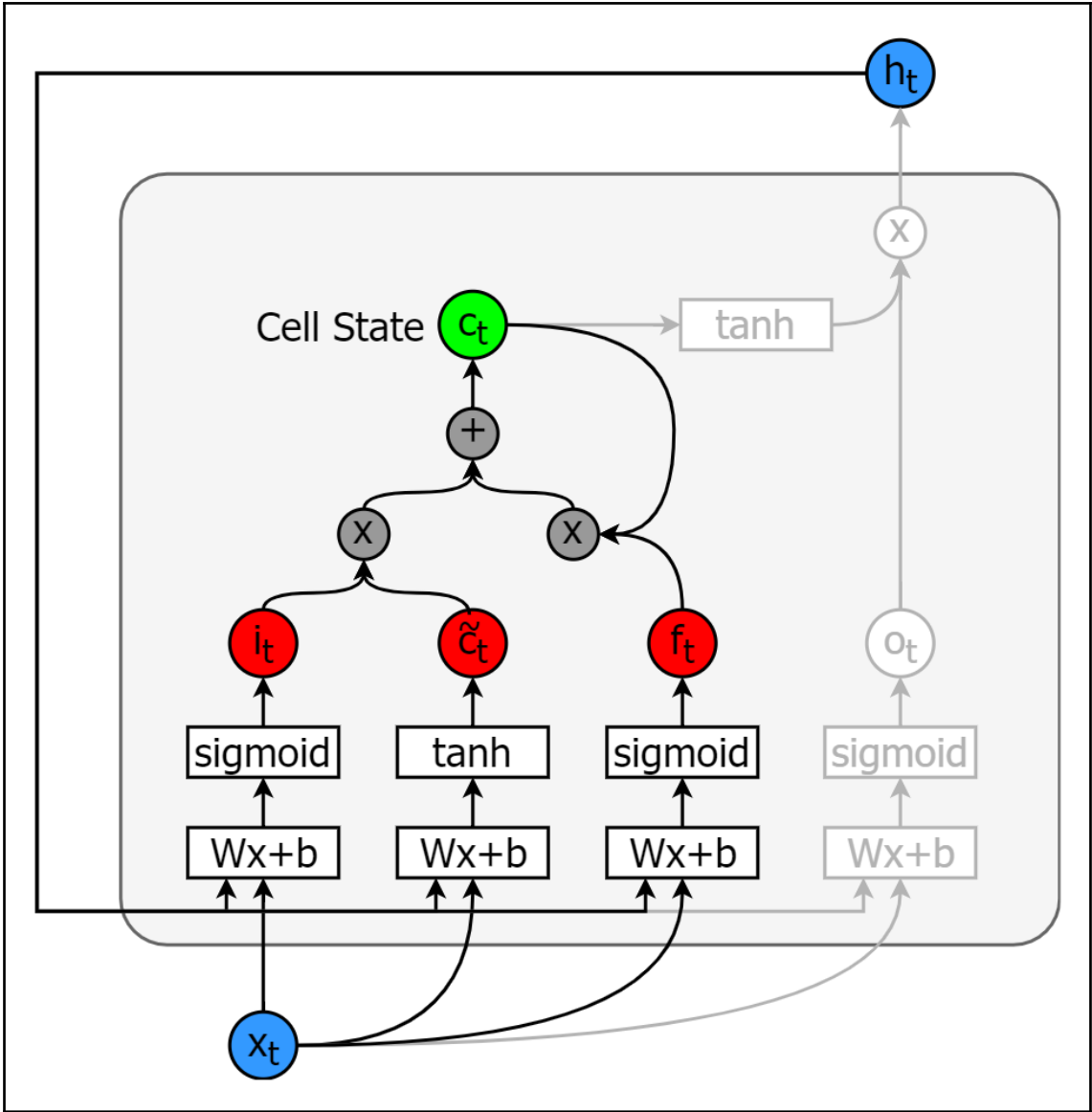
# Chapter 7: Long Short-Term Memory Networks

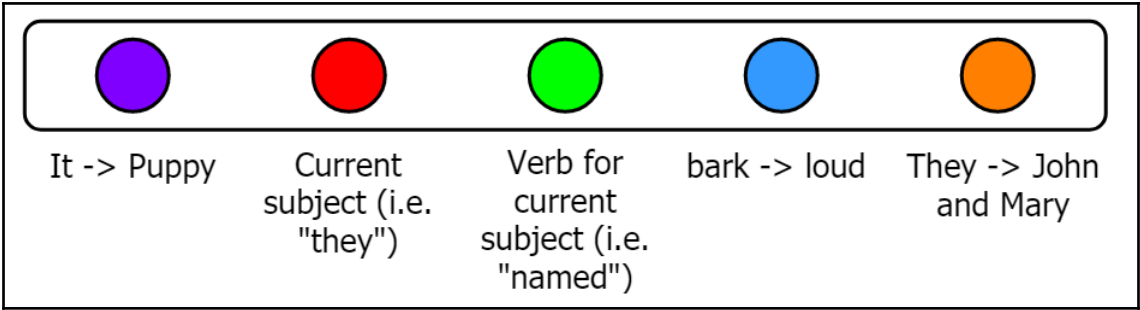


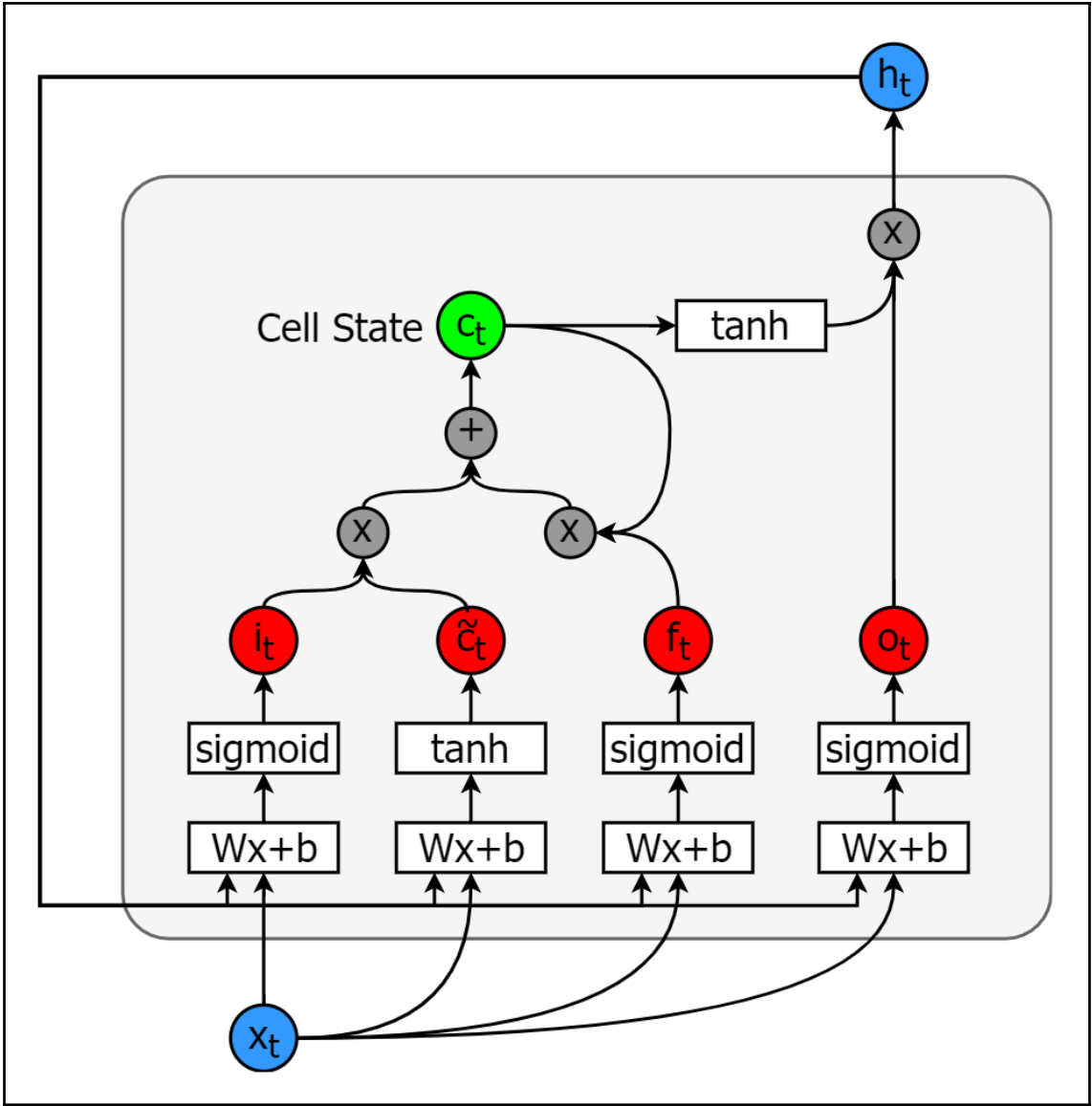




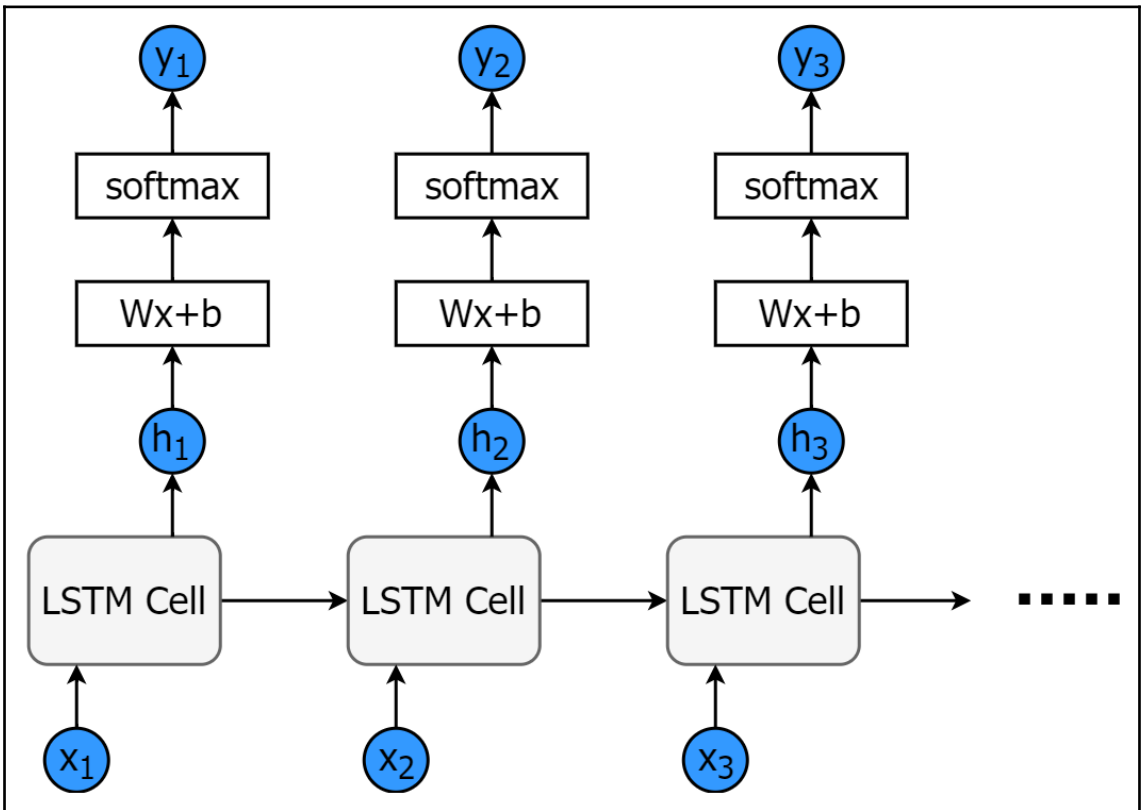
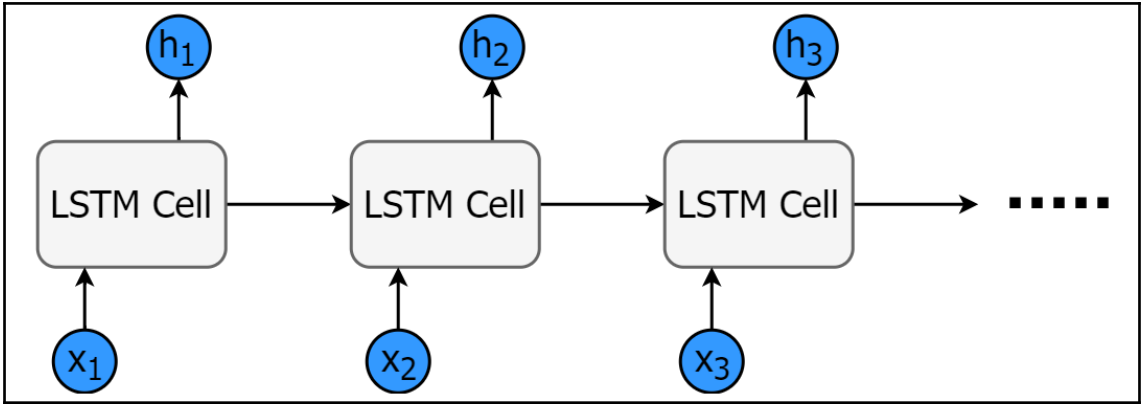


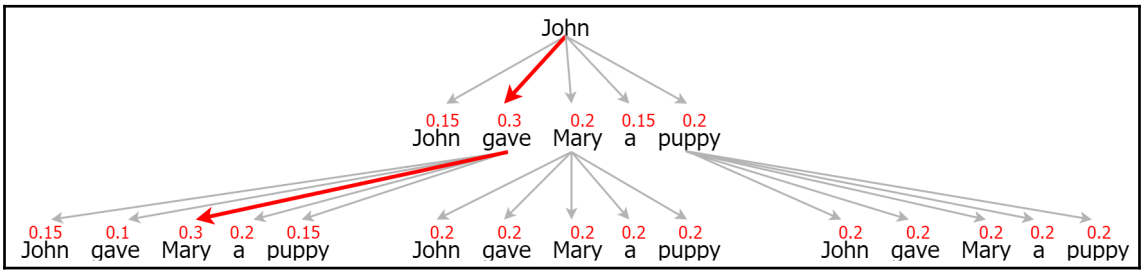
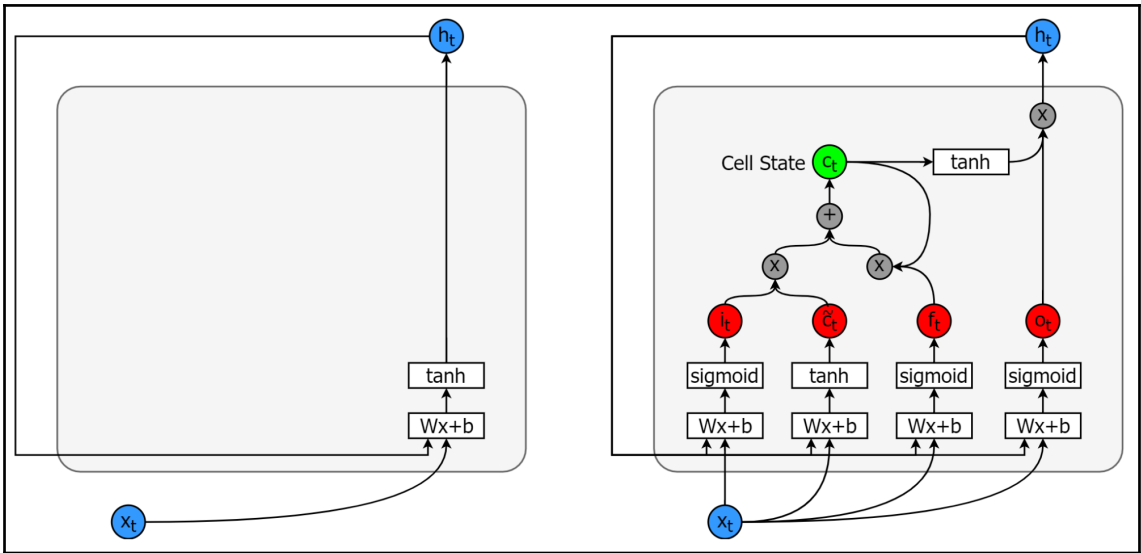


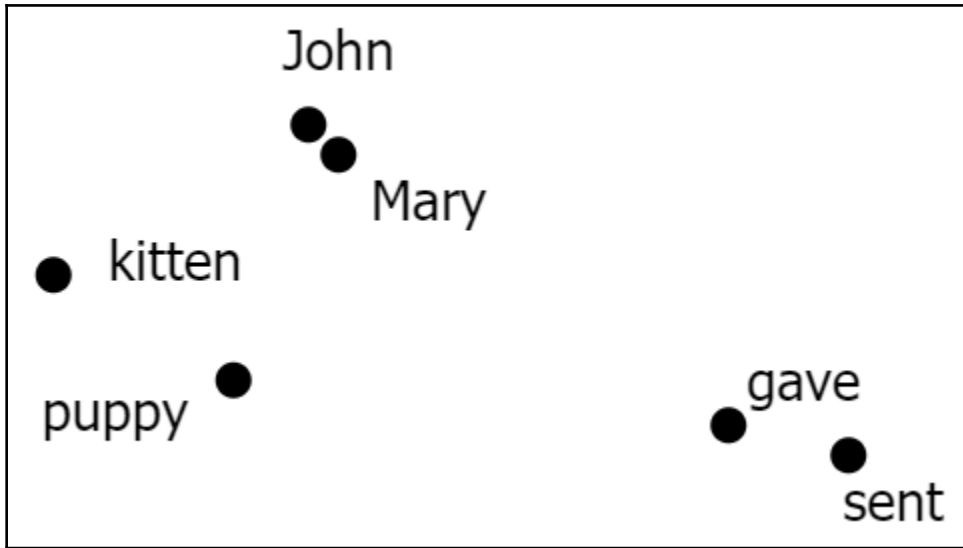


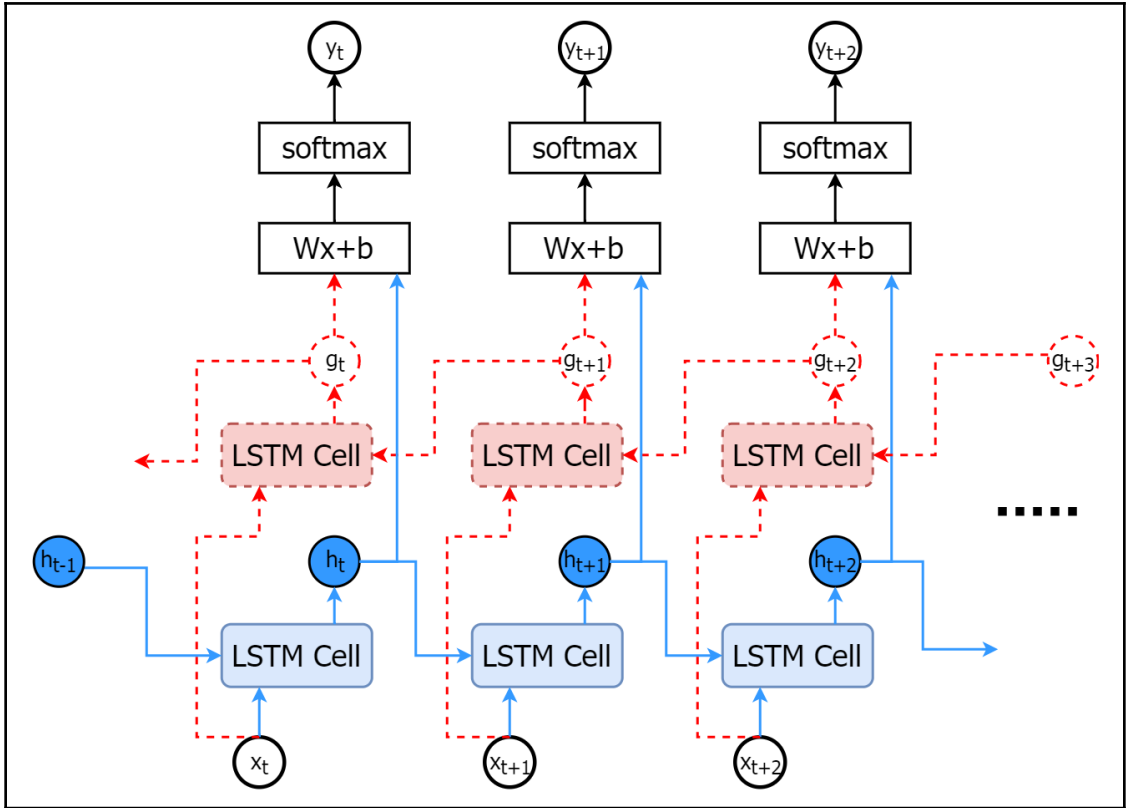


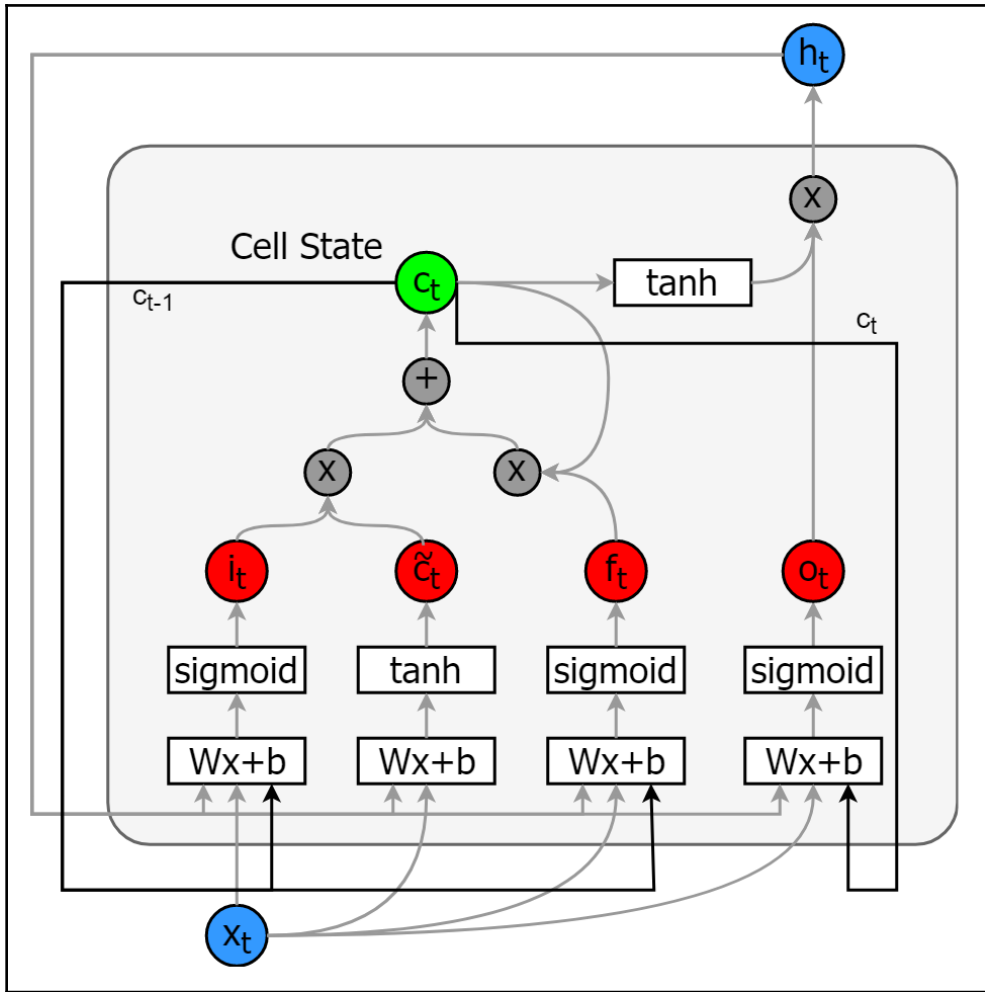


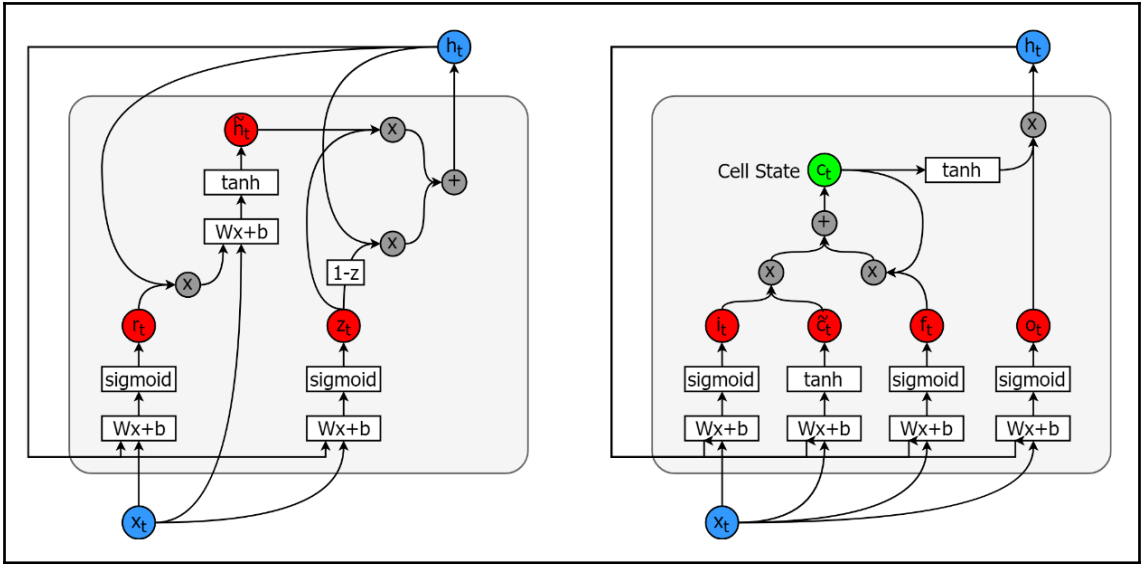






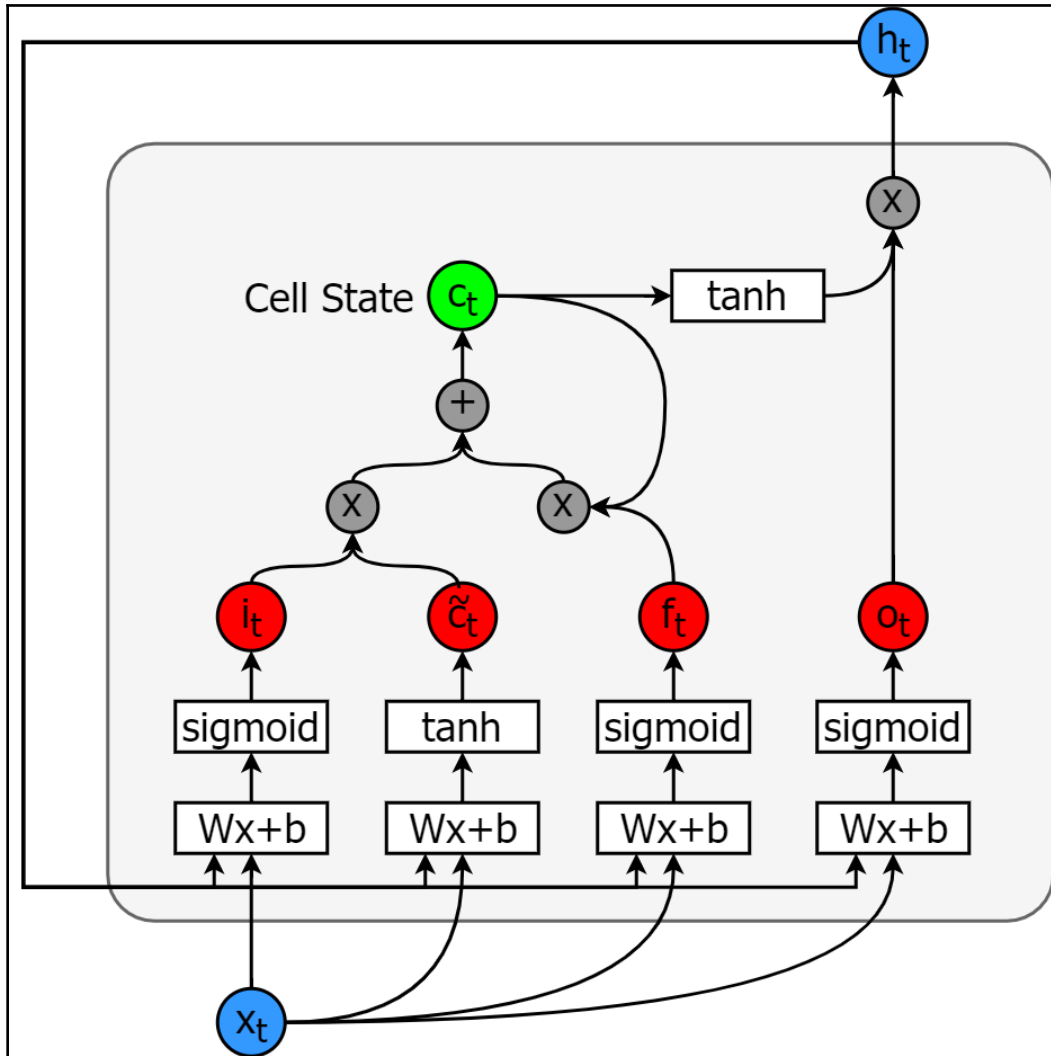


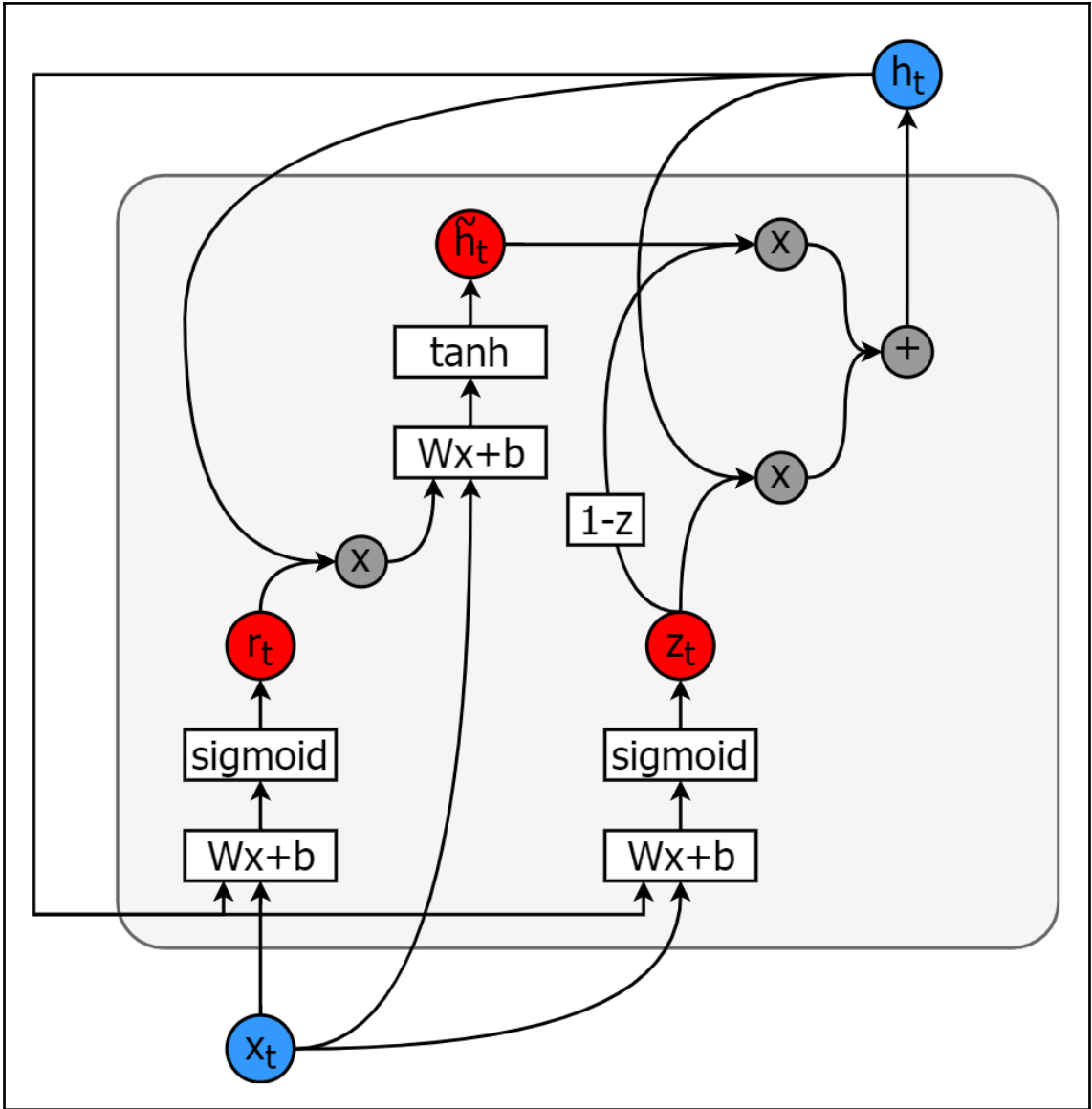




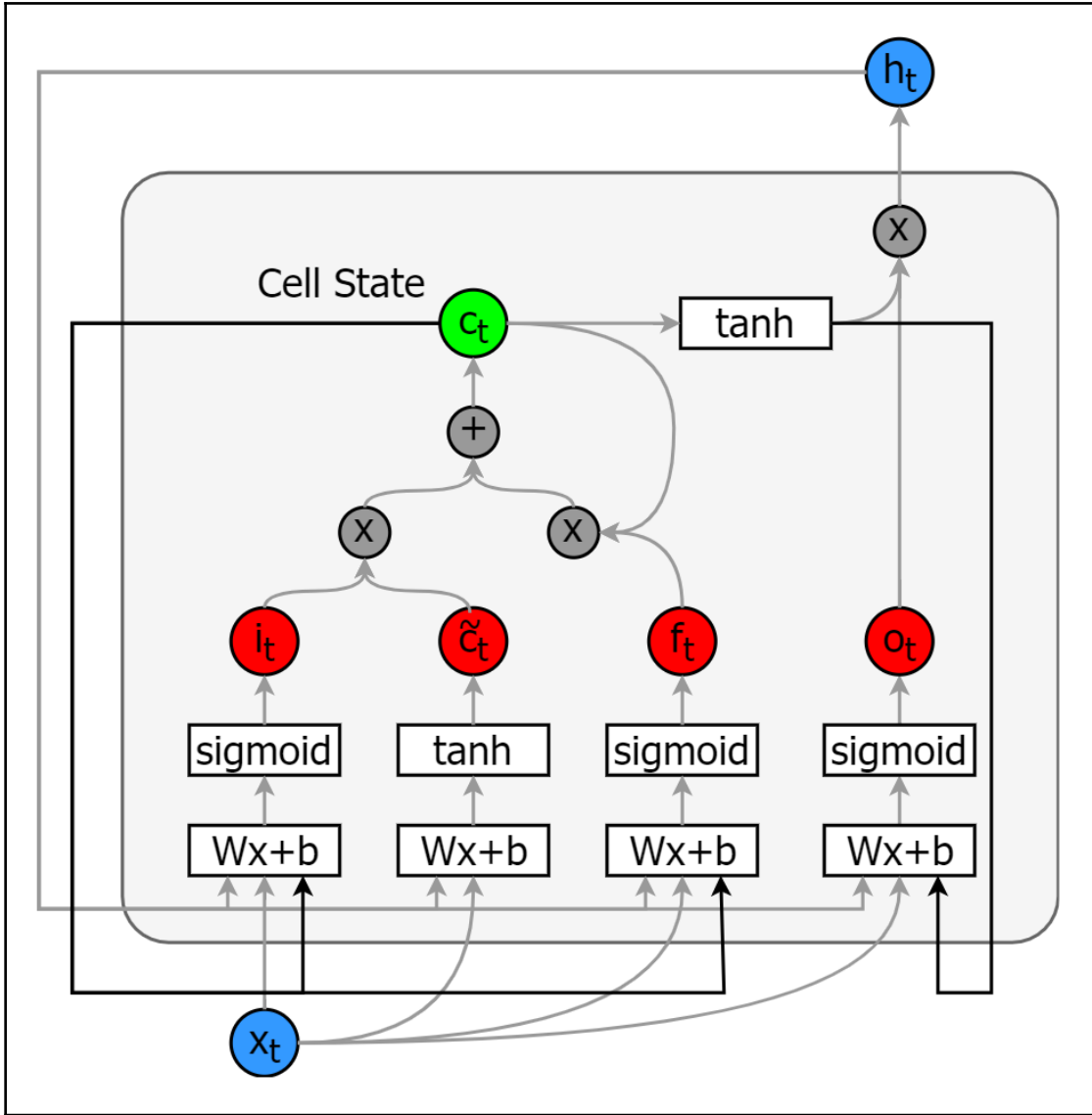
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## Chapter 8: Applications of LSTM – Generating Text

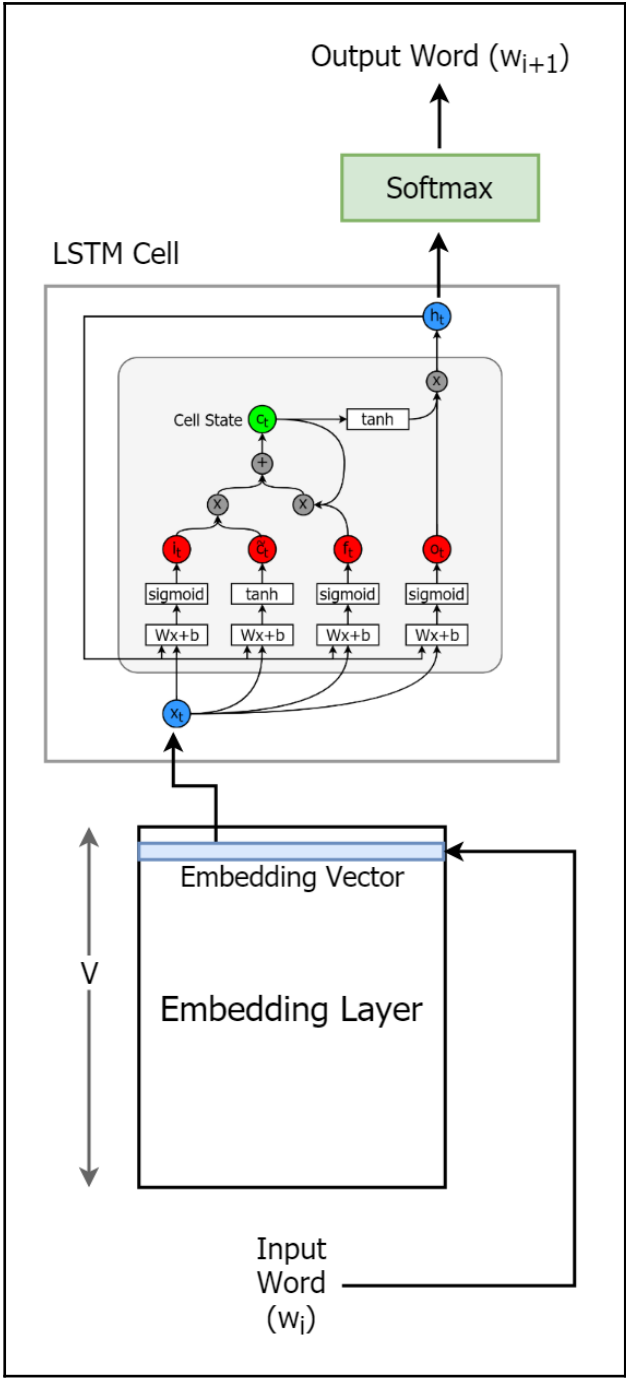


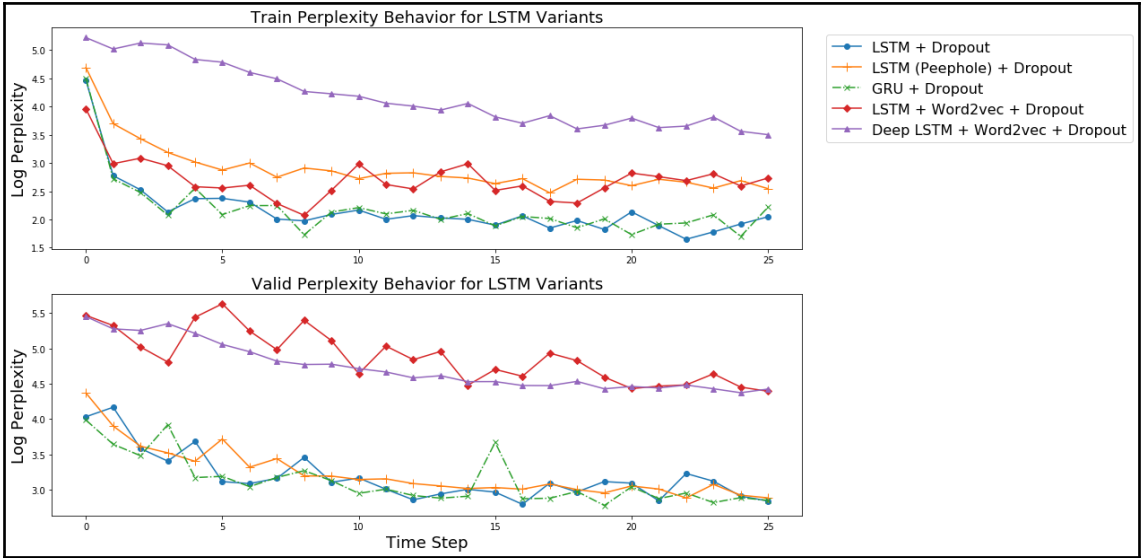












# Chapter 9: Applications of LSTM – Image Caption Generation





A pink and green marker, next to another object.  
A pair of red scissors on top of a desk.  
A close up image of the finger holes on a pair of scissors and sharpie markers.  
A close up of a red pair of scissors and a green sharpie marker.  
A very close up view of some scissors and markers.



A bathroom that has magazine rack and small cabinet.  
Compact bathroom area, tub, toilet, magazine area and sink.  
Small residential bath room decorated in wood tones  
A tissue box on top of a toilet in a bathroom.  
an image of a clean full bathroom



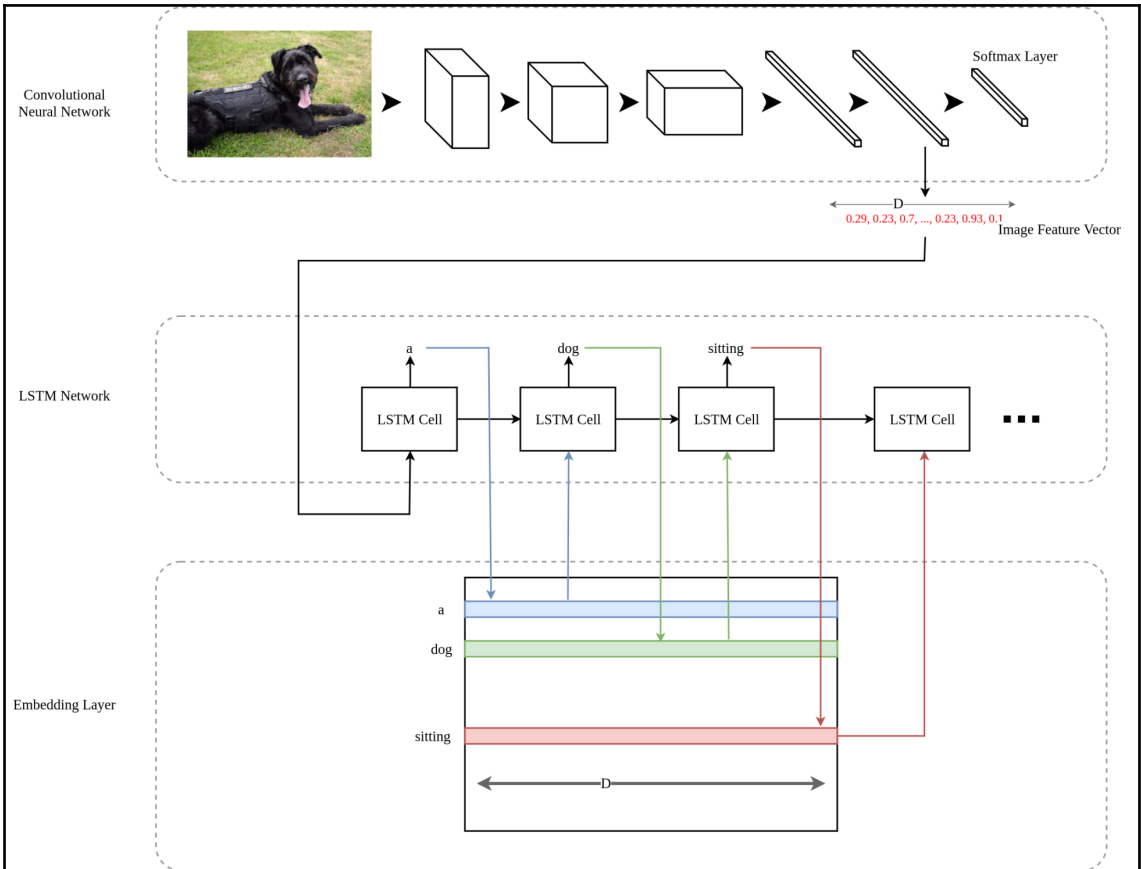
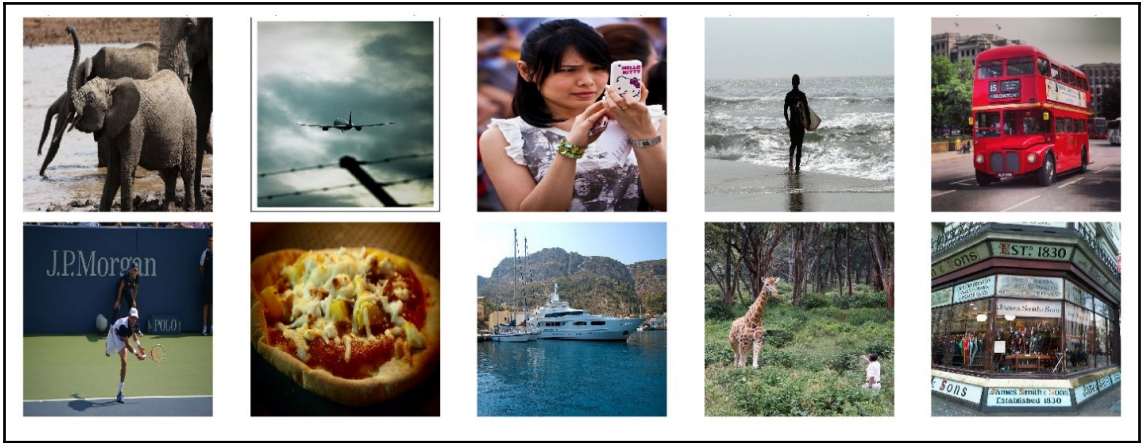
A woman exercising a brown horse in a riding ring.  
A woman is in a barn with a brown horse.  
A woman training her beautiful brown horse.  
A woman with a brown horse in a dirt area of building.  
A woman and a horse in a barn with dirt floor.

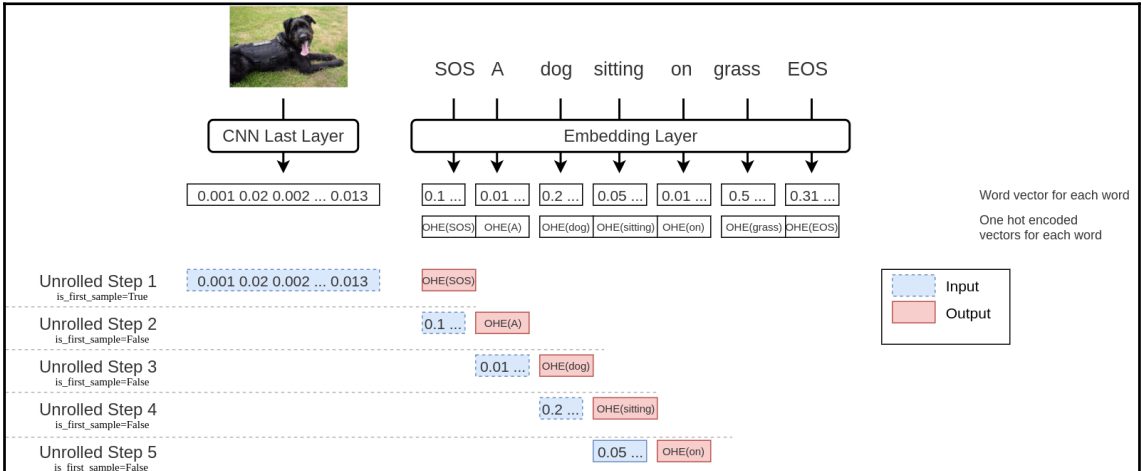
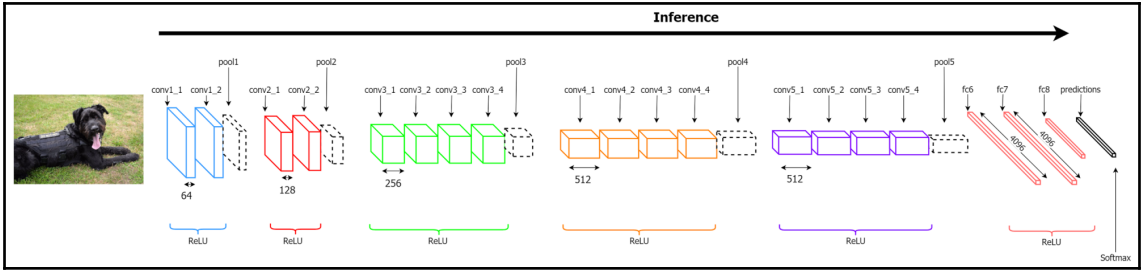


Man in mid air reaching between his legs to reach a frisbee.  
A man is doing tricks with a frisbee  
A person is jumping with a Frisbee in the air.  
a person jumping in the air while playing with a frisbee  
A man in mid air attempting to catch a frisbee.



A grey motorcycle on dirt road next to a building.  
A motorcycle is parked on a dirt road in front of an old farm truck selling produce.  
there is a bike on a dirt road  
Motorcycle sitting on a dirt road in front of a farm house advertising produce.  
A motorcycle that is sitting in the dirt.

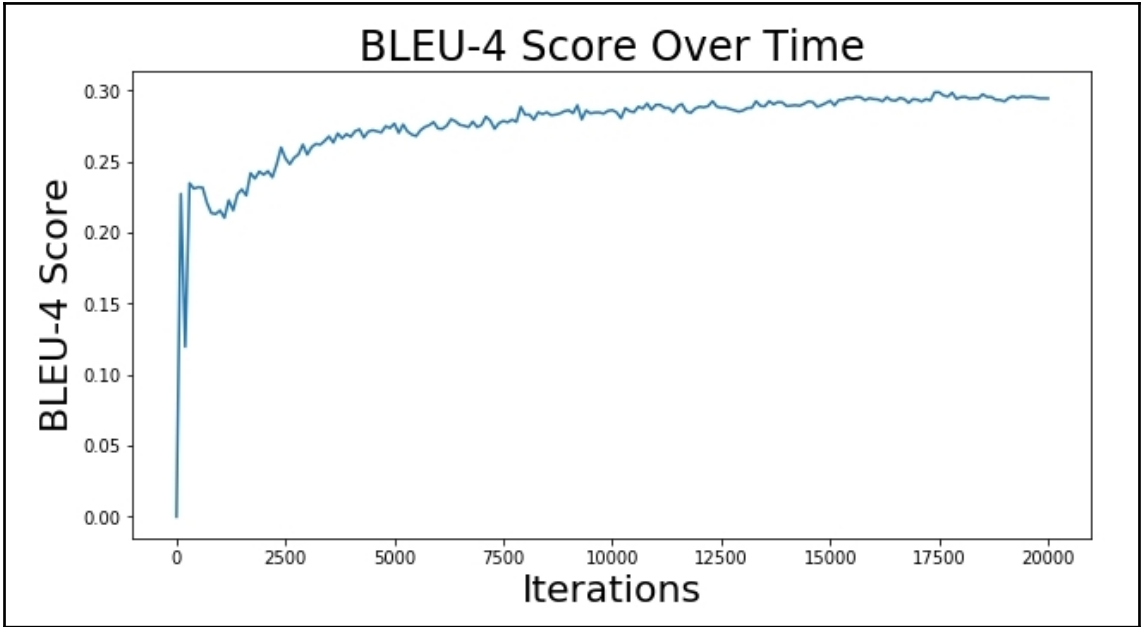






<p>the cat sat on the mat</p> <p>on the mat sat the cat</p>	<p>the cat sat on the mat</p> <p>on the mat sat the cat</p>
---	---

Reference Sentence												
Bob decided to flee when he observed Tom as Bob owed money												
Candidate Sentence	Bob	●										
	run			○								
	away											
	when				●							
	he					●						
	observes						○					
	Tom							●				
	as								●			
	Bob									●		
	was											
	in											
	debt										○	





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SOS a train of a clock on a street EOS



SOS a man standing on a field EOS



SOS a man in a field EOS



SOS a train with a clock on a street EOS



SOS a man in a tennis with a tennis on a tennis EOS



SOS a train of a clock on a street EOS



SOS a man is sitting on a table EOS



SOS a man in a building EOS



SOS a plate of a plate of a table with a table EOS



SOS a man is in a tennis EOS



SOS a bus is parked on a street EOS



SOS a group of elephants standing on a field EOS



SOS a giraffe standing in the grass EOS



SOS a large sign sign with a clock on a street EOS



SOS a man is playing a tennis ball EOS



SOS a large boat is sitting on a beach EOS



SOS a man holding a woman holding a table EOS



SOS a person is flying a kite in the water EOS



SOS a plate of a plate of food and a plate of food EOS



SOS a man riding a surfboard on a beach EOS



SOS a red and white bus is parked on a street EOS



SOS a group of elephants standing in a field EOS



SOS a herd of sheep grazing in a field EOS



SOS a street sign with a clock on it EOS



SOS a man holding a tennis racket on a tennis court EOS



SOS a boat boat on a beach with a boat EOS



SOS a man is holding a cell phone EOS



SOS a man flying a kite on a runway EOS



SOS a plate of food on a plate EOS



SOS a man in a wetsuit suit on a surfboard EOS



SOS a bus is parked on a street EOS



SOS a group of elephants standing in a field EOS



SOS a giraffe standing in a field with a tree EOS



SOS a large building with a clock on the side of a street EOS



SOS a man is holding a tennis racket on a tennis court EOS



SOS a boat is sitting on a river EOS



SOS a man is holding a cell phone EOS



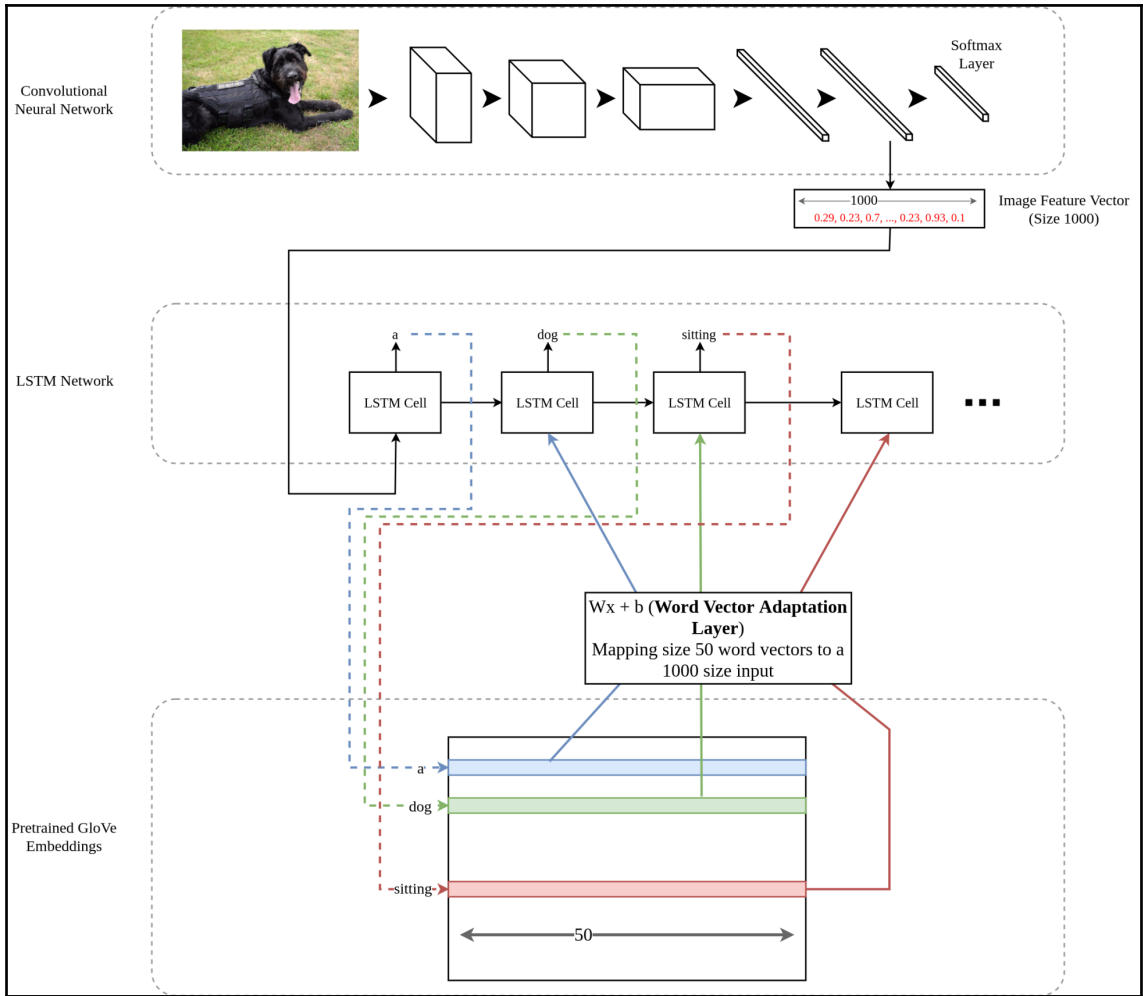
SOS a large jet flying through the sky EOS



SOS a plate of food with a sandwich and a sandwich EOS



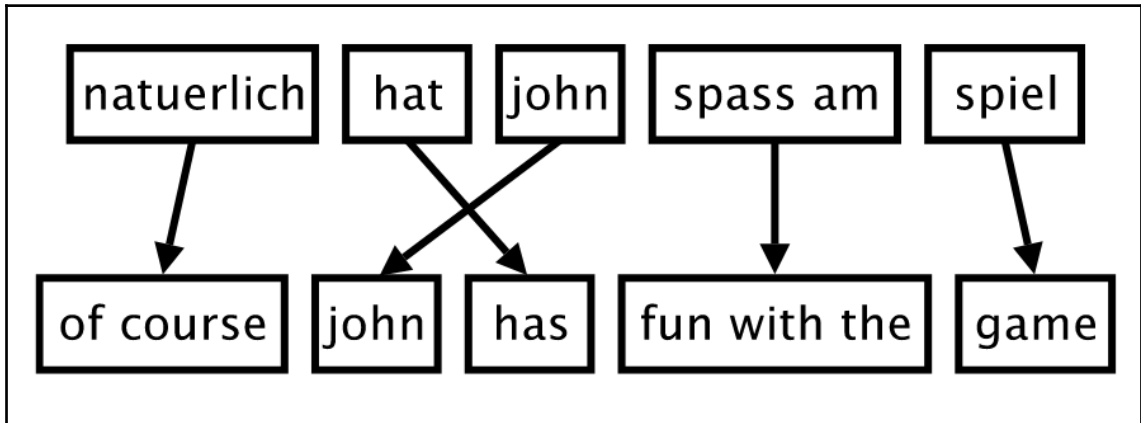
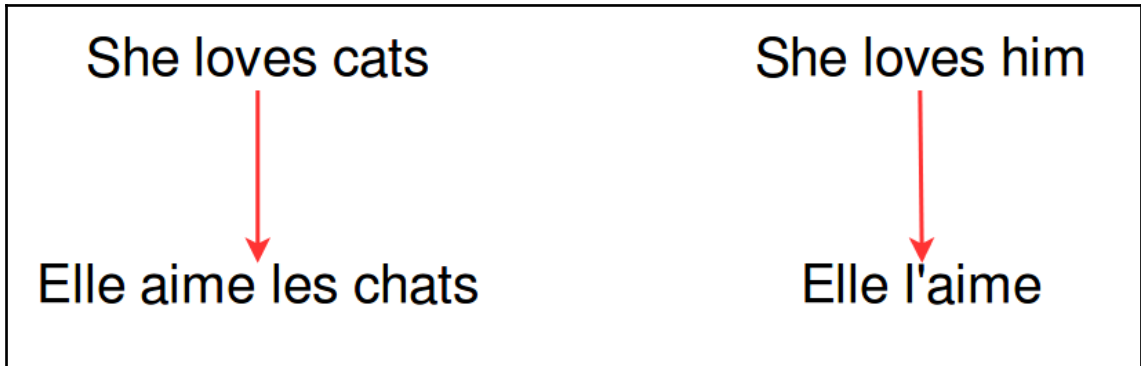
SOS a man riding a surfboard on a surfboard EOS

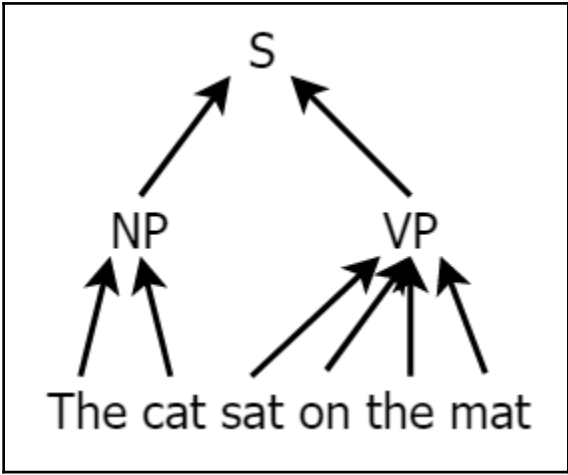


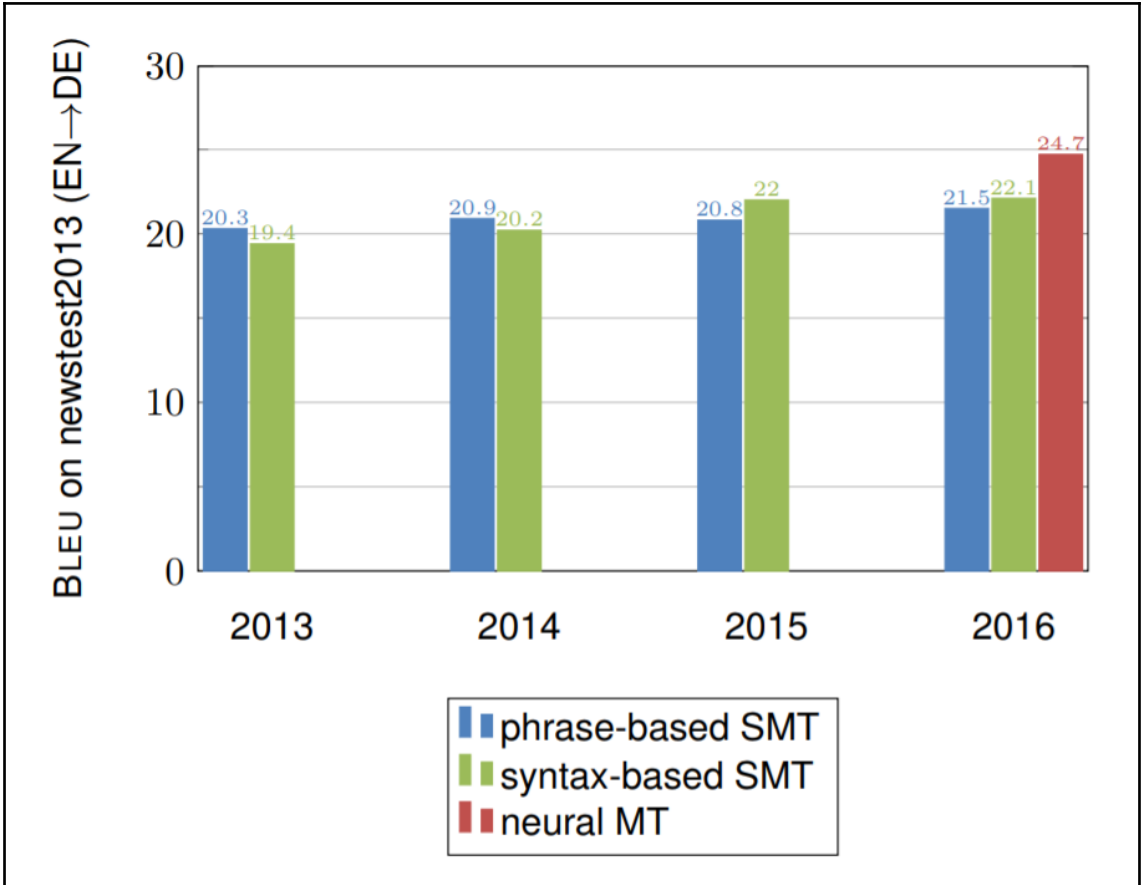


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## Chapter 10: Sequence-to-Sequence Learning – Neural Machine Translation

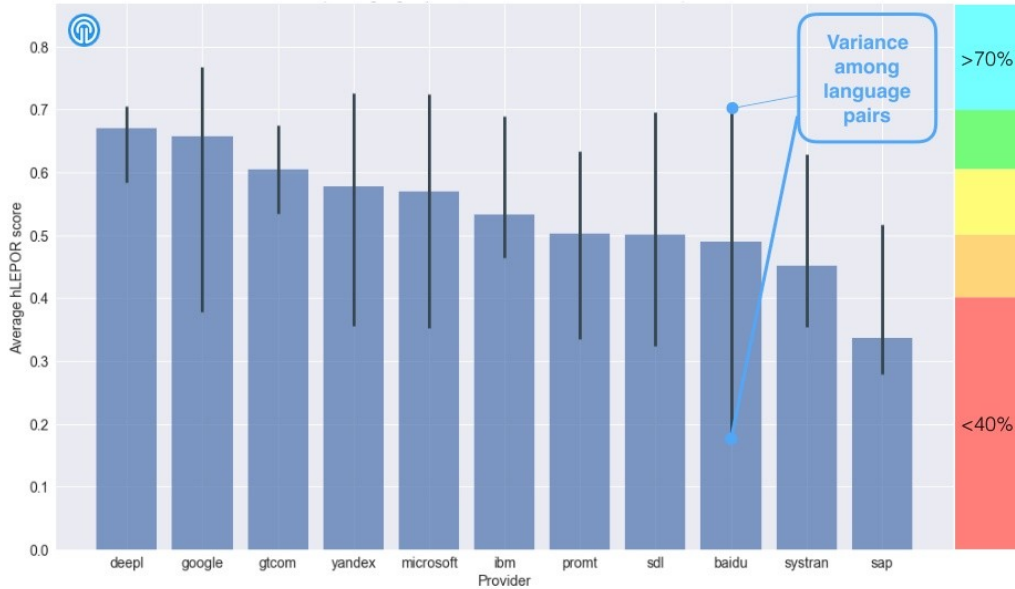




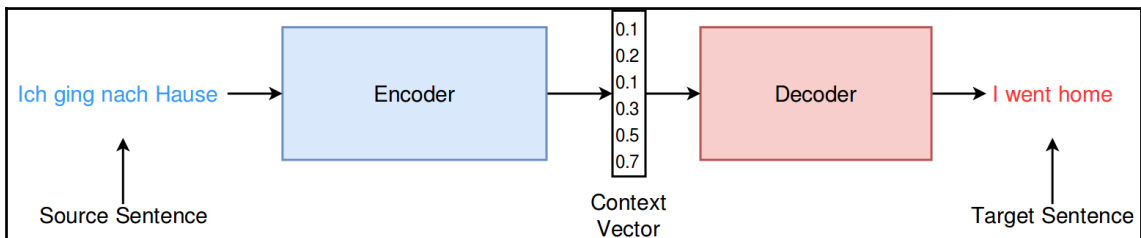


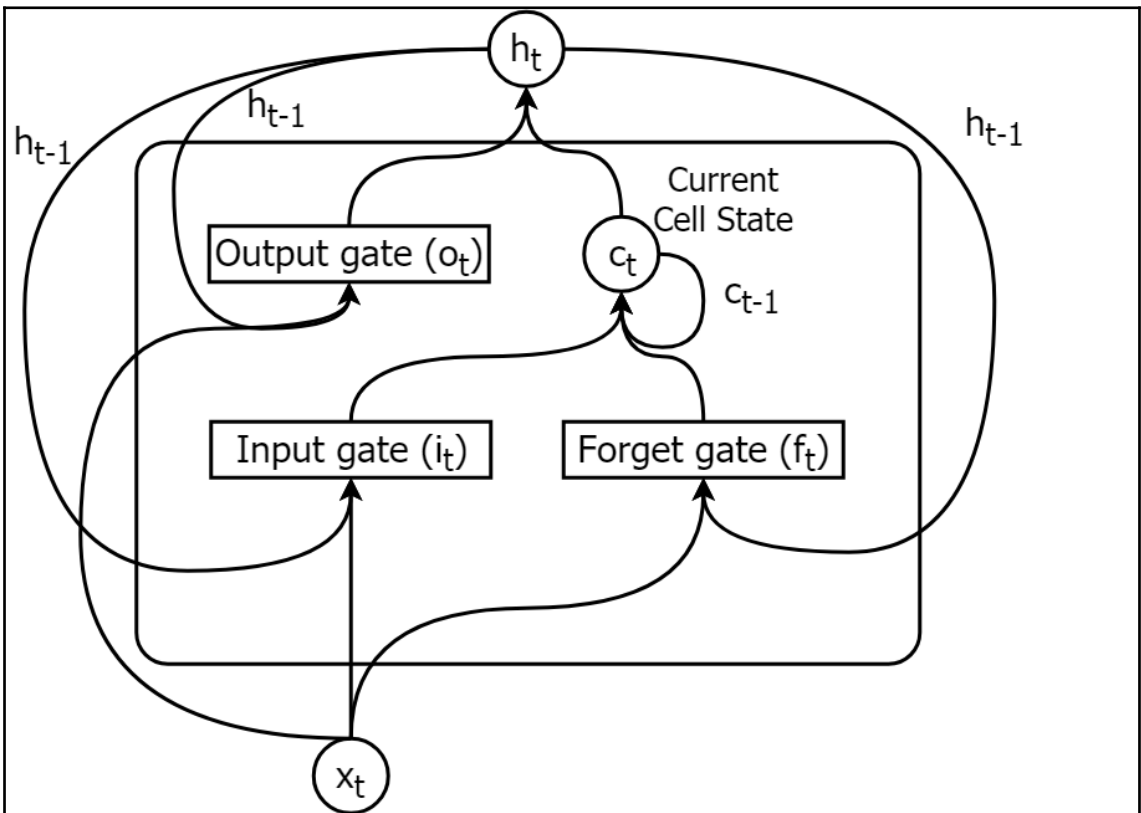
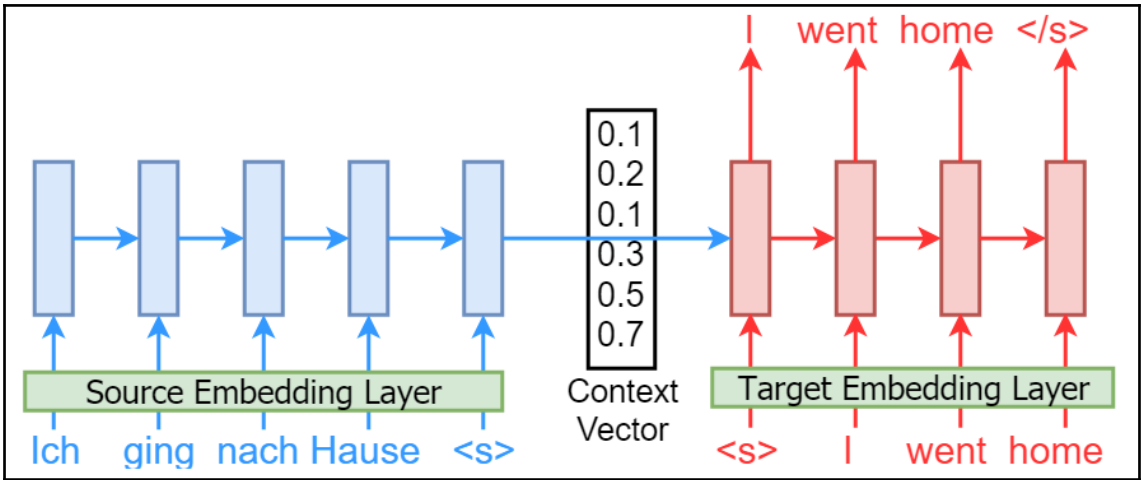
# Overall Performance

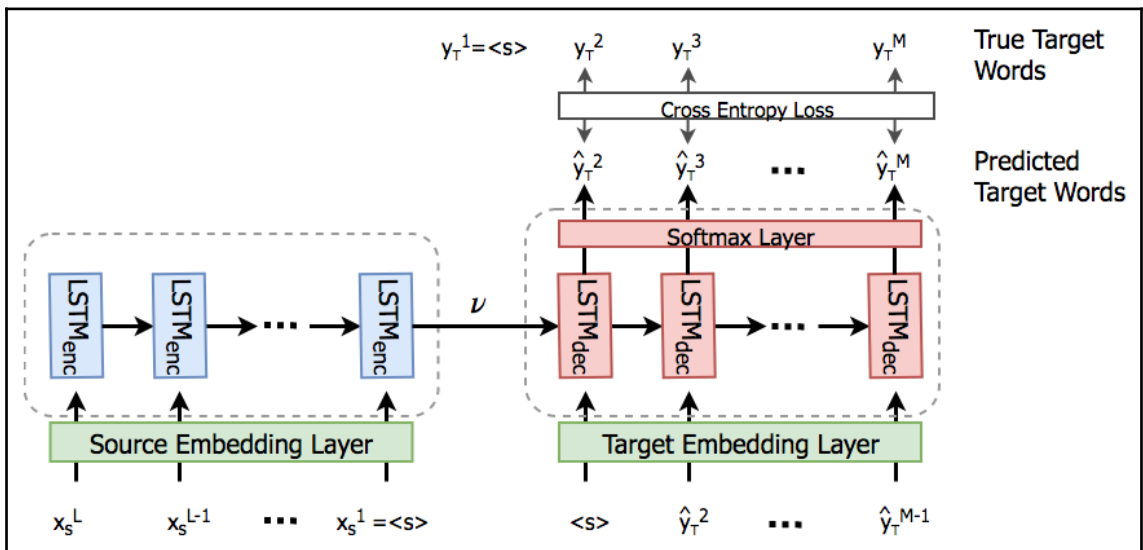
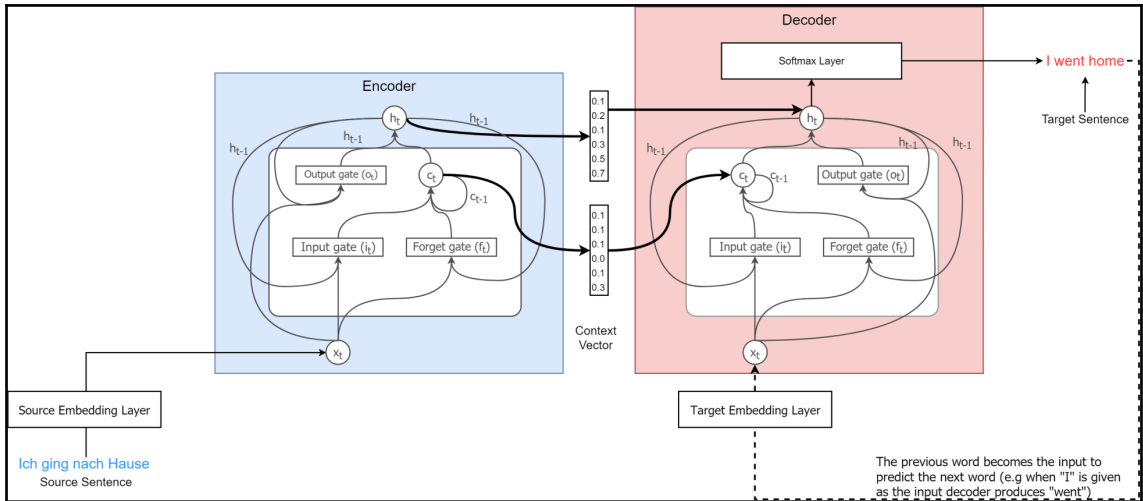
35 language pairs, 1440-3000 sentences per pair

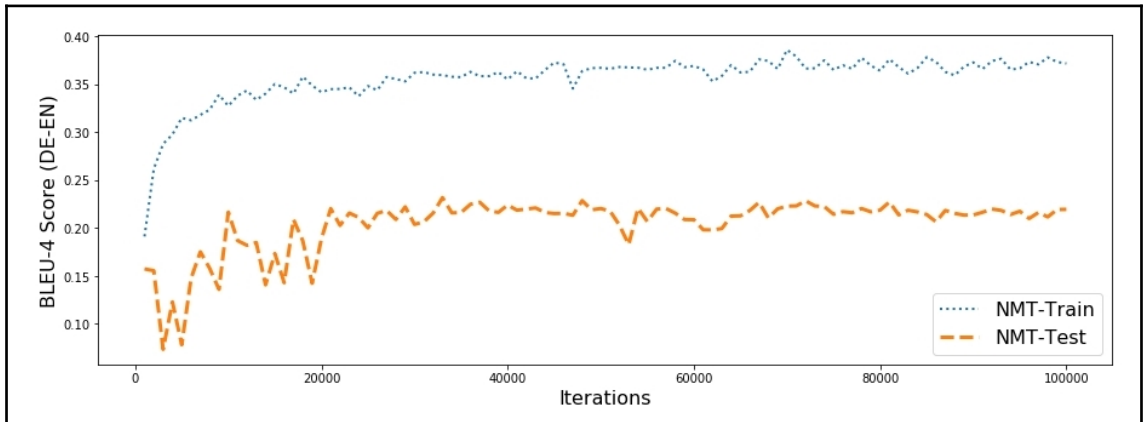
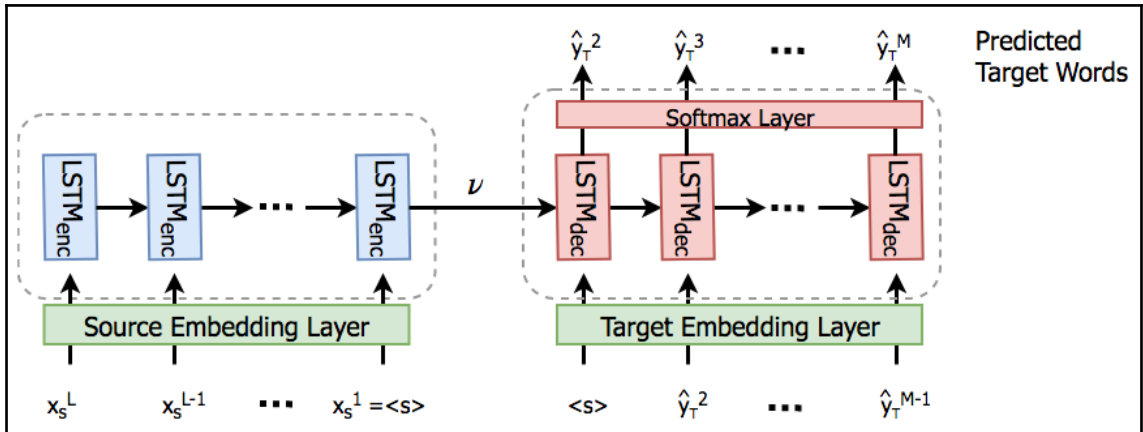


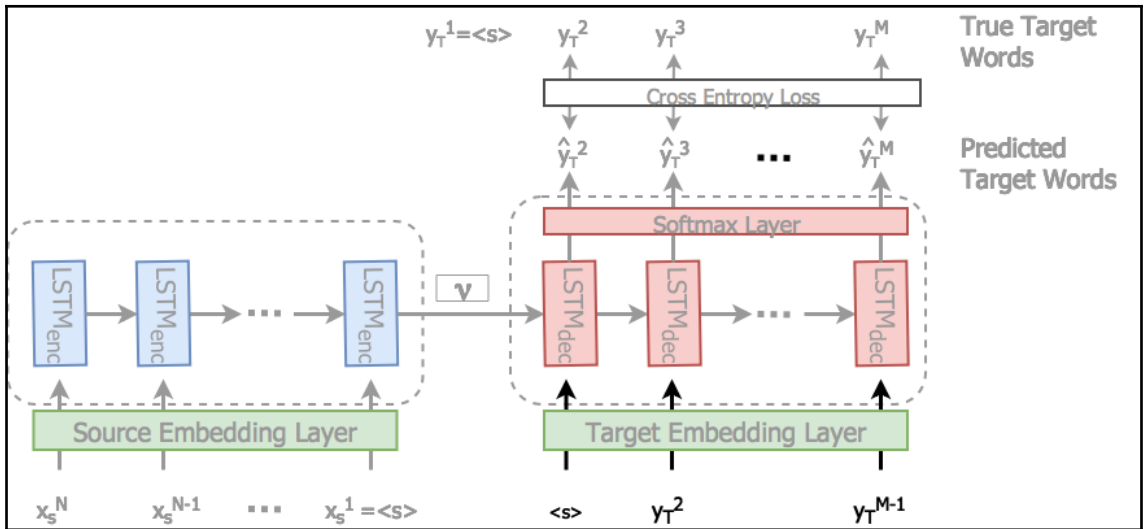
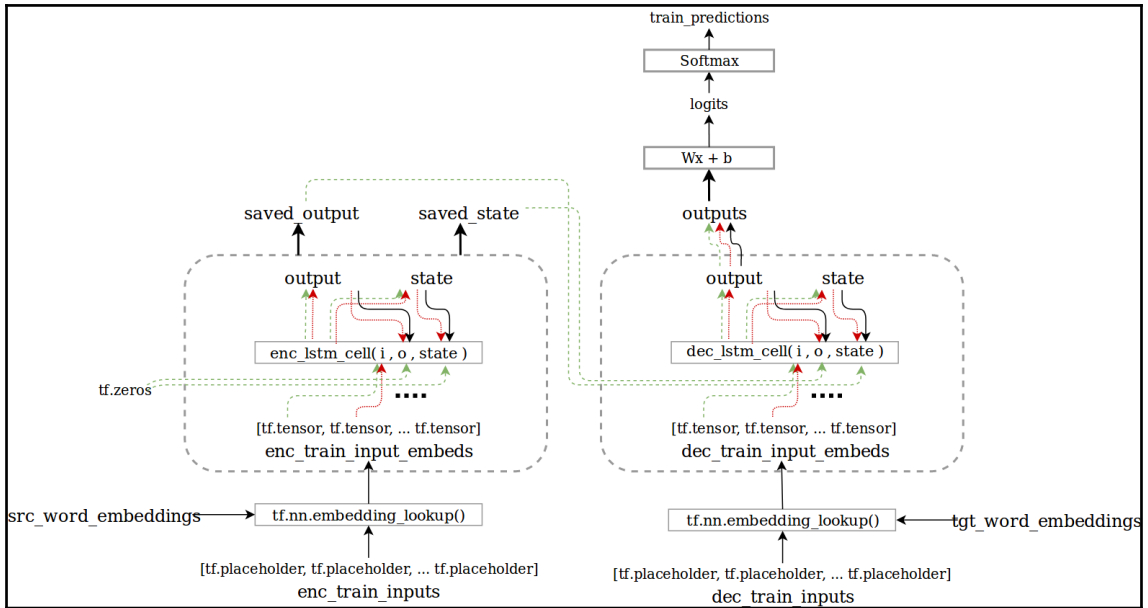
Detailed data on each language pair provided in the full report



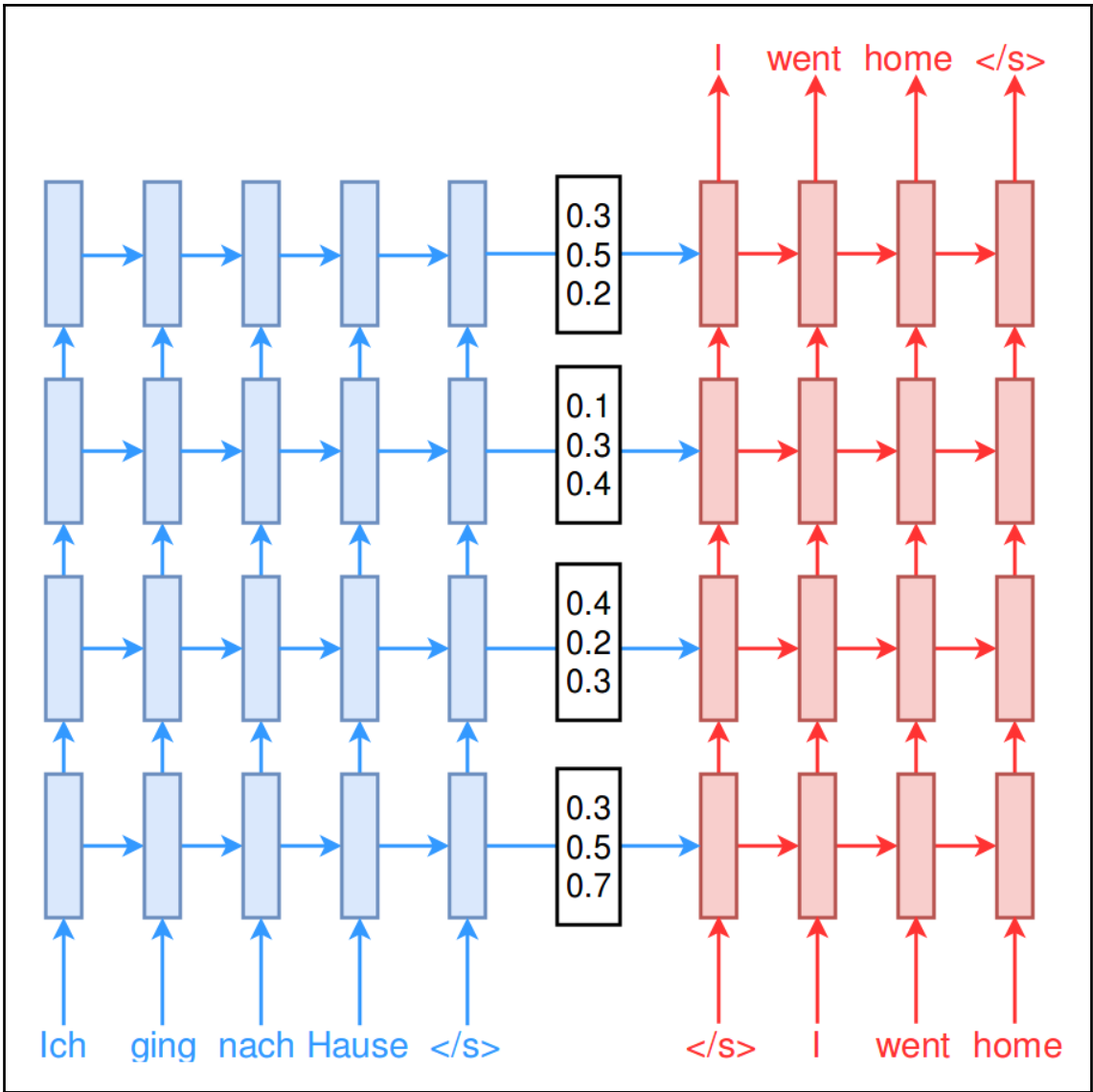


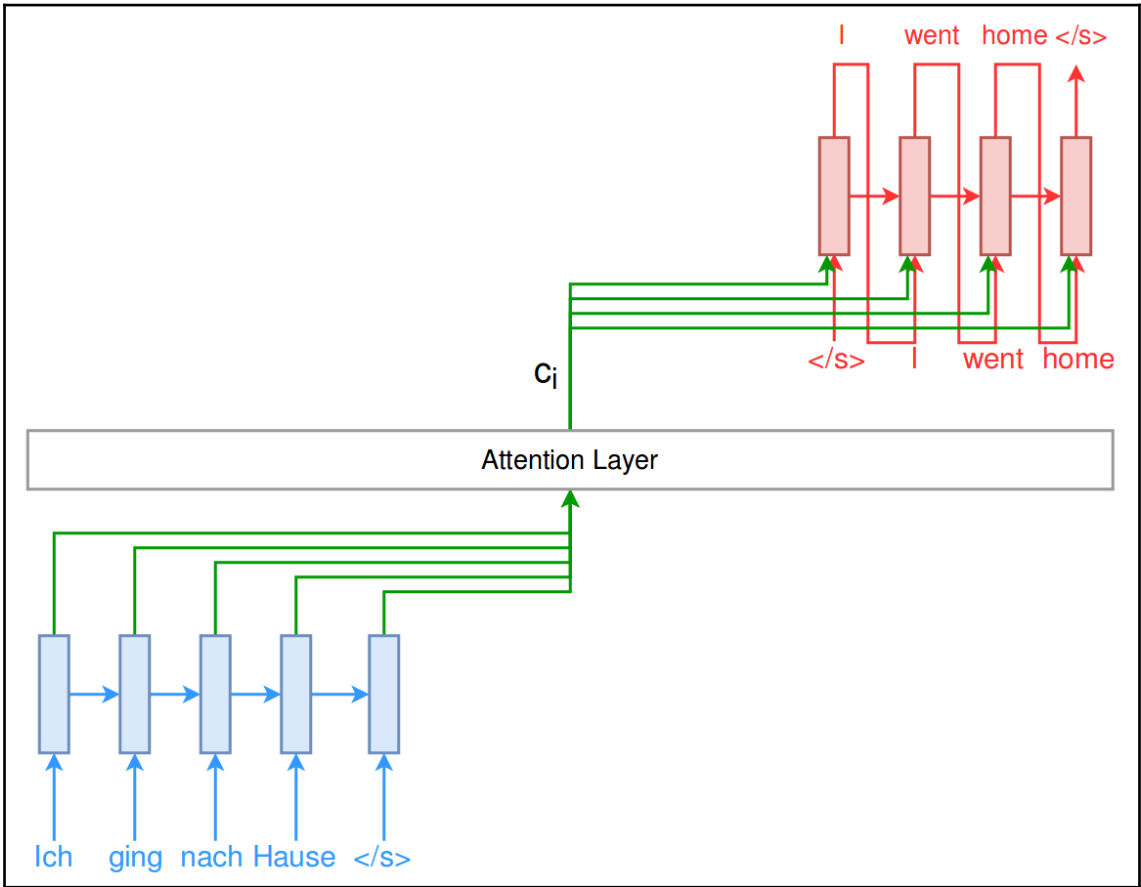
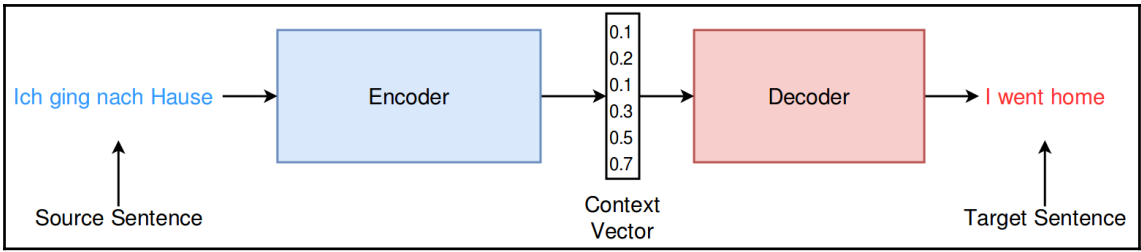


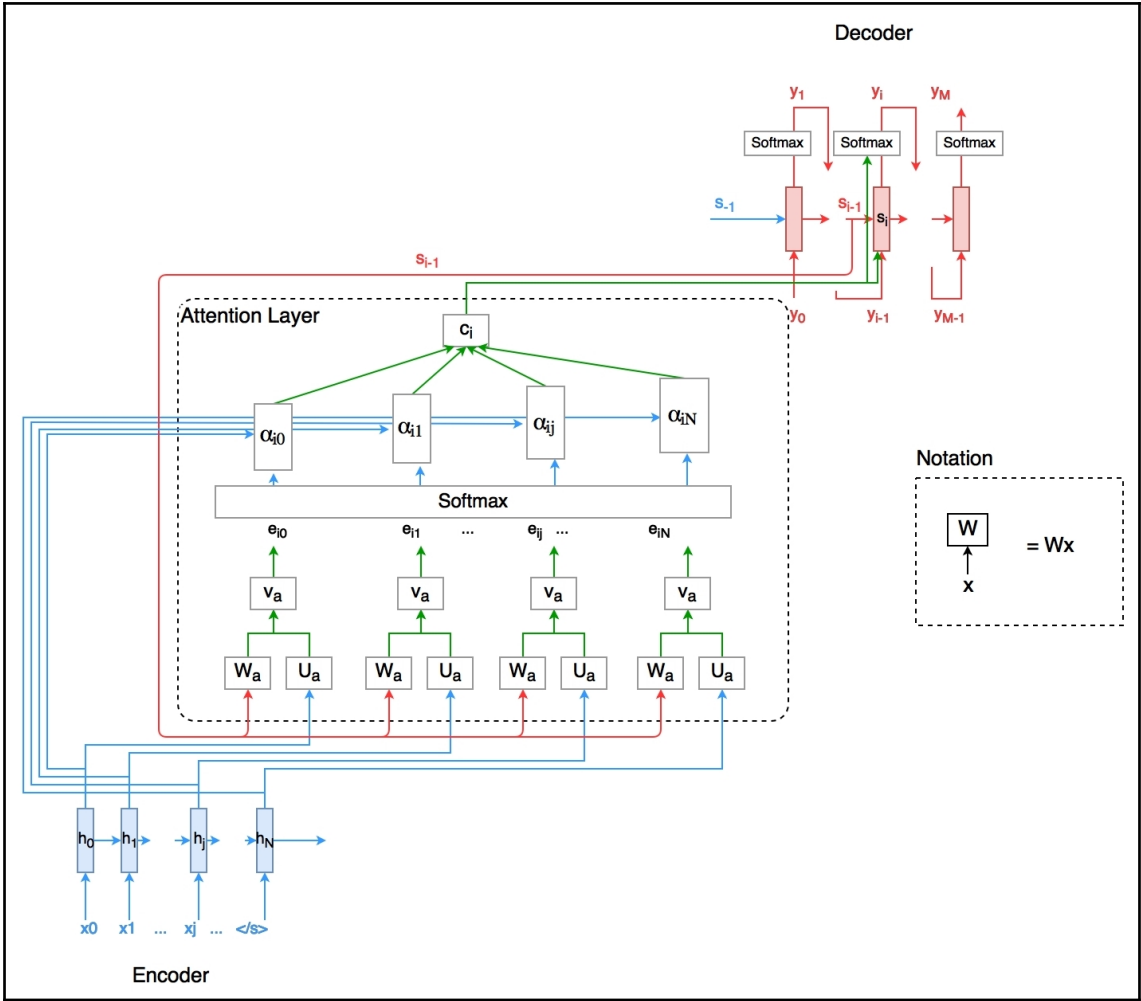


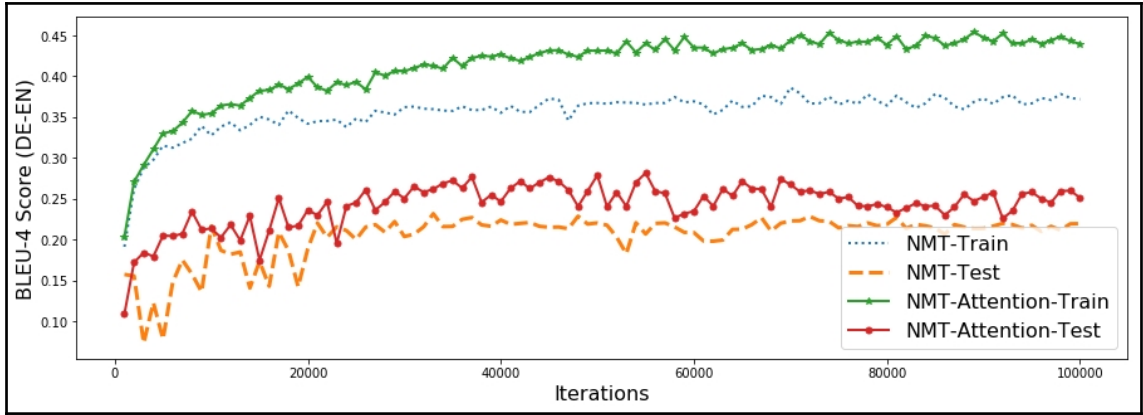


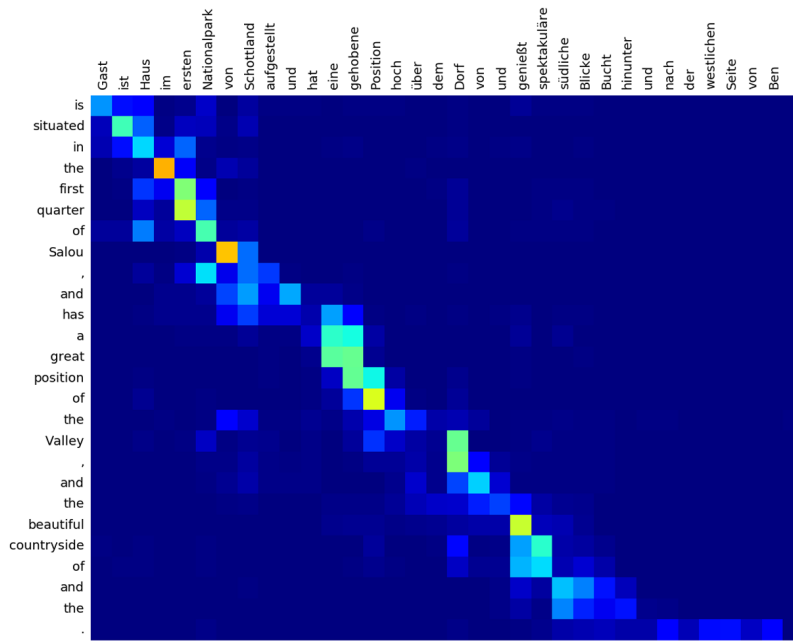
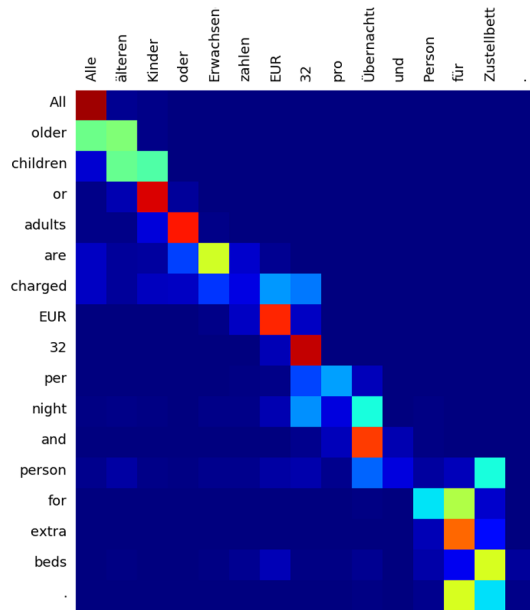
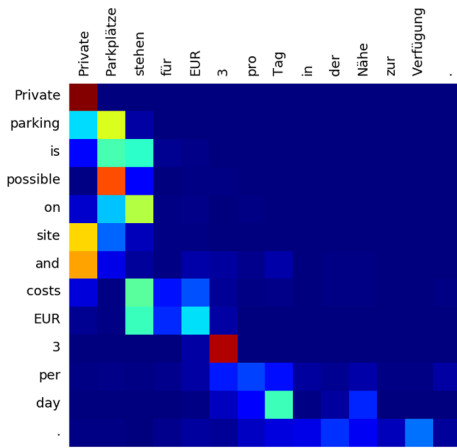


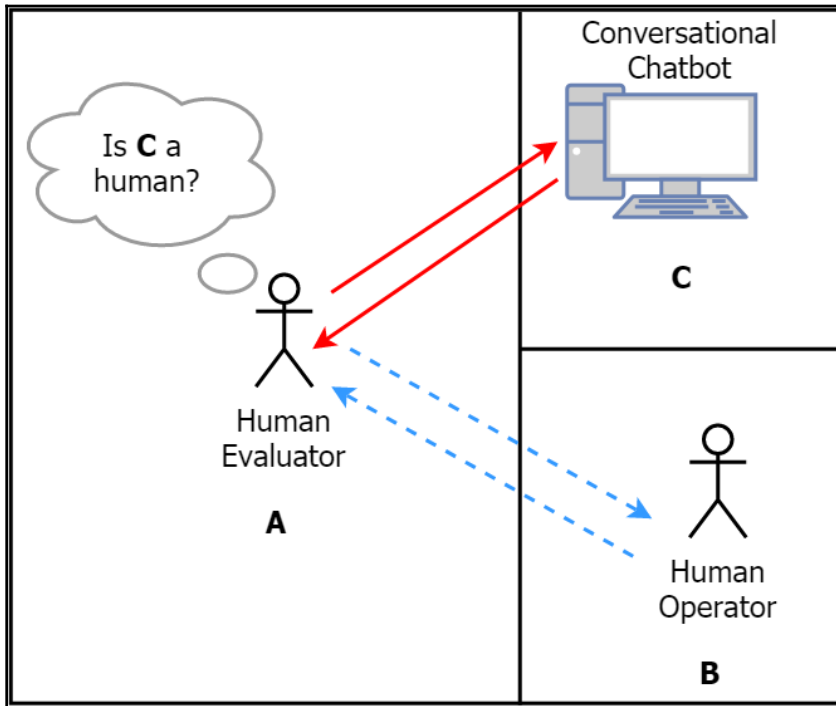
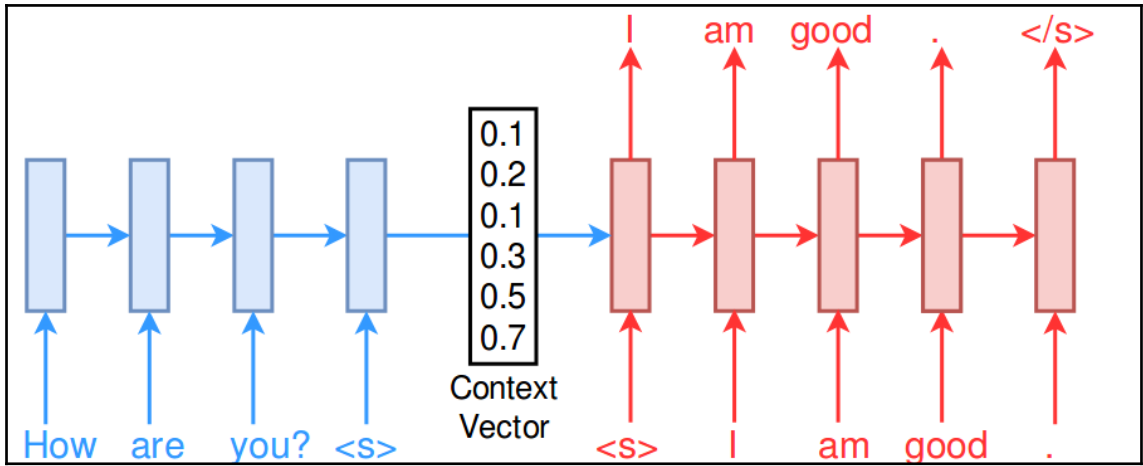




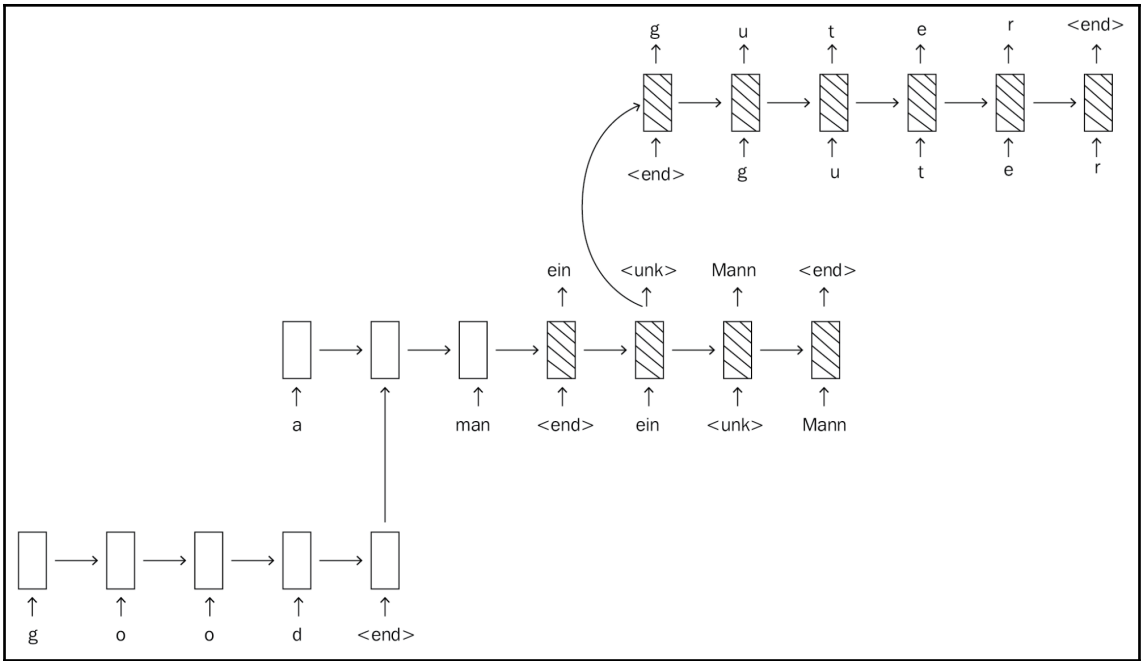
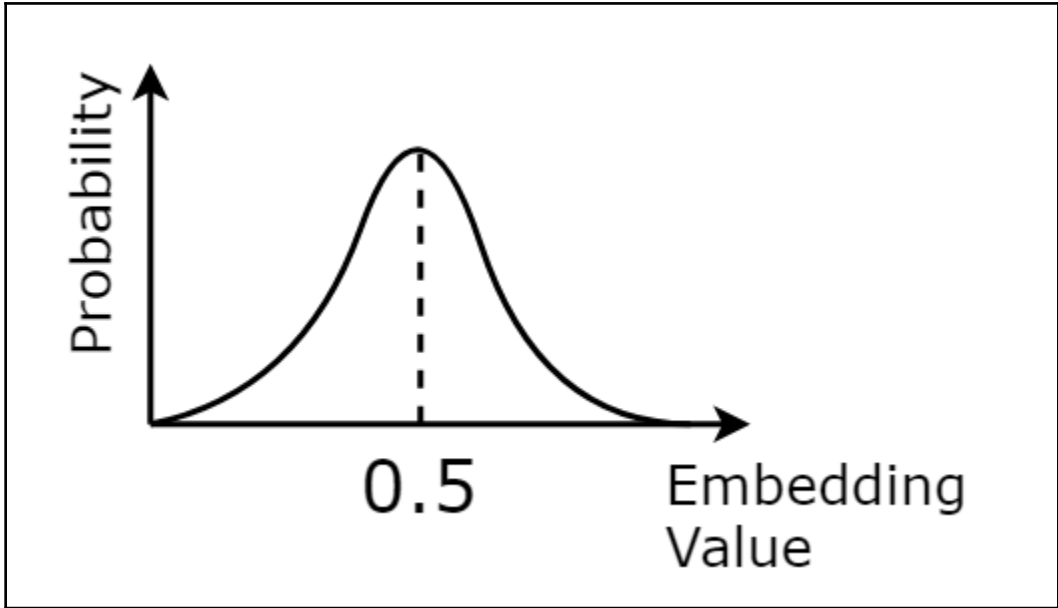






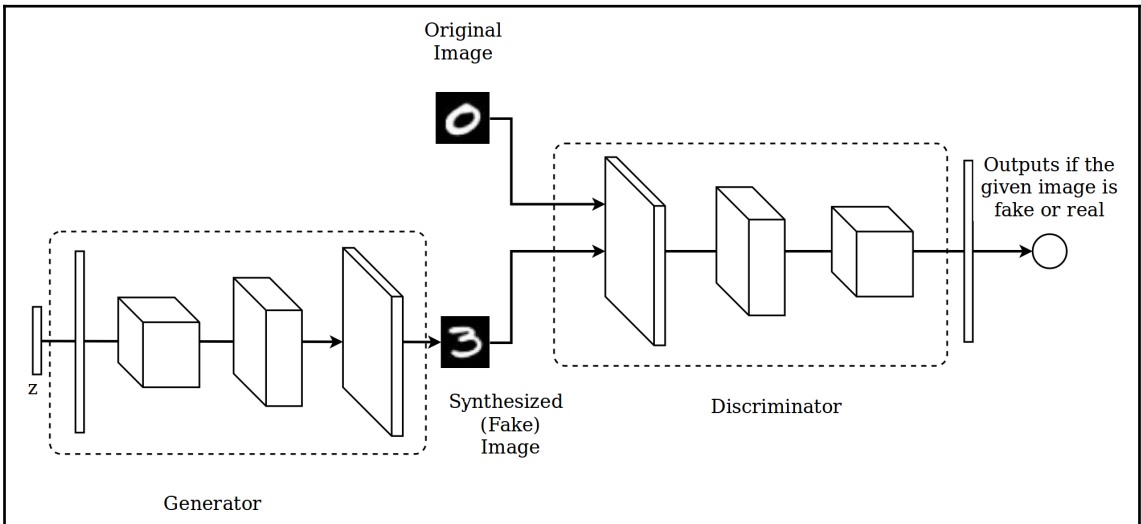
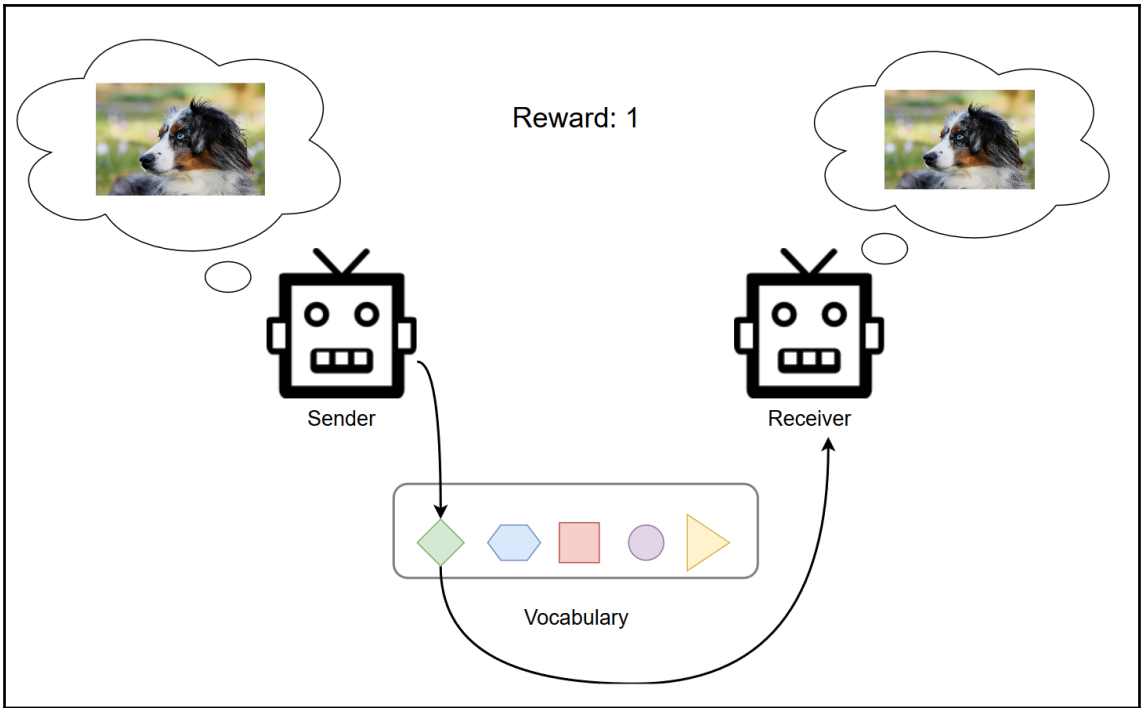


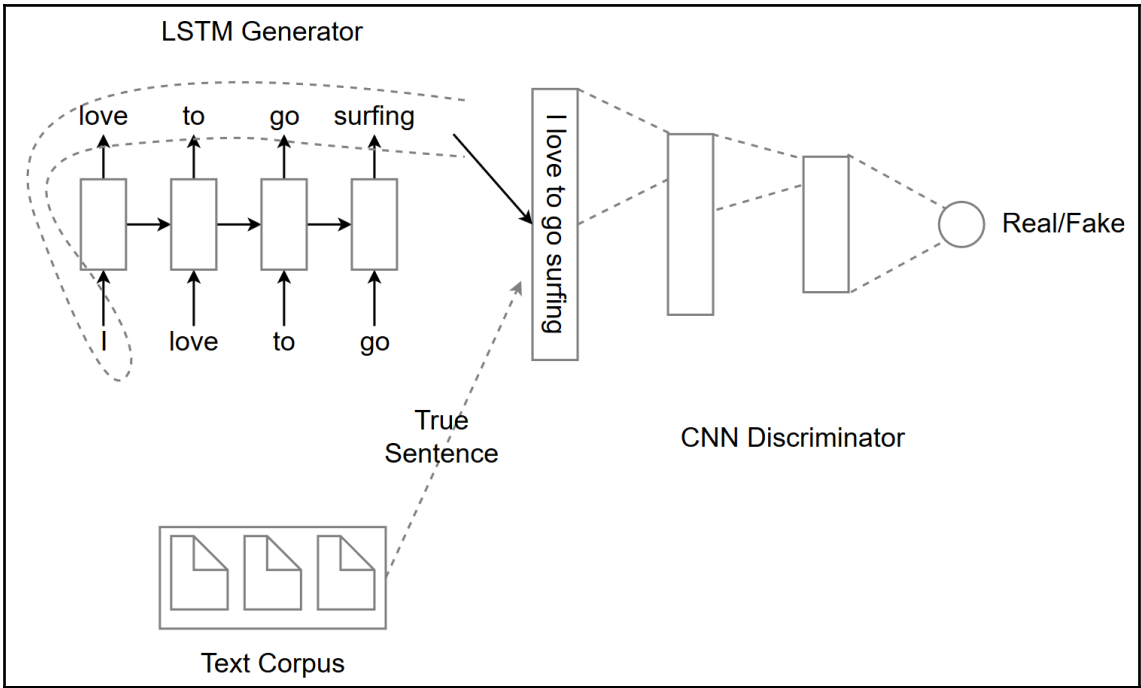


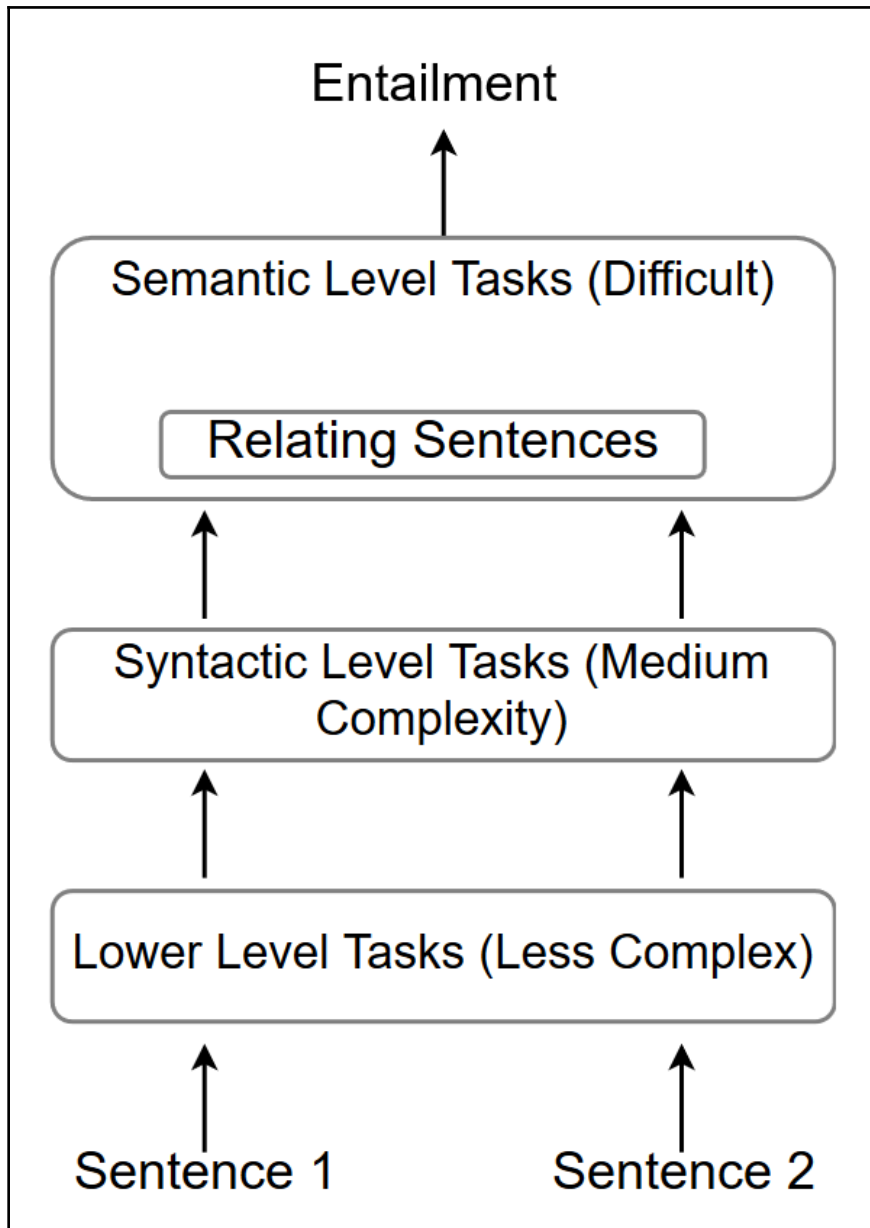


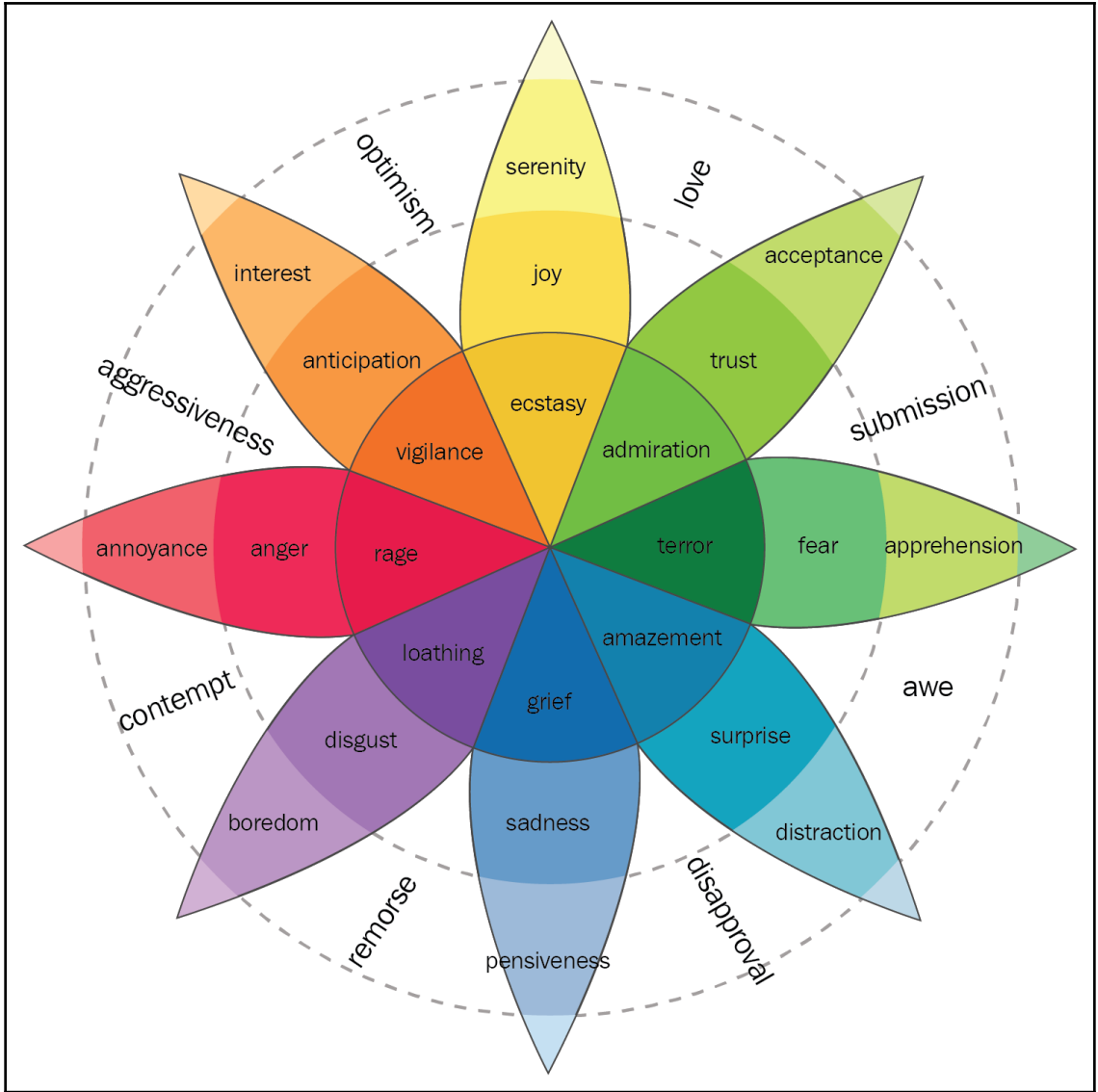


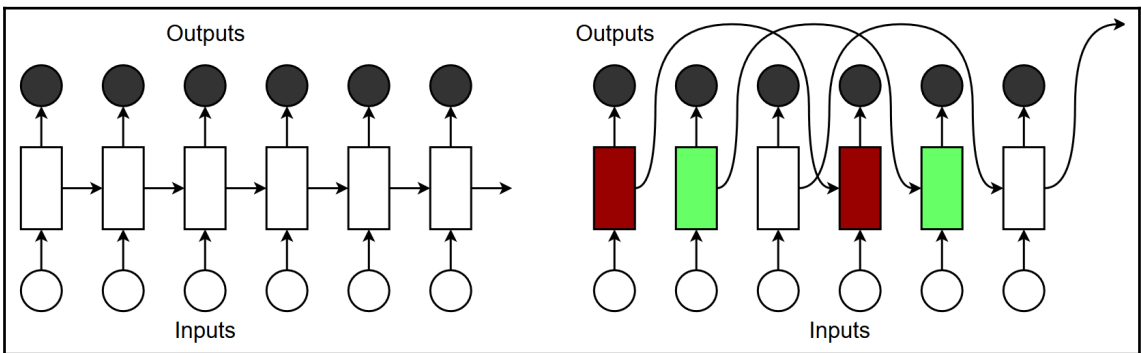
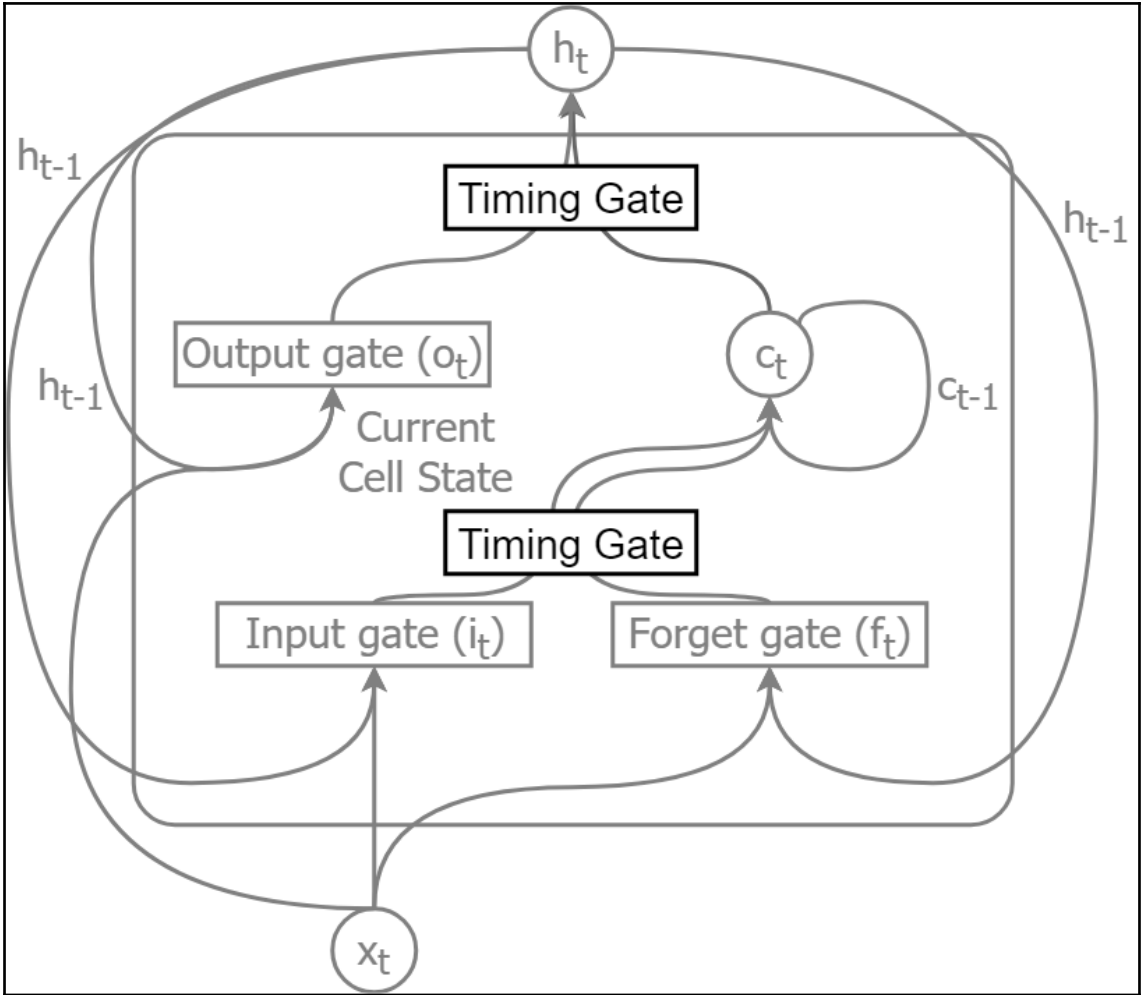












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## Chapter 12: Mathematical Foundations and Advanced TensorFlow

