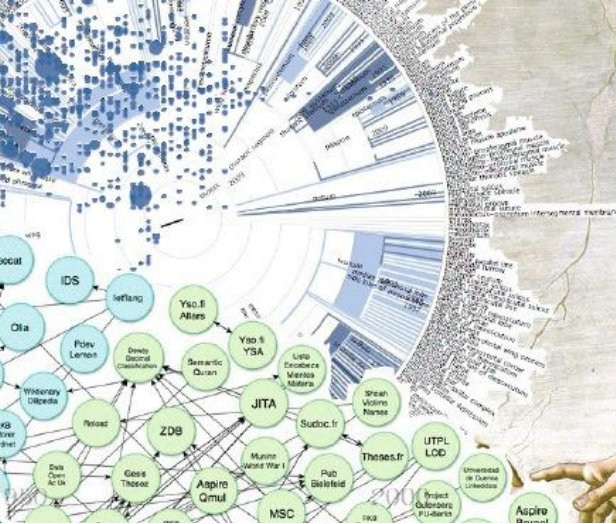




1.1 Information and Knowledge



HPI Hasso Plattner Institut



Leibniz Institute for Information Infrastructure
Karlsruhe Institute of Technology
Spring 2018

Information Service Engineering

Lecture 1: Natural Language Processing

1.1 Information and Knowledge

1.2 Language and Understanding

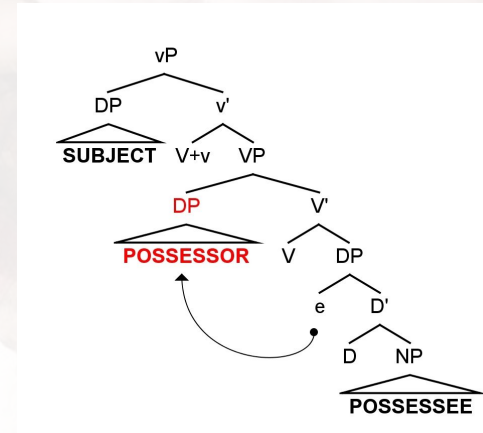
1.3 NLP Techniques and Challenges

1.4 Linguistic Basics

1.5 Morphology

1.6 Evaluation, Precision and Recall

1.7 Regular Expressions



Find a solution for the following question:

- **Who was the first man on the Moon?**

About 167.000.000 results (0,71 seconds)

Neil Armstrong

Apollo 11's mission was to land two men on the moon. They also had to come back to Earth safely. **Apollo 11** blasted off on July 16, 1969. **Neil Armstrong, Edwin "Buzz" Aldrin** and **Michael Collins** were the astronauts on **Apollo 11**. Jan 16, 2008



[NASA - The First Person on the Moon](#)

<https://www.nasa.gov/audience/forstudents/k-4/stories/first-person-on-moon.html>

About this result Feedback

People also ask

- Who was the first man to touch the moon?
- Who have walked on the moon?
- Who was supposed to be the first man to step on the moon?
- Who was the first to reach the moon?

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by H Deiss - 2008

Jan 16, 2008 - **Apollo 11's** mission was to land two men on the moon. They also had to come back to Earth safely. **Apollo 11** blasted off on July 16, 1969. **Neil Armstrong, Edwin "Buzz" Aldrin** and **Michael Collins** were the astronauts on **Apollo 11**.

Apollo 11

Space mission



Apollo 11 was the spaceflight that landed the first two humans on the Moon. Mission commander Neil Armstrong and pilot Buzz Aldrin, both American, landed the lunar module Eagle on July 20, 1969, at 20:18 UTC. [Wikipedia](#)

Launch date: July 16, 1969, 6:32 AM GMT-7

Dates: Jul 16, 1969 – Jul 24, 1969

Crew size: 3

Reference system: [Lunar orbit](#)

Members: [Neil Armstrong](#), [Michael Collins](#), [Buzz Aldrin](#)

Manufacturers: [Rockwell International](#) (CSM), [Grumman](#) (LM)

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- **Who was Neil Armstrong?**



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Neil Armstrong - Wikipedia

https://en.wikipedia.org/wiki/Neil_Armstrong ▼

Neil Alden Armstrong (August 5, 1930 – August 25, 2012) was an American astronaut, engineer, and the first person to walk on the Moon. He was also an aerospace engineer, naval aviator, test pilot, and university professor. Before becoming an astronaut, **Armstrong** was an officer in the U.S. Navy and served in the Korean War ...

[Gemini 8](#) · [Wapakoneta](#) · [Space selfie](#) · [Armstrong Flight Research](#)

Biography of Neil Armstrong | NASA

<https://www.nasa.gov/centers/glenn/about/bios/neilabio.html> ▼

National Aeronautics and Space Administration John H. Glenn Research Center Lewis Field Cleveland, Ohio 44135. **Neil A. Armstrong**, the first man to walk on the moon, was born in Wapakoneta, Ohio, on August 5, 1930. He began his NASA career in Ohio. After serving as a naval aviator from 1949 to 1952, **Armstrong** ...

Who Was Neil Armstrong? | NASA

<https://www.nasa.gov/audience/forstudents/k-4/.../who-was-neil-armstrong-k4.html> ▼

Neil Armstrong was the first person to walk on the moon.

Neil Armstrong - Pilot, Explorer, Astronaut - Biography.com

<https://www.biography.com/people/neil-armstrong-9188943> ▼

Apr 27, 2017 - Learn more about famous astronaut **Neil Armstrong** military pilot, Korean War veteran, and first man on the moon on Biography.com.

Neil Armstrong - Facts & Summary - HISTORY.com

www.history.com/topics/neil-armstrong ▼

Find out more about the history of **Neil Armstrong**, including videos, interesting articles, pictures, historical features and more. Get all the facts on HISTORY.com.



More images

Neil Armstrong



American astronaut

Knowledge Graph

Neil Alden Armstrong was an American astronaut, engineer, and the first person to walk on the Moon. He was also an aerospace engineer, naval aviator, test pilot, and university professor. [Wikipedia](#)

Born: August 5, 1930, [Wapakoneta, Ohio, United States](#)**Died:** August 25, 2012, [Cincinnati, Ohio, United States](#)**Space missions:** [Apollo 11](#), [Gemini 8](#)**Spouse:** [Carol Held Knight](#) (m. 1994–2012), [Janet Shearon](#) (m. 1956–1994)**Children:** [Karen Armstrong](#), [Mark Armstrong](#), [Eric Armstrong](#)

Quotes

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That's one small step for a man, one giant leap for mankind.

How to answer the Question without the Web?

- **Who was Neil Armstrong?**

CITY FORECAST
(To midnight tomorrow)
Light variable winds.
Fine. Frosts. Moderate
day temperatures.

Outlook: Partly cloudy.

Phone forecast: 364800

The Auckland Star

MOON SPECIAL

HOME EXTRA

Price 4c

Moonday, July 21, 1969

MAN'S WALK ON THE MOON

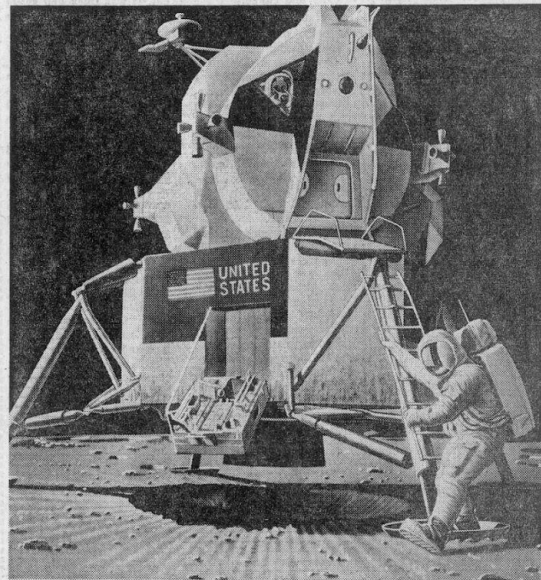
Apollo 11 commander Neil Armstrong left the Eagle landing craft to take man's first step on the moon shortly after 2.40 this afternoon.

After he and Edwin Aldrin changed into their bulky space suits in the tiny moon craft—a task likened to that of two women dressing for a ball in a telephone box—the Eagle was depressurized.

The hatch was opened and Armstrong climbed out into the airless lunar atmosphere and began a slow climb down the ladder to the dusty surface.

His first task was to walk a short distance then return to the ladder, to ensure he could get back safely.

Then the remaining tasks of the walk—with Aldrin helping—were to begin.



The men
who
did it



Armstrong's descent from Eagle to the moon's surface was delayed because it took longer than expected for him and Aldrin to struggle into their bulky moon-suits.

They also took longer than expected to

There was little conversation between the moonship and earth as the astronauts readied the capsule for the walk.

As he donned his spacesuit helmet, Aldrin commented: "Sure wish I'd shaved last night."

At 2.26 p.m. they began venting the oxygen in their small cabin into the near vacuum of the lunar wilderness, letting the environment of the moon come in.

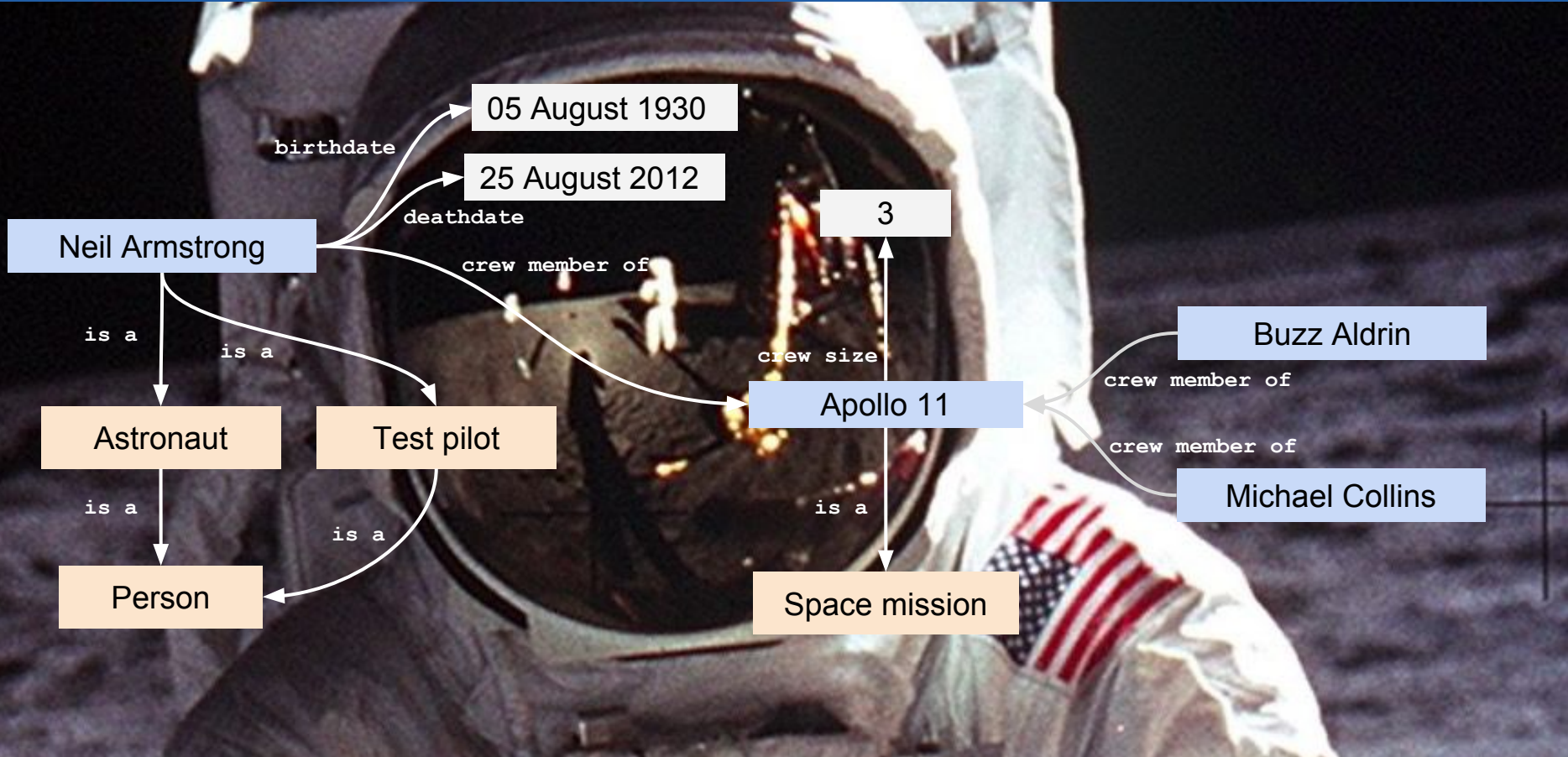
extremely good to poor, though they were able to make themselves understood most of the time.

The moon men's voices are transmitted to their spacecraft by very high frequency radios contained in the back packs of their spacesuits, and automatically relayed back to earth.

Most of the conversation as the astronauts prepared for their walk on the lunar surface

Information Service Engineering

1.1 Information and Knowledge



- From **Natural Language Text** to **(formal) Knowledge Representation**
 - Information Extraction
 - Natural Language Processing



Language and Understanding

Next Lecture...

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- P.9: Photo: NASA, <https://flic.kr/p/wpyTJY>
- P.11: Pieter Bruegel the Elder, The Tower of Babel (1563)