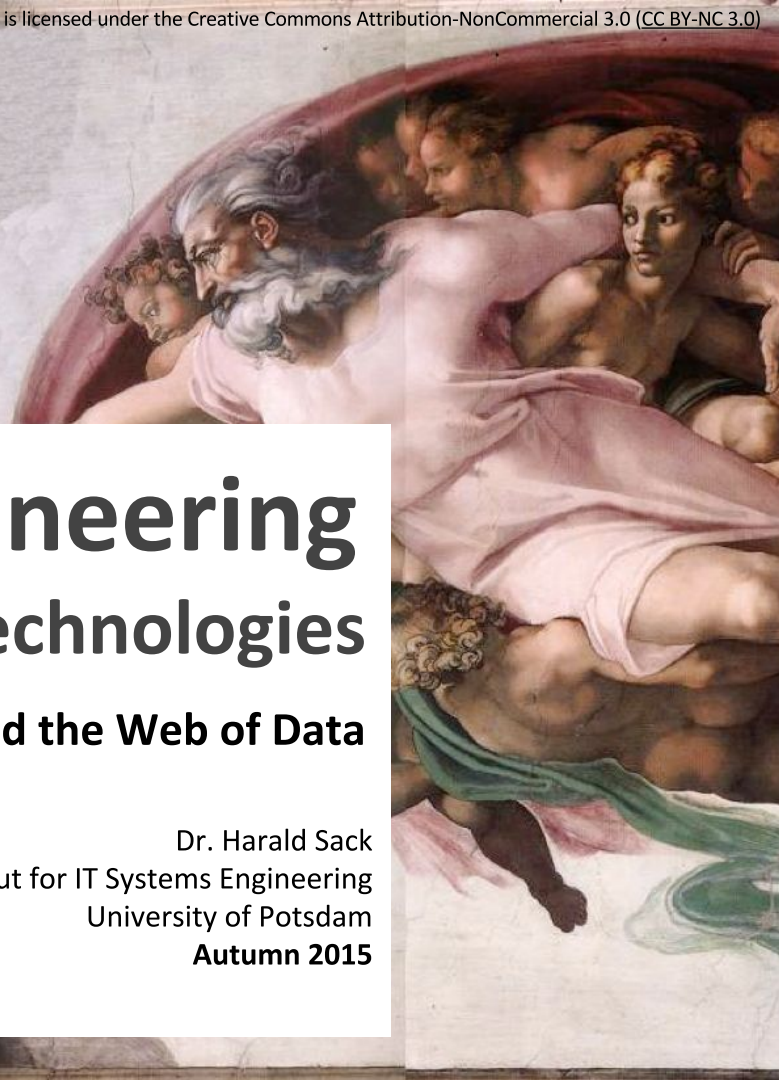
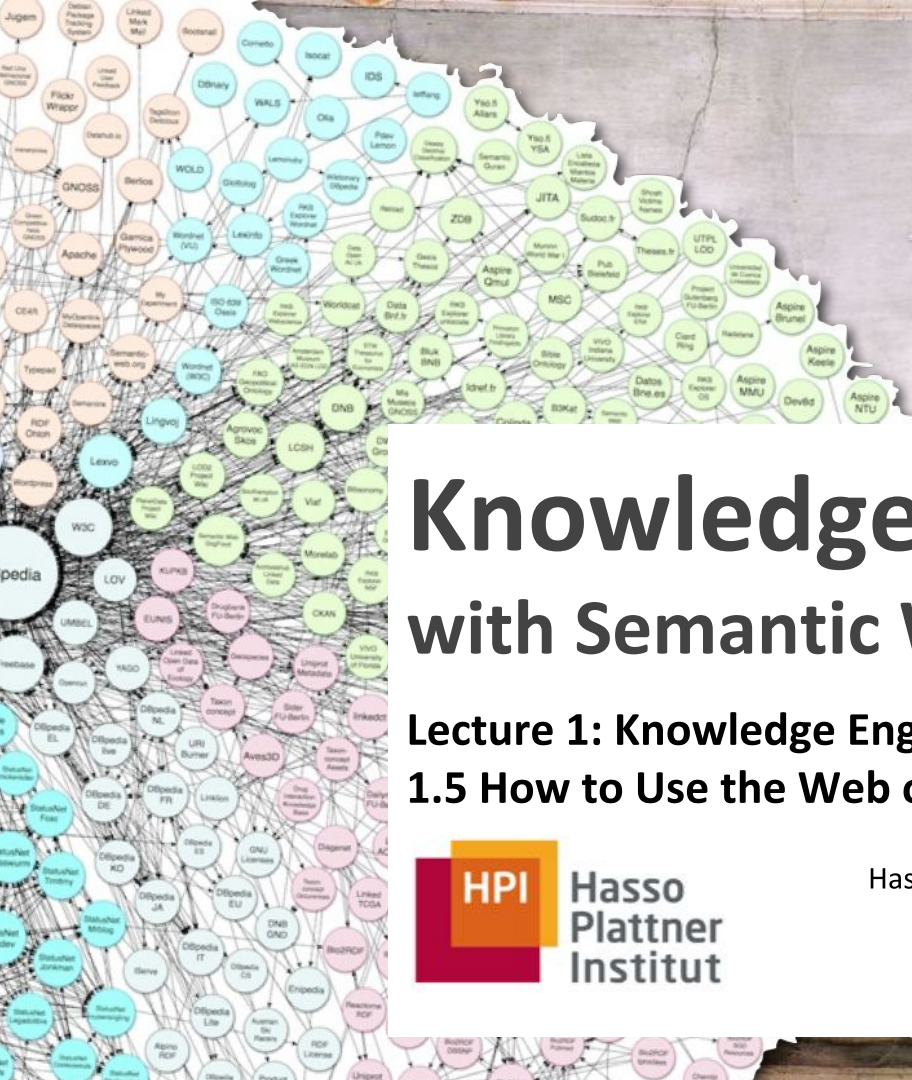




Knowledge Engineering with Semantic Web Technologies

Lecture 1: Knowledge Engineering and the Web of Data 1.5 How to Use the Web of Data



Dr. Harald Sack
Hasso-Plattner-Institut for IT Systems Engineering
University of Potsdam
Autumn 2015

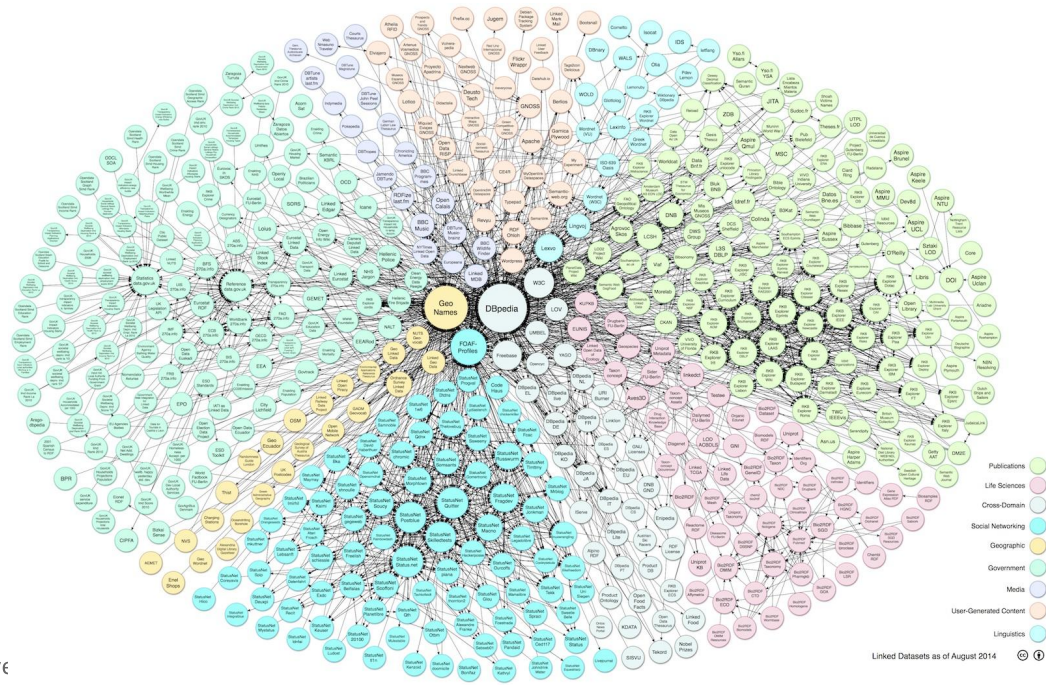
The Web of Data and how we make use of it

Linked Data

- Linked Open Data (LOD) denote publicly available (RDF) Data in the Web, identified via URI and accessible via HTTP. Linked data link to other data via URI.

The Web of Data

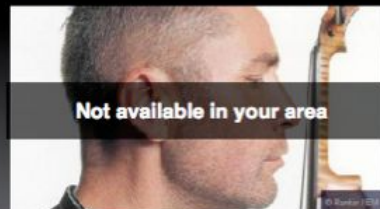
- 9,960 datasets
- >85 billion facts
- >800 million links
(Aug. 2015)



<http://stats.lod2.eu/>
<http://lod-cloud.net/>

Johann Sebastian Bach

Born 21 März 1685. Died 28 Juli 1750.



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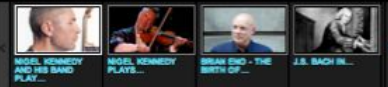
BBC PROMS

Nigel Kennedy And His Band Play Bach

At the late night Prom, Nigel Kennedy and his band play arrangements of pieces by Bach.

JOHANN SEBASTIAN BACH 1-4 OF 15

Featured on BBC MUSIC SHOWCASE



Biography

Born in the German town of Eisenach, J. S. Bach was a chorister then violinist before taking his first organist post at Arnstadt while still a teenager. It was in Weimar, as court organist from 1708, that Bach began to produce mostly cantatas, and wrote many of his great organ works, as well as some organ transcriptions of concertos by Vivaldi.

In 1717 Prince Leopold offered him the position of Kapellmeister at Cöthen, where he wrote the Brandenburg Concertos, the four Orchestral Suites and the violin concertos, and married his second wife Anna Magdalena, who bore 13 children. Bach's fearsome duties in his final job, as Kantor of the Thomasschule in Leipzig from 1723 until his death, involved teaching Latin and Music, choir-training, and writing and directing music for the services.

Nevertheless he managed also to write the Mass in B minor, the six choral Motets, The Art of Fugue, The Musical Offering and Goldberg Variations during this time. His inventive contrapuntalism became unfashionable soon after his death until the early 19th century, since when his reputation has remained unquestioned.

Profile © Edward Ehesaria

Links & Information

LINKS

Biography at jebach.org and pbs.org/national/education/bach.html
Wikipedia article on Johann Sebastian Bach
IMDb at imdb.com/name/nm0001925
Last.fm page on Johann Sebastian Bach
Discogs at discogs.com/artist/Johann-Sebastian-Bach
MusicBrainz entry on Johann Sebastian Bach

PERSONAL RELATIONSHIPS

Parent of Johann Christoph Friedrich Bach, Johann Christian Bach, Wilhelm Friedemann Bach and Carl Philipp Emanuel Bach

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- 2 Concerto for keyboard and orchestra BWV1054 in D minor - II Adagio

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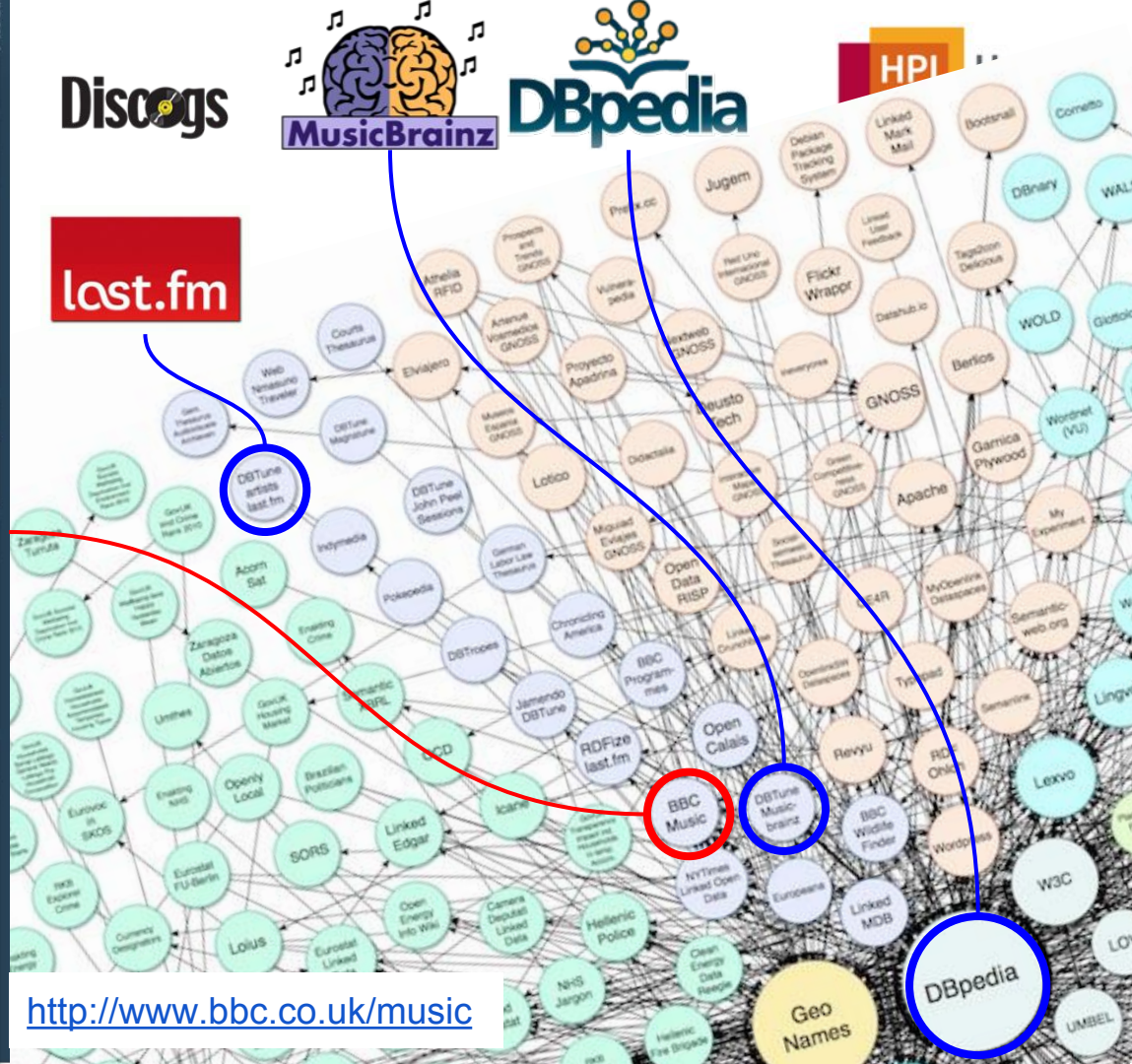


The Early Music Show
BBC Radio 3

Discogs



lost.fm



<http://www.bbc.co.uk/music>

What is so special about the BBC Music Website?

- Information is dynamically aggregated from external, publicly available data (Wikipedia, MusicBrainz, Last.FM, Discogs,...)
- no Screen Scraping
- no specialized API
- all data available as Linked Open Data
- data access via simple HTTP Request
- data is always up-to-date without manual interaction

IMDb at [imdb.com/name/nm0001925](https://www.imdb.com/name/nm0001925)

Last.fm page on [Johann Sebastian Bach](#)

Discogs at [discogs.com/artist/Johann Sebastian Bach](https://www.discogs.com/artist/Johann+Sebastian+Bach)

MusicBrainz entry on [Johann Sebastian Bach](#)



In Tune
BBC Radio 3

Keyboard Concertos (piano:
Alexandre Tharaud)

1. Concerto for keyboard
and orchestra BWV1054
in D minor - I Allegro

2. Concerto for keyboard
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Neil Armstrong - Wikipedia, the free encyclopedia
https://en.wikipedia.org/wiki/Neil_Armstrong - Wikipedia
Neil Alden Armstrong (August 5, 1930 – August 25, 2012) was an American astronaut and the first person to walk on the Moon. He was also an aerospace ...
Buzz Aldrin - Gemini 8 - Congressional Space Medal of - Space selfie

Neil Armstrong - Astronaut, Explorer, Pilot - Biography.com
www.biography.com/people/neil-armstrong-9188943
Learn more about famous astronaut Neil Armstrong military pilot, Korean War veteran, and first man on the moon on Biography.com.

Biography of Neil Armstrong | NASA
<https://www.nasa.gov/centers/glenn/about/bios/neilabio.html> - NASA
Biography of Neil Armstrong. National Aeronautics and Space Administration John H. Glenn Research Center Lewis Field Cleveland, Ohio 44135. Neil A.

Who Was Neil Armstrong? | NASA
www.nasa.gov/audience/.../k.../who-was-neil-armstrong-k4.html - NASA
Neil Armstrong was the first person to walk on the moon.

Neil Armstrong, First Man on Moon, Dies at 82 - The New ...
www.nytimes.com/.../neil-armstrong-dies-first-man... - The New York Times
Aug 25, 2012 - Neil Armstrong, as photographed by Buzz Aldrin, working near the Eagle lunar module after the landing on July 20, 1969. Credit NASA.

Neil Armstrong's widow finds moon artifacts in closet - CNN ...
www.cnn.com/2015/02/09/us/neil-armstrong-moon-artifacts/ - CNN
Feb 10, 2015 - Neil Armstrong, the first man to step foot on the moon, left some of his personal artifacts from his journey in a closet, his widow, Carol, ...

Neil Armstrong - Facts & Summary - HISTORY.com



Neil Armstrong
Astronaut

Neil Alden Armstrong was an American astronaut 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, Auglaize County, Ohio, OH
Died: August 25, 2012, Cincinnati, OH
Space missions: Gemini 8, Apollo 11
Spouse: Carol Held Knight (m. 1994–2012), Janet Shearon (m. 1956–1994)
Children: Mark Armstrong, Karen Armstrong, Eric Armstrong
Parents: Stephen Armstrong, Viola Armstrong

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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](#)
www.nasa.gov/audience/forstudents/k-4/.../first-person-on-moon.htm... NASA ▾

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Enter what you want to calculate or know about:

how far away is the moon from the earth in km



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Input interpretation:

convert Moon distance from Earth to kilometers

Result:

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398 078 km (kilometers)

Additional conversions:

247 354 miles

3.981×10^8 meters

Comparison as distance:

$\approx$ mean Moon-Earth distance (3.85×10^8 m)

Corresponding quantities:

Light travel time t in vacuum from $t = x/c$:

1.3 seconds

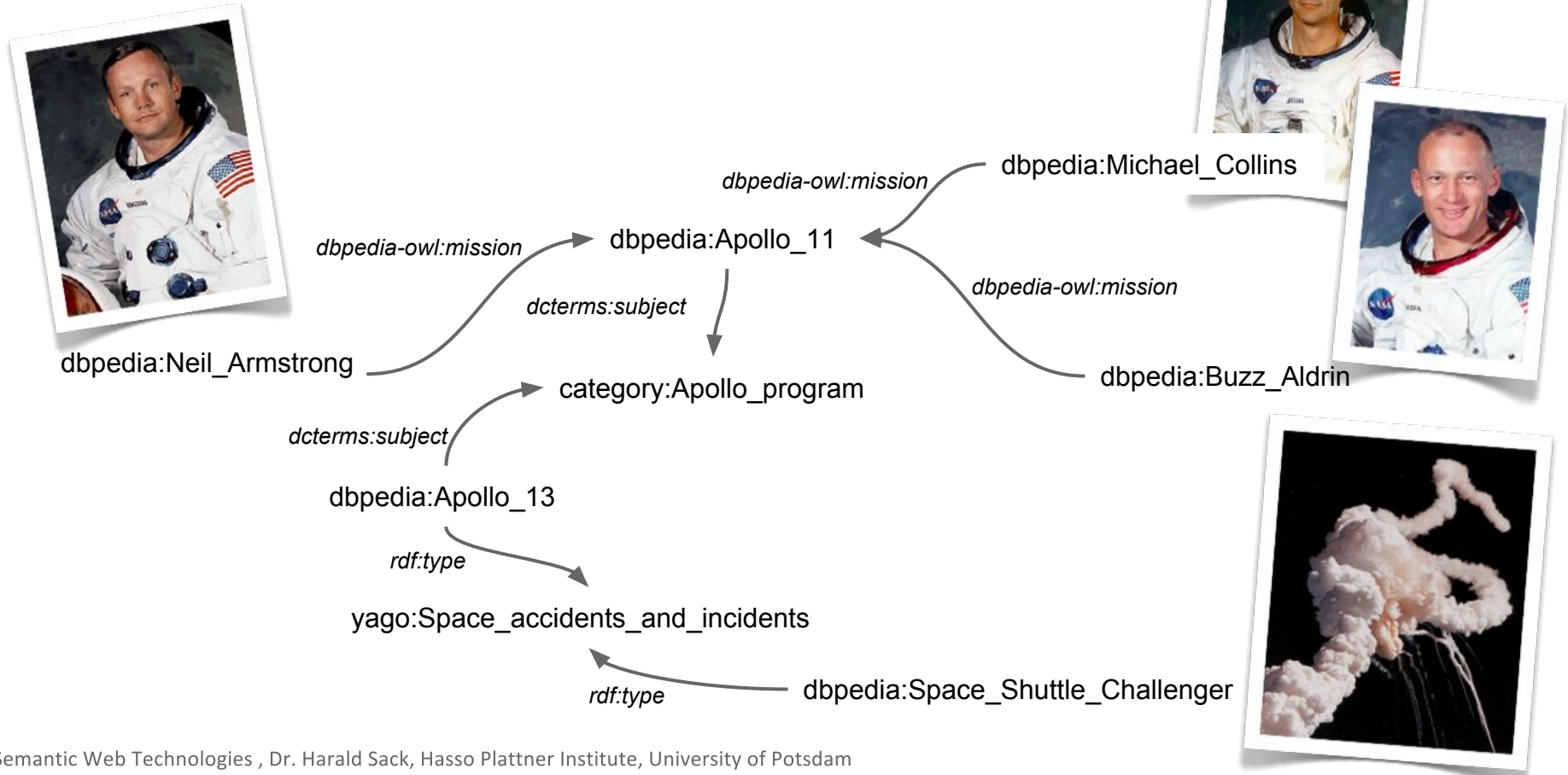
The Renaissance of “Soft AI”



The current success of semantic technologies lies in the combination with

- traditional information retrieval approaches
- soft AI (machine learning, knowledge mining, etc.) and
- lots of statistics.

From Retrieval to Exploration





Next: 06 - How to Name Things - URIs

OpenHPI - Course Knowledge Engineering with Semantic Web Technologies

Lecture 1: Knowledge Engineering and the Web of Data