

NLP

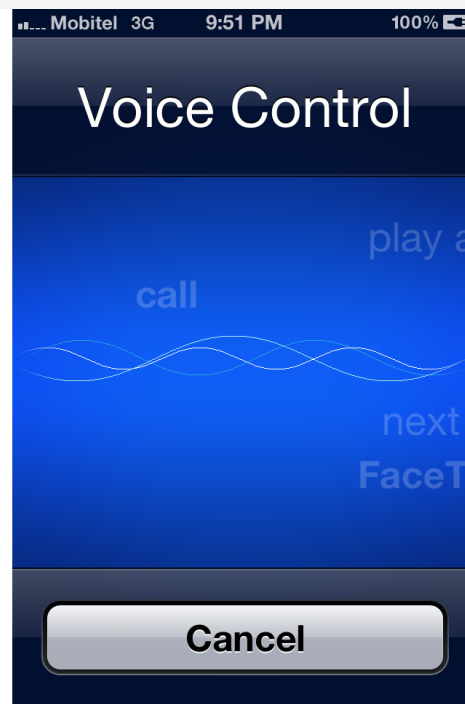
Introduction to NLP

Question Answering

Siri



Siri



Voice Control

Ask Jeeves (ask.com)

The screenshot shows the Ask Jeeves website interface. At the top, there's a search bar with the text "Who played Linus in Lost?" and a "Find Answers" button. Below the search bar, there's a section titled "More Answers" with a small image of Michael Emerson and a link to "Source". To the right of the image, there's a paragraph of text about Michael Emerson's role as Ben Linus in the TV series "Lost". Below this, there's a "Related Questions" section with a list of questions and answers. To the right of the main content, there's a "Popular Q&A" section with several questions and answers, including "Who plays Ben Linus on Lost?", "Who plays ben linus in lost?", "Who plays young Benjamin Linus on lost?", "Who played Linus on True Jackson VP?", and "Who played Linus in Charlie Brown Christmas Special?".

Ask.com - What's Your Qu... x +

www.ask.com/web?ad=dirN&qo=contentPageSearchBox&qsrc=1&o=2545&oo=2545&id=dir&q=Who+played+Linus W - Wikipedia (en)

Answers Q&A Community Advanced Search Sign In

Ask Who played Linus in Lost? Find Answers

More Answers

Everything > [Ben Linus](#)


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Benjamin Ben **Linus** is a fictional character portrayed by **Michael Emerson** on the ABC television series **Lost**. Ben was the leader of a group of island natives called the **Others** and was initially known as Henry Gale to the survivors of Oceanic Flight 815. He began as the **antagonist** during the second and third seasons, but in subsequent seasons, becomes something of an uneasy ally to the main characters; even so, however, throughout the series, he is persistently characterized by spontaneous coldblooded...

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Browse Article: [Arc](#) · [Personality](#) · [Development](#) · [Reception](#) · [References](#) · [Source: Wikipedia](#)

Related Questions:

- Spiritually speaking, who is better looking: Ben Linus, Henry Gale, or Michael Emerson?
- Order of importance of these Lost Characters? in my opinion it's 1. Jack Sheppard 2. Kate 3. Ben Linus 4. John Locke 5. James Sawyer Ford 6. Hurly 7. Desmond 8. Juliet 9. Sun 10. Claire

[View more Q&A](#)

[Michael Emerson - IMDb](#)
www.imdb.com/name/nm0256237/
Michael Emerson, Actor: Lost. Michael ... He is an actor, known for Lost (2004), Person of Interest (2011) and Saw (2004). He has ... Narrator / Benjamin Linus.

[Roger Linus - Lostpedia - The Lost Encyclopedia - Wikia](#)
lostpedia.wikia.com/wiki/Roger_Linus
Roger Linus was the father of Benjamin Linus, whom he regularly abused, both verbally and...
Portrayed by Outside references to Lost/Video games.

Popular Q&A

Q: **Who plays Ben Linus on Lost?**
A: The charact of Ben Linus is played by Michael Emerson born on the 7th of September 1954, ...
[Read More](#)
Source: www.chacha.com

Q: **Who plays ben linus in lost?**
A: Michael Emerson plays Ben Linus on the tv
[show Read More](#)
Source: www.chacha.com

Q: **Who plays young Benjamin Linus on lost?**
A: Sterling Beaumon has played young Benjamin Linus on 5 episodes of Lost. Want his filmography? [Read More](#)
Source: www.kgbanswers.com

Q: **Who played Linus on True Jackson VP?**
A: Tyler Peterson. [Read More](#)
Source: wiki.answers.com

Q: **Who played Linus in Charlie Brown Christmas Special?**
A: Chris Shea. [Read More](#)
Source: wiki.answers.com

WolframAlpha

The screenshot shows the WolframAlpha website interface. The browser's address bar displays the URL: `https://www.wolframalpha.com/input/?i=What+is+the+area+of+a+circle+with+radius+5+ft?`. The page header includes navigation links: PRO, MOBILE APPS, PRODUCTS, EXAMPLES, BLOG, ABOUT, and WOLFRAM SITES, along with a "Sign in" button. The main content area features the WolframAlpha logo and the text "computational knowledge engine". Below the logo, a search bar contains the query "What is the area of a circle with radius 5 ft?". To the left of the search bar are icons for various input methods (text, image, voice, etc.), and to the right are links for "Examples" and "Random".

Below the search bar, the "Input interpretation:" section shows the query broken down into "circle", "radius 5 feet", and "area". The "Result:" section displays the answer: $25 \pi \text{ ft}^2$ (square feet) $\approx 78.5398 \text{ ft}^2$ (square feet). A "Step-by-step solution" button is available next to the result. The "Visual representation:" section shows a diagram of a circle with a radius of 5 ft. Below the diagram, there is a "Unit conversions:" section with a "More" button.

On the left side of the page, there is a "Share:" section with icons for Facebook, Twitter, and Tumblr, and a "more" link. On the right side, there are two promotional banners: "New to WolframAlpha? Take the Tour >>" and "New! Wolfram Problem Generator". A "Need a hint?" button is also visible at the bottom right.

IBM's Watson



Watson on Jeopardy

- Sample questions

- On December 8, 2008 this national newspaper raised its newsstand price by 25 cents to \$1
 - *USA Today*
- In 2010 this former first lady published the memoir "Spoken From the Heart"
 - *Laura Bush*
- This person is appointed by a testator to carry out the directions & requests in his will
 - *Executor*
- Familiarity is said to breed this, from the Latin for "Despise"
 - *Contempt*
- As of 2010, Croatia & Macedonia are candidates but this is the only former Yugoslav republic in the EU
 - *Slovenia*
- The ancient "Lion of Nimrud" went missing from this city's national museum in 2003 (along with a lot of other stuff)
 - *Baghdad*
- It's just a bloody nose! You don't have this hereditary disorder once endemic to European royalty
 - *Haemophilia*
- It's Michelangelo's fresco on the wall of the Sistine Chapel, depicting the saved and the damned
 - *The Last Judgement*
- She "Died in the church and was buried along with her name. Nobody came"
 - *Eleanor Rigby*
- A camel is a horse designed by this
 - *Committee*

Watson Videos

- IBM's Watson Supercomputer Destroys Humans in Jeopardy | Engadget
 - https://www.youtube.com/watch?v=WFR3lOm_xhE
- "What is IBM Watson?" 7 Videos from the Jeopardy! Era
 - <http://mentalfloss.com/article/51543/what-ibm-watson-7-videos-jeopardy-era>

People Ask Questions Online

- Excite corpus
 - 2,477,283 queries (one day's worth)
- 8.4% of them are questions
 - 43.9% factual (what is the country code for Belgium)
 - 56.1% procedural (how do I get out of debt) or other

The Excite Corpus

- In what year did baseball become an official sport?
- How do I get out of debt?
- Where can I find out how to pass a drug test?
- When is the Super Bowl?
- Who is California's District State Senator?
- Where can I buy extra nibs for a fountain pen?
- What time is it in West Samoa?
- Where can I buy a little kitty cat?
- What are the symptoms of attention deficit disorder?
- Where can I get some information on Michael Jordan?
- How does the character Seyavash in Ferdowsi's Shahnameh exhibit characteristics of a hero?
- When did the Neanderthal man live?
- Which Frenchman declined the Nobel Prize for Literature for ideological reasons?

Murax Questions

- What U.S. city is at the junction of the Allegheny and Monongahela rivers?
- Who wrote “Across the River and into the Trees” ?
- Who married actress Nancy Davis?
- What’s the capital of the Netherlands?
- Who was the last of the Apache warrior chiefs?
- What chief justice headed the commission that declared: “Lee Harvey Oswald . . . acted alone.”?
- What famed falls are split in two by Goat Island?
- What is November’s birthstone?
- Who’s won the most Oscars for costume design?
- What is the state flower of Alaska?

AOL Corpus Questions

- what does cerebral cortical atrophy mean
- what fraction is closest to pi
- what is the highest calories consumed by a person in a 24 hor period
- what happens to limewater in the presence of carbon dioxide
- what language is Numa Numa in
- who discovered Saturn
- who discovered the gene for Huntington's disease
- who is the daugther of indian sitar maestro Ravi Shankar
- who invented marshmallow sandwich cookies
- who invented lithograph
- who was the first Michigan football player to put on the cover of a video game
- who invented smallpox vaccine
- when was the berlin wall torn down
- when was yahoo launched
- when was the wedding march by Mendelssohn composed
- when was the declaration of independence signed
- when did France become a republic
- when was Alexander the Great born
- which fish contains low mercury
- when is the youngest a minor can move out of their parents house in Texas
- when should take a child to see an psychologist
- what hormone imbalance could mimic pregnancy symptoms

Question Type Taxonomy

- Question Types
 - Yes/no vs. wh–
 - Factual vs. procedural
 - Single answer vs. multiple answers
 - Objective vs. subjective
 - Context-specific (personalized) vs. generic
 - Known answer in the collection, y/n

State of the Art

- Question types
 - Mostly factual, short-answer questions
- System architecture
 - IR component
 - Statistical approaches using lots of data
 - Relatively little knowledge

Older Systems (pre-TREC)

- BASEBALL (Green et al., 1961)
 - Baseball
- ELIZA (Weizenbaum 1966)
 - Dialogue, Therapist
- SHRDLU (Winograd 1972)
 - Blocks world
- LUNAR (Woods, 1973)
 - Lunar rocks
- Murax (Kupiec 1993)
 - Open-domain, encyclopedia-based
- START (Katz 1997)
 - Open-domain, web-based
- Deep Red (Hirschman & al. 1999)
 - Reading comprehension
- Jupiter (Zue et al., 2000)
 - Spoken questions

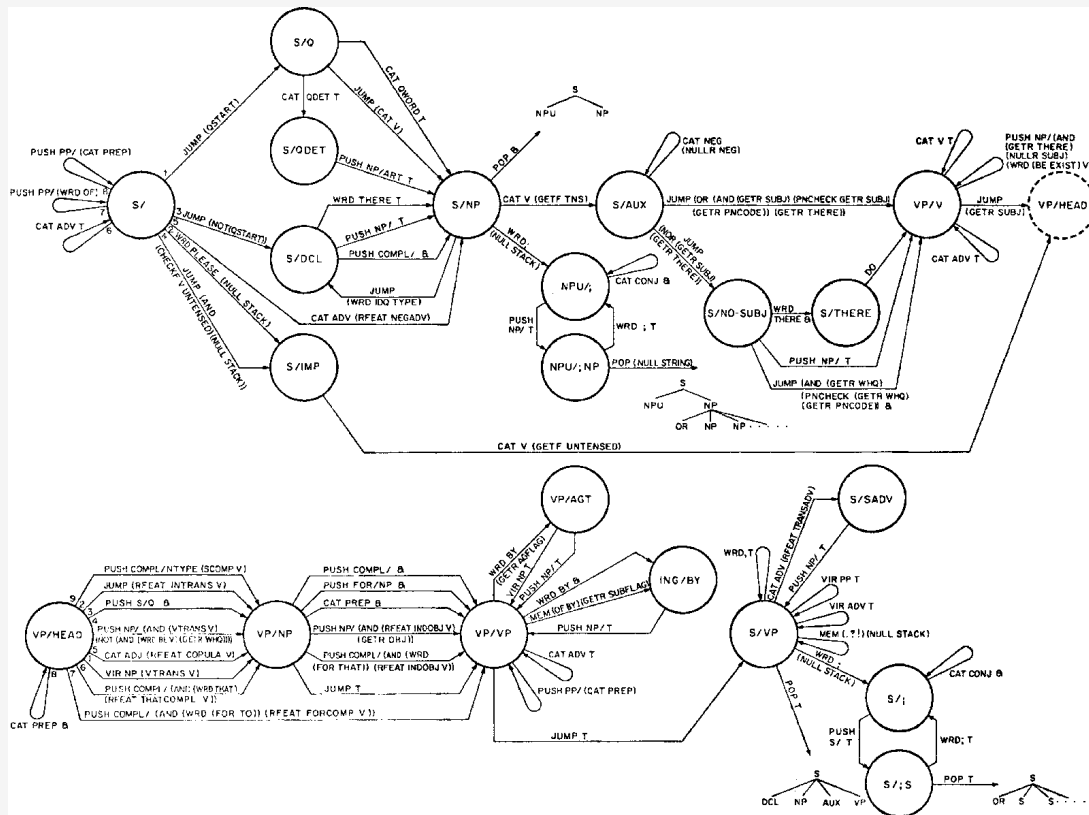
Eliza (Weizenbaum 1966)

- Eliza plays a therapist
 - and doesn't really answer questions 😊
- Simple pattern matching
- Sample dialogue

E: I am the psychotherapist. Please, describe your problems.
P: I am always tired.
E: Why do you say you are always tired?
P: Because I cannot sleep.
E: Is it because you cannot sleep that you came to me?
P: Yes, help me please.
E: Earlier you said you cannot sleep?

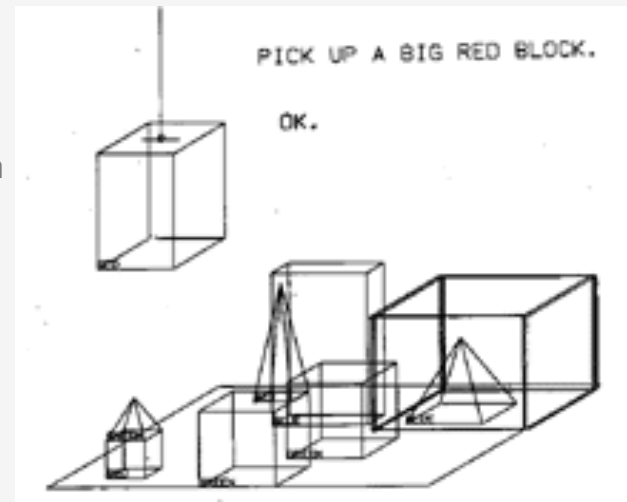
Lunar (Woods et al., 1972)

- Lunar Sciences Natural Language Information System
- Apollo 11 moon rocks
- Questions in English
- Components
 - a general-purpose ATN (augmented transition network) grammar for English
 - a procedural-semantics framework for semantic interpretation
 - mapping from the syntactic grammar to a logic representation
 - 3,500 word dictionary
 - 13,000 entries in the knowledge base
- Lunar answered 78% of sentences asked by geologists at 1971 Lunar Rocks conference
 - How many breccias contain olivine?
 - What are they?



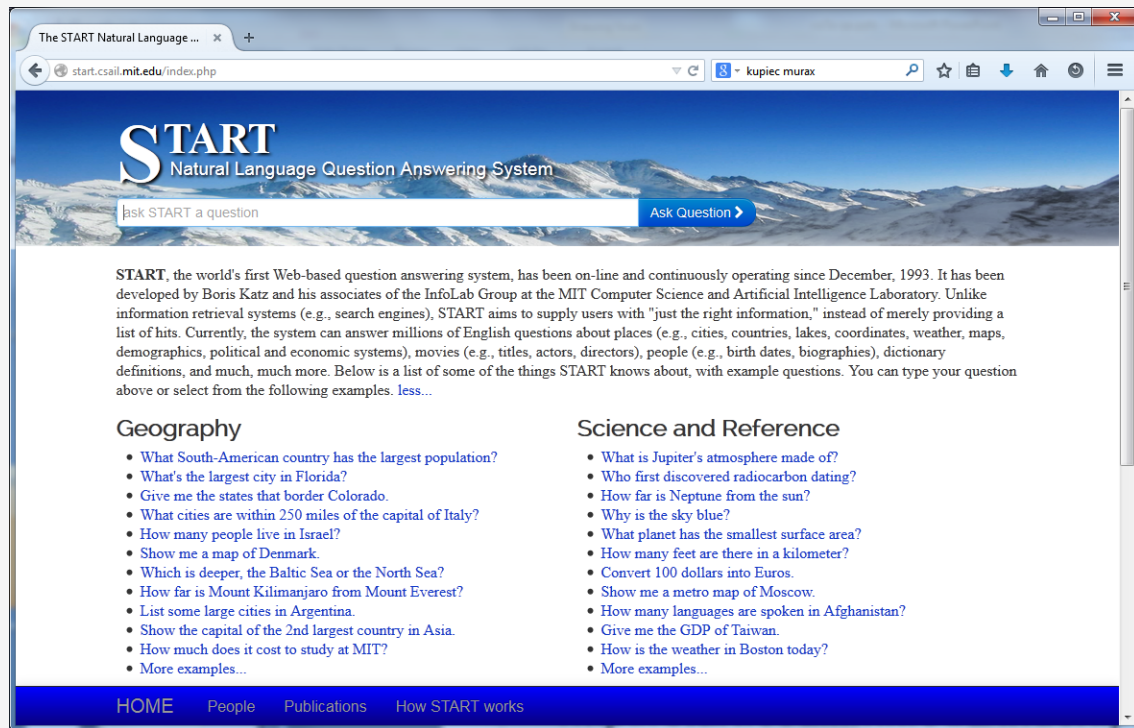
SHRDLU (Winograd 1972)

- Simple questions about the blocks world
 - Person: Pick up a big red block.
 - Computer: OK.
 - Person: Grasp the pyramid.
 - Computer: I don't understand which pyramid you mean.
 - Person (changing their mind): Find a block which is taller than the one you are holding and put it into the box.
 - Computer: By "it", I assume you mean the block which is taller than the one I am holding.
 - Computer: OK.
 - Person: What does the box contain?
 - Computer: The blue pyramid and the blue block.
 - Person: What is the pyramid supported by?
 - Computer: The box.
 - Person: How many blocks are not in the box?
 - Computer: Four of them.
 - Person: Is at least one of them narrower than the one which I told you to pick up?
 - Computer: Yes, the red cube.



Start (Katz 1997)

- Open-domain
- Uses the Web
- Online since 1993



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