The Lost Tram (2007)

See how computers make mistakes “reading” texts!

Try it!
The North American Computational Linguistics Olympiad

www.naclo.cs.cmu.edu
CAN YOU GUESS THE LANGUAGE?

HINT #1: It’s spoken by nearly 65 million people in Southeast Asia.
HINT #2: Its writing system looks like this:

ตัวอักษรไทย

HINT #3: It’s closely related to Pali, Sanskrit, Lao, and the minority languages of Thailand.

Thai

Source: www.omniglot.com
Don’t know Hindi? No problem! Learn how machine translation works by decoding the mystery words in this problem.
Fakepapershelfmaker (2008)

See how a data structure called a tree can help you understand Japanese.
The North American Computational Linguistics Olympiad

www.naclo.cs.cmu.edu
“Stemmers” help search engines work by chopping suffixes off of words (ex. walk, walking, walked…). Can you fix this one?
Here are three phrases in Tajik, a language spoken in Tajikistan and Central Asia.

дуусти хуби хамсоай сумо  
a good friend of your neighbor

хамсоай дуусти хуби сумо  
a neighbor of your good friend

хамсоай хуби дуусти сумо  
a good neighbor of your friend

Can you match the Tajik words below to their English translations?  
Hint: word order in Tajik and in English is not the same!

<table>
<thead>
<tr>
<th>Tajik Words</th>
<th>English Translations</th>
</tr>
</thead>
<tbody>
<tr>
<td>хамсоай</td>
<td>a. good</td>
</tr>
<tr>
<td>дуусти</td>
<td>b. friend</td>
</tr>
<tr>
<td>хуби</td>
<td>c. neighbor</td>
</tr>
<tr>
<td>сумо</td>
<td>d. your</td>
</tr>
</tbody>
</table>

Source: Adriana Solovyova
See how an abstract machine called a “finite state automaton” can help you identify the words of this New Guinea language.

Try it!
The Whole Spectrum (2008)

Learn the language of spectrograms.

Try it!
The North American Computational Linguistics Olympiad

www.naclo.cs.cmu.edu
Christopher Robin needs help with spelling. Can you figure out how his spelling checker works?

Try it!
Help my camera! (2009)

This chat bot is not making sense! Can you figure out how to fix it?
DID YOU KNOW?

Not all languages have the same sounds! Let’s try some sounds not usually found in English.

Glottal stop – the sound in the middle of ‘uh-oh’

Retroflex – press the bottom of your tongue to the roof of your mouth, then let it go while saying ‘t’

Click – press the tip of your tongue to the roof of your mouth, hard, then let go
In this fictional video game, the moves can be pretty complex. But how complex can they get before they break the program?

Try it!
Orwellspeak (2009)

In a dystopian future, a repressive government tries to prevent people from saying false sentences.
The North American Computational Linguistics Olympiad

www.naclo.cs.cmu.edu
Texting, Texting, One, Two, Three (2010)

Learn about data compression while cracking an imaginary cell phone code.

Try it!
Dogs and Cats on Trees (2010)

Learn how computers parse, or break apart, sentences, and learn Malayalam (an Indian language) at the same time!

Try it!
CAN YOU GUESS THE LANGUAGE?

HINT #1: It’s an indigenous language of the United States.
HINT #2: Its writing system looks like this:

ᏣᎳᎩ ᎦᏬᎳᏍᏗ

HINT #3: The name of the language, in the language, is Tsalagi.

Cherokee

Source: www.omniglot.com
The overworked employees in a call center have developed a strange writing system with abbreviations. Can you decipher it?
Real Money (2010)

This math puzzle would be a challenge in English... can you solve it in Quechua (a language from South America)?

Try it!
The North American Computational Linguistics Olympiad

www.naclo.cs.cmu.edu
Decipher an ancient Inca system of knots that was used for record keeping.

Try it!
Running on MT (2011)

An automated translation program is making mistakes. Can you figure out why?

Try it!
Here are some sentences in Yaqui, a Native American language spoken in Arizona and Mexico, and their English translations in random order:

Inepo siika. → A. You helped me.
Empo nee aniak. → B. You danced.
Inepo apo ‘ik aniak. → C. I saw you.
Inepo apo ‘ik vichak. → D. I saw him.
Inepo enchi vichak. → E. I helped you.
Inepo enchi aniak. → F. I helped him.
Empo ye ‘ek. → G. He saw you.
Aapo enchi vichak. → H. I left.

Can you match the Yaqui sentences to their English translations?

Source: Tom Payne
It’s the year 2354 AD, and we’ve finally managed to make contact with aliens. Can you use a peace message to translate from one alien language to another?

Try it!
Waorani Numbers (2012)

Solve this math puzzle to learn how to count in the Waorani language of Ecuador!

Try it!
The North American Computational Linguistics Olympiad

www.naclo.cs.cmu.edu
Professor Monotone has a machine that can make inferences, but it’s broken. Can you fix it?
Jeg kan tælle (2007)

Can you figure out how to count in Danish?
DID YOU KNOW?

There are over 7,000 languages spoken around the world.

Over 382 of those languages are spoken in the United States!

Source: www.census.gov
How many meanings are there for this phrase: space mission control freak show? How can we use math to figure it out?
Deb and her friend Ahab encode their messages in the binary language of heads and tails, but they don’t have a lot of coins. How can they shorten their messages?
The North American Computational Linguistics Olympiad

www.naclo.cs.cmu.edu
Learn how computers can analyze grammar using a notation system called context-free rules.
CAN YOU GUESS THE LANGUAGE?

HINT #1: Its writing system is called Mkhedruli and looks like this:

Georgian

HINT #2: It's spoken in Georgia, Armenia, Azerbaijan, Iran, and other countries in the South Caucasus.

HINT #3: It shares the name of the main country where it’s spoken.

Source: www.omniglot.com
Sometimes, the same sentence can have two or more meanings! Learn about a writing system designed to fix this problem.

Try it!
Yesbot (2013)

Can you make this slightly deranged chat bot smarter?

Try it!
The North American Computational Linguistics Olympiad

www.naclo.cs.cmu.edu
DID YOU KNOW?

English is written left-to-right, but not all languages are!

Arabic is written right-to-left:

And Mongolian is written up-to-down!
Use “decision trees” to explain the difference between phrases like “come up with” and “come down with”.

Try it!
You have a flying robot that helps you cheat at card games, but how can you program it to give you better hints?

Try it!
Here are some dates in Swahili, a language spoken in eastern Africa, and their English translations in random order:

- tarehe tatu Disemba jumamsi
- tarehe pili Aprili jumanne
- tarehe nne Aprili jumanne
- tarehe tano Oktoba jumpili
- tarehe tano Oktoba jumatatu
- tarehe tano Oktoba jumatano

Can you match the Swahili dates to their English translations?

Source: A. N. Zhurinsky, Valentin Vydrin