

(15 points)

# (E) BrokEnglish! (1/2)

Spencer, a computational linguist trying to lessen the amount of time he spends on email, writes a simple find-and-replace script that he hopes will mean he spends a little less time typing out language names.

The script goes through his emails before they're sent and automatically replaces certain two letter ISO 639-1 language codes (like `fr`) with the full names of the languages (like `French`):

ISO 639-1 code	Language name
<code>ce</code>	Chechen
<code>ch</code>	Chamorro
<code>en</code>	English
<code>fr</code>	French
<code>he</code>	Hebrew
<code>is</code>	Icelandic
<code>ro</code>	Romanian

Things seem to be going great... until he starts getting some very confused replies, like the following:

```

From: christine@ioling.org
Sent: Monday, 23 August 2010 11:38
To: spencer@ioling.org
Subject: Re: Time-saving script

um, spence? i think something has gone REALLY wrong
with your script...

On Mon, Aug 23, 2010 at 09:34 AM spencer@ioling.org
wrote:
> Hebrewy, ChamorRomanianrICHebrewcHebrewnlandic!
whEnglish
> you get a FrEnglishcHebrewe momEnglisht, cHebrewck
out
> thICHebrewcHebrewnlandic niCHebrewcHebrewn little
> pRomaniangram i wRomaniante.
> -- spEnglishCHebrewcHebrewnr

```



# (E) BrokEnglish! (2/2)

**E1.** What message did Spencer intend to send?


**E2.** Spencer's script replaced each of the six language codes one after another: for example, all instances of `fr` were replaced before any of the other codes were replaced. Determine *in what order* the script must have replaced the codes.

  f     r   then           then           then           then           then           then          .

**E3.** What would Spencer's script do to the following input?

fresh fish from concentrate


**E4.** What alternate ordering would produce the longest message when given Spencer's original email as input?

          then           then           then           then           then           then   r     o  .

