1. Here is a list of speech errors given in the form intended production → error. For each speech error, state what type of error it is (insertion, metathesis, shift, etc.) and which linguistic unit is involved in the error (e.g., phonotactics)? What does each error tell us about the processes involved in speech production?

a. we have many ministers in our church → we have many churches in our minster

b. brake fluid → blake fluid

c. an eating marathon → a meeting marathon

d. speech production → preach seduction

e. phonological rule → phonological fool

f. untactful → distactful

g. big and fat → pig and vat

h. It’s too damn hot in here → It’s too damn cold in here

i. His immortal soul → his immoral soul

j. What that adds up to → what that add ups to

k. Where’s the fire extinguisher? → Where’s the fire distinguisher?

l. thin sheets → shin sheets

m. a no go zone → a no gone zone

n. also share → alsho share

o. There’s a draft/breeze blowing through the room → There’s a dreece blowing through the room.
2. Each of the following sentences is a garden path sentence. For each sentence, explain how people are led down the garden path. In other words, explain how the sentence is initially parsed and how it needs to be reanalyzed to be parsed correctly. Explain why these sentences lead people down the garden path.

a. The boat floated downstream sank.

b. The cotton clothing is made from grows in Mississippi.

c. The daughter of the king’s son admires himself.

d. The florist sent the flowers was pleased.

e. They told the boy that the girl met the story.

3. Consider the two sentences given below. The first sentence is ungrammatical but easily parsable, whereas the second sentence is difficult to parse (and for some people even unparsable) but grammatical.

Ungrammatical sentence: The dog ate a bone big.
Sentence is difficult to parse: The boat floated down the river sank.

i. Explain why the first sentence is ungrammatical. For your explanation, you may want to refer to the phrase structure rules for English.

ii. Explain why the second sentence is difficult to parse. Explain how the reader initially tries to parse the sentence and why this does not work. What is this kind of sentence called?

iii. Which of the sentences is harder to understand? Why is it beneficial that we can relatively easily understand at least some ungrammatical sentences in our native language?
4. Go to one of the free online MT systems available at the following URLs:

http://babelfish.altavista.com/
http://www.freetranslation.com/
http://www.worldlingo.com/products_services/worldlingo_translator.html
http://www.translation.net/instrans.html
http://www.translate.ru

i. Use the system to translate some English text into a foreign language, and then translate it back into English. Does the result differ from the original?

ii. Find a Web page that is written in one of the languages that the system can translate from, preferably a language that you don’t know. To find such a Web page, you can use a search engine and set the search language to, for example, Spanish. Then search for any word or topic you like, such as computer, rock or the name of a famous person.

iii. Now, use the MT system to translate (part of) the Web page you found in (ii) into English. Is the translation comprehensible? Is the English text good enough to publish? Is it at least good enough so that you can understand what the page is about and follow the discussion?

iv. Repeat exercise (i) and (ii) using a different MT system. How do the two systems compare with each other? Which system do you think is better? Why?
5. RUTH (Rutgers University Talking Head) is an animated talking face. Go to the following website and view the sample animation created with RUTH. Then answer questions (i)-(iv).
http://www.cs.rutgers.edu/~village/ruth/

i. Did RUTH’s speech sound natural? Was it intelligible? Based on your judgment of how natural and intelligible RUTH sounds, what kind of speech synthesis system might RUTH be using? Justify your answer.

ii. In order for us to see and hear RUTH, natural-looking head- and eye-movements, facial expressions, as well as lip movements need to be simulated. How natural does RUTH look? Which movements or expressions look unnatural? How so?

iii. Simulating appropriate lip movements to accompany speech is called visual speech synthesis. Appropriate lip movements are important because, if done correctly, they aid the perception of synthesized speech (which can sometimes be hard to understand). Listen to the animation again, this time without looking at RUTH. Do you think that RUTH’s lip movements help you understand the system’s speech?

iv. A problem of visual speech synthesis is co-articulation. If you wanted to synthesize lip movements, how would you deal with the problem of co-articulation? What are the advantages or disadvantages of your approach?