The goal of this tutorial is to familiarise yourself with discussions about vocabulary and grammar and to start thinking about language. Language can be studied like any other phenomenon and linguistics (the scientific study of human language) is an important part of cognitive science. The following tasks will address the aspects of language you heard about in class and will give you the opportunity to do some practical exercises to get a better understanding of them. You will furthermore discuss and evaluate the two models for regular and irregular past tense verbs that have been introduced in the lectures and in your readings for the week.

Before answering the questions in this tutorial you should make sure you have read chapters 1, 2, and 7 of Pinker’s *Words And Rules*.

1. **Identifying Regular and Irregular Verbs**

Read the following extract from the fairy tale Rumpelstiltskin:

> By the side of a wood, in a country a long way off, ran a fine stream of water; and upon the stream there stood a mill. The miller’s house was close by, and the miller, you must know, had a very beautiful daughter. She was, moreover, very shrewd and clever; and the miller was so proud of her, that he one day told the king of the land, who used to come and hunt in the wood, that his daughter could spin gold out of straw. Now this king was very fond of money; and when he heard the miller’s boast his greediness was raised, and he sent for the girl to be brought before him. Then he led her to a chamber in his palace where there was a great heap of straw, and gave her a spinning-wheel, and said, ‘All this must be spun into gold before morning, as you love your life.’ It was in vain that the poor maiden said that it was only a silly boast of her father, for that she could do no such thing as spin straw into gold: the chamber door was locked, and she was left alone.

She sat down in one corner of the room, and began to bewail her hard fate; when on a sudden the door opened, and a droll-looking little man hobbled in, and said, ‘Good morrow to you, my good lass; what are you weeping for?’ ‘Alas!’ said she, ‘I must spin this straw into gold, and I know not how.’ ‘What will you give me,’ said the hobgoblin, ‘to do it for you?’ ‘My necklace,’ replied the maiden. He took her at her word, and sat himself down to the wheel, and whistled and sang:

> Round about, round about, Lo and behold! Reel away, reel away, Straw into gold!

And round about the wheel went merrily; the work was quickly done, and the straw was all spun into gold.

**Exercise**

1. Underline (or highlight) all the **verbs** in the text.

2. For every verb you found, figure out its **base form**.

3. For each verb you found, decide whether it is **regular** or **irregular**, by comparing its base and past tense forms.

4. How many verbs are regular? How many irregular?
2 Words and Rules

Many cognitive scientists believe, like Pinker, that human linguistic knowledge consists of two different kinds of 'mental tissue':

- a **lexicon**, containing **words**
- a **grammar**, containing **rules**

Here is an example lexicon:

- *John* is a proper noun
- *Mary* is a proper noun
- *hold* is a base verb
- *catch* is a base verb
- *held* is a past tense verb
- *caught* is a past tense verb

And here is an example grammar:

- a sentence can consist of a noun phrase followed by a verb phrase
  \[ S \rightarrow NP \ V P \]
- a verb phrase can consist of a past tense verb followed by a noun phrase
  \[ VP \rightarrow V \ NP \]
- a noun phrase can consist of a proper noun on its own
  \[ NP \rightarrow PN \]

**Exercise**

1. Draw out the lexicon as trees, like the ones in lectures 2 and 3.
2. Likewise, draw out the grammar rules as trees.
3. Use the grammar and lexicon to prove that *John held Mary* is a grammatical sentence.
4. Show that *John caught* is **not** a grammatical sentence.
5. Show that *Mary catch John* is **not** a grammatical sentence.
6. How many sentences are grammatical, according to this grammar and lexicon?

3 Adding Regular Verbs

Let’s add some regular verbs to our little lexicon:

- *kiss* is a base verb
- *hug* is a base verb

And a rule for forming regular past tense forms of verbs:

- a past tense verb can consist of a base verb followed by the suffix -ed

**Exercise**

1. Draw out the new words and rules as trees, like before.
2. Show that *John kissed Mary* is a grammatical sentence.
3. Show that *John hug Mary* is **not** a grammatical sentence.
4. Show that *Mary catched John* is a grammatical sentence, according to this grammar and lexicon.
5. Make sure you understand how *Mary caught John* blocks *Mary catched John.*
4 Data and Observation

So far in the lectures, we have discussed a whole range of experimental results and empirical observations that any theory of regular and irregular past tense verbs in English will need to account for.

Exercise

1. Describe the basic observable facts about regular and irregular past tense verb forms as they occur in spoken and written English today.

2. List all the facts and observations you can remember about how children learn regular and irregular past tense verb forms in English.

3. List all the facts and observations you can remember about how adults recognise and produce regular and irregular past tense verb forms in English.

4. List all the facts and observations you remember about the significant ways in which regular and irregular past tense verb forms have evolved in English over the last thousand years or so.

5. List any other facts you think a theory of regular and irregular verbs needs to account for.

5 Models for Past Tense Verbs

We have also discussed in the lectures two different models which try to explain the facts of regular and irregular past tense verbs in English.

Exercise 5.1

1. List the salient features of the basic words-and-rules model, in particular what it has to say about how adult speakers produce regular and irregular verb forms in English.

2. List the salient features of Chomsky and Halle’s SPE model, in particular what it has to say about regular and irregular verb forms in English.

We can evaluate a model by determining the extent to which it accounts for the empirical data and experimental observations we are trying to explain.

Exercise 5.2

1. Evaluate the basic words-and-rules model by deciding whether or not it accounts for each of the facts and observations you listed in exercise 4.

2. What would we have to add to the basic words-and-rules theory, to make it a better theory of regular and irregular verbs?

3. Evaluate the SPE model by deciding whether or not it accounts for each of the facts and observations you listed in exercise 4.