
Unit II English Grammar Usage

The first chapters are probably the least read by most readers in general and scientists in particular, and in our opinion it is precisely in the first chapters that the most important information of a book is displayed. It is in its first chapters that the foundations of a book are laid, and many readers do not optimize the reading of a manual because they skip its fundamentals.

This is a vital chapter because unless you have a sound knowledge of English grammar you will be absolutely unable to speak English as is expected from a well-trained researcher. At your expected English level it is definitely not enough just to be understood; you must speak fluently and your command of the English language must allow you to communicate with your colleagues regardless of their nationality.

As you will see immediately, this grammar section is made up of scientific sentences, so at the same time that you revise, for instance, the passive voice, you will be reviewing how to say usual sentences in day-to-day English used in laboratories, such as “the scientist wears two pairs of latex gloves during a radioactive experiment in case one of them tears.”

Tenses

Talking About the Present

Present Continuous

Present continuous shows an action that is happening in the present time at or around the moment of speaking.

Present simple of the verb *to be* + gerund of the verb: *am/are/is ...-ing*.

Study this example:

- It is 8:30 in the morning. Dr. Hudson is in his new car on his way to the laboratory.

So: He *is driving* to the laboratory. He is driving to the laboratory means that he is driving now, at the time of speaking.

USES	<p>To talk about:</p> <ul style="list-style-type: none">• Something that is hapzpening at the time of speaking (i.e., now):<ul style="list-style-type: none">– Dr. Hudson <i>is going</i> to the tissue culture room.– Dr. Smith's colleague <i>is performing</i> a PCR.• Something that is happening around or close to the time of speaking, but not necessarily exactly at the time of speaking:<ul style="list-style-type: none">– Jim and John are postdoctoral associates in Dr. Smith's laboratory and they are having lunch in the cafeteria. John says: "I <i>am writing</i> an interesting article on origins of oligodendrocytes in the spinal cord. I'll give you a copy when I've finished writing it". As you can see John is not writing the article at the time of speaking. He means that he has begun to write the article but has not finished it yet. He is in the middle of writing it.• Something that is happening for a limited period of time around the present (e.g., today, this week, this season, this year ...):<ul style="list-style-type: none">– Our PhD students <i>are working</i> hard this term.• Changing situations:<ul style="list-style-type: none">– Scientists <i>are getting</i> closer to understanding how the brain works.• Temporary situations:<ul style="list-style-type: none">– I <i>am living</i> with other students until I can buy my own apartment.– I <i>am doing</i> a rotation in Dr. Thomson's laboratory until the end of May. <p><i>Special use:</i> Present continuous with a future meaning In the following examples doing these things is already arranged.</p> <ul style="list-style-type: none">• To talk about what you have arranged to do in the near future (personal arrangements).<ul style="list-style-type: none">– We <i>are going</i> to the Neuroscience conference in London this month.– I <i>am having</i> dinner with a Nobel Prize scientist from Edinburgh tomorrow. <p>We do not use the simple present or <i>will</i> for personal arrangements.</p>
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Simple Present

Simple present shows an action that happens again and again (repeated action) in the present time, but not necessarily at the time of speaking.

FORM	<p>The simple present has the following forms:</p> <ul style="list-style-type: none"> • Affirmative (remember to add -s or -es to the third person singular) • Negative <ul style="list-style-type: none"> – I/we/you/they don't ... – He/she/it doesn't ... • Interrogative <ul style="list-style-type: none"> – Do I/we/you/they ... ? – Does he/she/it ... ? <p>Study this example:</p> <ul style="list-style-type: none"> • Dr. Allan is the chairman of the Cancer Biology Department. He is at an international course in Greece at this moment. <p>So: He <i>is not running</i> the Cancer Biology Department now (because he is in Greece), but <i>he runs</i> the Cancer Biology Department.</p>
USES	<ul style="list-style-type: none"> • To talk about something that happens all the time or repeatedly or something that is true in general. Here it is not important whether the action is happening at the time of speaking: <ul style="list-style-type: none"> – I <i>do</i> research using live animals. – Animal technicians <i>take care</i> of animals that are used in research. – For in situ hybridization experiments, all solutions <i>are</i> RNase-free. • To say how often we do things: <ul style="list-style-type: none"> – I <i>start</i> my experiments at 9:30 every morning. – Dr. Taylor <i>teaches</i> biology twice a week. – How often <i>do you go</i> to an international stem cell course? Once a year. • For a permanent situation (a situation that stays the same for a long time): <ul style="list-style-type: none"> – I <i>work</i> as a research assistant in the Cancer Biology department at Harvard Medical School. I have been working there for ten years. • Some verbs are used only in simple tenses. These verbs are verbs of thinking or mental activity, feeling, possession and perception, and reporting verbs. We often use <i>can</i> instead of the present tense with verbs of perception: <ul style="list-style-type: none"> – I <i>can understand</i> now why the microscope is in such a bad condition. – I <i>can see</i> now the solution to the diagnostic problem. • The simple present is often used with adverbs of frequency such as <i>always, often, sometimes, rarely, never, every week, and twice a year</i>: <ul style="list-style-type: none"> – PhD students <i>always</i> work very hard. – We <i>have</i> a lab meeting <i>every week</i>. • Simple present with a future meaning. We use it to talk about timetables, schedules... <ul style="list-style-type: none"> – What time <i>does</i> the lab safety course <i>start</i>? It <i>starts</i> at 9.30.

Talking About the Future

Going To

USES	<ul style="list-style-type: none">• To say what we have already decided to do or what we intend to do in the future (do not use <i>will</i> in this situation):<ul style="list-style-type: none">– I <i>am going to</i> attend the 40th annual meeting of the Society for Neuroscience next month.– There is a stem cell course in Boston next fall. <i>Are you going to</i> attend it?• To say what someone has arranged to do (personal arrangements), but remember that we prefer to use the present continuous because it sounds more natural:<ul style="list-style-type: none">– What time <i>are you going to meet</i> the Administrative Director?– What time <i>are you going to</i> begin the PCR?• To say what we think will happen (making predictions):<ul style="list-style-type: none">– The animals are agitated. I think we <i>are not going to</i> get good quality results.– We think this new technology <i>is going to</i> improve cloning efficiency in rodents.• If we want to say what someone intended to do in the past but did not do, we use <i>was/were going to</i>:<ul style="list-style-type: none">– He <i>was going to</i> do a PCR on the sample but finally changed his mind and decided to do a Southern Blot.• To talk about past predictions we use <i>was/were going to</i>:<ul style="list-style-type: none">– The research assistant had the feeling that the animal <i>was going to</i> suffer an allergic reaction to the anesthetic drug.
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Simple Future (Will)

FORM	<p>I/We <i>will</i> or <i>shall</i> (<i>will</i> is more common than <i>shall</i>. <i>Shall</i> is often used in questions to make offers and suggestions):</p> <ul style="list-style-type: none">• <i>Shall</i> we go to the journal club next week? Oh, great idea!• <i>Shall</i> I order more flasks for the laboratory?• What <i>shall</i> we do now? <p><i>You/he/she/it/they will.</i> Negative: <i>shan't, won't.</i></p>
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USES	<ul style="list-style-type: none"> • We use <i>will</i> when we decide to do something at the time of speaking (remember that in this situation, you cannot use the simple present): <ul style="list-style-type: none"> – Have you finished the experiment? – No, I haven't had time to do it. – OK, don't worry, I <i>will</i> do it. • When offering, agreeing, refusing, and promising to do something, or when asking someone to do something: <ul style="list-style-type: none"> – That experiment looks difficult for you. Do not worry, I <i>will</i> help you out. – Can I have the book about embryonic stem cells that I lent to you? Of course. I <i>will</i> give it back to you tomorrow. – Don't ask to use the confocal microscope without supervision. Dr. Harris <i>won't</i> allow you to. – I promise I <i>will</i> send you a copy of the latest article on molecular immunology as soon as I get it. – <i>Will</i> you help me out with this time-lapse experiment, please? <p>You do not use <i>will</i> to say what someone has already decided to do or arranged to do (remember that in this situation we use <i>going to</i> or the present continuous).</p> <ul style="list-style-type: none"> • To predict a future happening or a future situation: <ul style="list-style-type: none"> – Scientific research <i>will</i> find a cure for ALS. – Treatments for cancer <i>won't</i> be the same in the next two decades. <p>Remember that if there is something in the present situation that shows us what will happen in the future (near future) we use <i>going to</i> instead of <i>will</i>.</p> <ul style="list-style-type: none"> • With expressions such as: <i>probably, I am sure, I bet, I think, I suppose, I guess</i>: <ul style="list-style-type: none"> – I <i>will probably</i> attend the International Symposium. – You should listen to Dr. Helms giving a conference. I <i>am sure</i> you <i>will</i> love it. – I bet the animal <i>will</i> recover satisfactorily after the brain surgery. – I <i>guess</i> I <i>will</i> see you at the next annual meeting.
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Future Continuous

FORM	Will be + gerund of the verb.
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USES	<ul style="list-style-type: none">• To say that we will be in the middle of something at a certain time in the future:<ul style="list-style-type: none">– This time tomorrow morning I <i>will be performing</i> my first PCR.• To talk about things that are already planned or decided (similar to the present continuous with a future meaning):<ul style="list-style-type: none">– I <i>will be making</i> no decisions tonight about the prospective employees.• To ask about people's plans, especially when we want something or want someone to do something (interrogative form):<ul style="list-style-type: none">– <i>Will you be helping</i> me mark the laboratory reports this evening?
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Future Perfect

FORM	<p><i>Will have</i> + past participle of the verb.</p> <ul style="list-style-type: none">• To say that something will already have happened before a certain time in the future:<ul style="list-style-type: none">– I think the student <i>will already have arrived</i> by the time we begin the PCR.– Next spring I <i>will have been working</i> for 25 years in the Cancer Biology Department of this institution.
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Talking About the Past

Simple Past

FORM	<p>The simple past has the following forms:</p> <ul style="list-style-type: none">• Affirmative:<ul style="list-style-type: none">– The past of the regular verbs is formed by adding <i>-ed</i> to the infinitive.– The past of the irregular verbs has its own form.• Negative:<ul style="list-style-type: none">– <i>Did/didn't</i> + the base form of the verb.• Questions:<ul style="list-style-type: none">– <i>Did I/you/ ...</i> + the base form of the verb.
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USES	<ul style="list-style-type: none"> • To talk about actions or situations in the past (they have already finished): <ul style="list-style-type: none"> – I really <i>enjoyed</i> the Institute's Christmas party very much. – When I <i>worked</i> as an animal care technician in London, I <i>performed</i> a vasectomy on thirty male mice. • To say that one thing happened after another: <ul style="list-style-type: none"> – Yesterday, I <i>was</i> walking towards the Molecular Genetics Department when I <i>saw</i> Dr Harris. So, I <i>stopped</i> and we <i>had</i> a chat about gene therapy and then we <i>went</i> to the canteen and <i>had</i> lunch together. • To ask or say <i>when</i> or <i>what time</i> something happened: <ul style="list-style-type: none"> – When <i>were</i> you last on call? • To tell a story and to talk about happenings and actions that are not connected with the present (historical events): <ul style="list-style-type: none"> – Alexander Fleming <i>discovered</i> penicillin.
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Past Continuous

FORM	Was/were + gerund of the verb.
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USES	<ul style="list-style-type: none"> • To say that someone was in the middle of doing something at a certain time. The action or situation had already started before this time but hadn't finished: • This time last year I <i>was writing</i> the article on contrast-enhanced MRI features of ankylosing spondylitis that has been recently published. <p>Notice that the past continuous does not tell us whether an action was finished or not. Perhaps it was, perhaps it was not.</p> <ul style="list-style-type: none"> • To describe a scene: • A lot of patients <i>were waiting</i> in the corridor to see a doctor.
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Present Perfect

FORM	Have/has + past participle of the verb.
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USES

- To talk about the present result of a past action.
- To talk about a recent happening.

In the latter situation you can use the present perfect with the following particles:

- *Just* (i.e., a short time ago): to say something has happened a short time ago:
 - Dr. Ho *has just arrived* at the hospital. He is our new pediatric oncologist.
- *Already*: to say something has happened sooner than expected:
 - The second-year PhD student *has already finished* her presentation.

Remember that to talk about a recent happening we can also use the simple past:

- To talk about a period of time that continues up to the present (an unfinished period of time):
 - We use the expressions: *today, this morning, this evening, this week ...*
 - We often use *ever* and *never*.
- To talk about something that we are expecting. In this situation we use *yet* to show that the speaker is expecting something to happen, but only in questions and negative sentences:
 - Dr. Helms *has not arrived yet*.
- To talk about something you have never done or something you have not done during a period of time that continues up to the present:
 - I *have not performed* a PCR since I was a post-doc.
- To talk about how much we have done, how many things we have done, or how many times we have done something:
 - I *have reported* that regional brain perfusion scan twice because the first report was lost.
 - Dr. Yimou *has performed* twenty tail biopsies this week.
- To talk about situations that exists for a long time, especially if we say *always*. In this case the situation still exists now:
 - Embryonic stem cells *have always been* a controversial issue.
 - Dr. Olmedo *has always been* a very talented scientist.

We also use the present perfect with these expressions:

- Superlative: *It is the most ...*:
 - This is *the most* bizarre result I *have ever gotten*.
 - She is *the most* convincing speaker I *have ever heard*.
- The *first (second, third ...)* time ...:
 - This is the *first time* that I *have seen* a CT of a vertebral hemangiopericytoma.

Present Perfect Continuous

Shows an action that began in the past and has gone on up to the present time.

FORM	<i>Have/has been</i> + gerund.
USES	<ul style="list-style-type: none"> • To talk about an action that began in the past and has recently stopped or just stopped: <ul style="list-style-type: none"> – You look tired. <i>Have you been working</i> all night? – No, <i>I have been writing</i> an article on the embryonic origins of motor neurons. • To ask or say how long something has been happening. In this case the action or situation began in the past and is still happening or has just stopped. <ul style="list-style-type: none"> – Dr. Sancho and Dr. Martos <i>have been working</i> together on the project <i>from</i> the beginning. <p>We use the following particles:</p> <ul style="list-style-type: none"> • <i>How long ...?</i> (to ask how long): <ul style="list-style-type: none"> – <i>How long</i> have you been working as a research technician? • <i>For, since</i> (to say how long): <ul style="list-style-type: none"> – I have been working <i>for</i> ten years. – I have been working very hard <i>since</i> I got this grant. • <i>For</i> (to say how long as a period of time): <ul style="list-style-type: none"> – I have been generating transgenic animals <i>for</i> three years. <p>Do not use <i>for</i> in expressions with <i>all</i>: “I have been working as a scientist <i>all</i> my life” (not “<i>for all</i> my life”).</p> <ul style="list-style-type: none"> • <i>Since</i> (to say the beginning of a period): <ul style="list-style-type: none"> – I have been teaching biology <i>since</i> 1991. <p>In the present perfect continuous the important thing is the action itself and it does not matter whether the action is finished or not. The action can be finished (just finished) or not (still happening).</p> <p>In the present perfect the important thing is the result of the action and not the action itself. The action is completely finished.</p>

Past Perfect

Shows an action that happened in the past before another past action. It is the past of the present perfect.

FORM	<i>Had</i> + past participle of the verb.
USES	<ul style="list-style-type: none"> To say that something had already happened before something else happened: <ul style="list-style-type: none"> When I arrived at the vivarium, the animal technician <i>had</i> already <i>begun</i> microinjecting DNA constructs into the pronuclei of zygotes.

Past Perfect Continuous

Shows an action that began in the past and went on up to a time in the past. It is the past of the present perfect continuous.

FORM	<i>Had been</i> + gerund of the verb.
USES	<ul style="list-style-type: none"> To say how long something had been happening before something else happened: <ul style="list-style-type: none"> She <i>had been working</i> as a scientist for forty years before she was awarded the Nobel Prize.

Subjunctive

Imagine this situation:

- The scientist says to the technician, “Why don’t you do a PCR on the samples we received today?”
- The scientist proposes (that) the technician do a PCR on the samples they received today.

The subjunctive is always formed with the base form of the verb (the infinitive without to):

- I suggest (that) you *work* harder.
- She recommended (that) he *give up* smoking while dictating.
- He insisted (that) she *perform a PCR on the samples* as soon as possible.
- He demanded (that) the research assistant *treat him* more politely.

Note that the subjunctive of the verb *to be* is usually passive:

- He insisted (that) the project proposal *be written* immediately.

You can use the subjunctive after:

- Proposing
- Suggesting
- Recommending
- Insisting
- Demanding

You can use the subjunctive for the past, present, or future:

- He *suggested* (that) the student *change* the format of the report.
- He *recommends* (that) his workers *give up* smoking.

Should is sometimes used instead of the subjunctive:

- The doctor recommended that *I should have* an MRI examination; he suspects that my meniscus is probably torn.

Wish, If Only, Would

Wish

- *Wish* + simple past. To say that we regret something (i.e., that something is not as we would like it to be) in the present:
 - *I wish I spoke* English well (but I cannot speak English well).
 - *I wish I lived* in Canada (but I don't live Canada).
- *Wish* + past perfect. To say that we regret something that happened or didn't happen in the past:
 - *I wish he hadn't treated* his coworkers so badly (but he treated his coworkers badly).
 - *I wish I hadn't worked* with her (but you did work with her).
- *Wish* + *would* + infinitive without *to* when we want something to happen or change or somebody to do something:
 - *I wish you wouldn't dictate* so slowly (note that the speaker is complaining about the present situation or the way people do things).
 - *I wish it would stop raining* (but it is still raining).

If Only

If only can be used in exactly the same way as *wish*. It has the same meaning as *wish* but is more dramatic:

- *If only* + past simple (expresses regret in the present):
 - *If only I spoke* English well.
 - *If only I lived* in Canada.
- *If only* + past perfect (expresses regret in the past):
 - *If only he hadn't treated* the patient's family so badly.
 - *If only I hadn't worked* with her.

After *wish* and *if only* we use *were* (with *I, he, she, it*) instead of *was*, and we do not normally use *would*, although sometimes it is possible, or *would have*.

When referring to the present or future, *wish* and *if only* are followed by a past tense, and when referring to the past by a past perfect tense.

Would

Would is used:

- As a modal verb in offers, invitations and requests (i.e., to ask someone to do something):
 - *Would* you help me to write an article on developmental origin of adipocytes? (request).
 - *Would* you like to come to the students’ party tonight? (offer and invitation).
- After *wish* (see *Wish*).
- In *if* sentences (see *Conditionals*).
- Sometimes as the past of *will* (in reported speech):
 - Lidia said, “I will come to the lab tomorrow.”
 - Lidia said that she *would* come to the lab tomorrow.
- When you remember things that often happened (similar to *used to*):
 - Isaac *used to* walk to work every day.
 - Isaac *would* walk to work every day.

Modal Verbs

FORM	<ul style="list-style-type: none">• A modal verb always has the same form.• There is no -s ending in the third person singular, no -ing form and no -ed form.• After a modal verb we use the infinitive without <i>to</i> (i.e., the base form of the verb). <p>These are the English modal verbs:</p> <ul style="list-style-type: none">• <i>Can</i> (past form is <i>could</i>)• <i>Could</i> (also a modal with its own meaning)• <i>May</i> (past form is <i>might</i>)• <i>Might</i> (also a modal with its own meaning)• <i>Will</i>• <i>Would</i>• <i>Shall</i>• <i>Should</i>• <i>Ought to</i>• <i>Must</i>• <i>Need</i>• <i>Dare</i>
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FORM	<p>We use modal verbs to talk about:</p> <ul style="list-style-type: none"> • Ability • Necessity • Possibility • Certainty • Permission • Obligation
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Expressing Ability

To express ability we can use:

- *Can* (only in the present tense)
- *Could* (only in the past tense)
- *Be able to* (in all tenses)

Ability in the Present

Can (more usual) or *am/is/are able to* (less usual):

- Claudio *can* generate transgenic mice.
- Claudio *is able to* generate transgenic mice.
- *Can* you speak English? Yes, I *can*.
- *Are you able to* speak English? Yes, I am.

Ability in the Past

Could (past form of *can*) or *was/were able to*.

We use *could* to say that someone had the *general* ability to do something:

- When I was an undergraduate student I *could* speak German.

We use *was/were able to* to say that someone managed to do something in one particular situation (*specific* ability to do something):

- Adriano *was able to* extract good quality RNA from the tissue samples.

Managed to can replace *was able to*:

- Adriano *managed to* extract good quality RNA from the tissue samples.

We use *could have* to say that we had the ability to do something but we didn't do it:

- He *could have* been a medical doctor but he became a scientist instead.

Sometimes we use *could* to talk about ability in a situation which we are imagining (here *could* = *would be able to*):

- I *couldn't* do your job. I'm not clever enough.

We use *will be able to* to talk about ability with a future meaning:

- If you keep on studying English you *will be able to* write articles for *Science* very soon.

Expressing Necessity

Necessity means that you cannot avoid doing something.

To say that it is necessary to do something we can use *must* or *have to*.

- Necessity in the present: *must, have/has to*.
- Necessity in the past: *had to*.
- Necessity in the future: *must* or *will have to*.

Notice that to express necessity in the past we do not use *must*.

There are some differences between *must* and *have to*:

- We use *must* when the speaker is expressing personal feelings or authority, saying what he or she thinks is necessary:
 - Your chest X-ray film shows severe emphysema. You *must* give up smoking.
- We use *have to* when the speaker is not expressing personal feelings or authority. The speaker is just giving facts or expressing the authority of another person (external authority), often a law or a rule:
 - All researchers *have to* keep a record of their work in a formal notebook.

If we want to express that there is necessity to avoid doing something, we use *mustn't* (i.e., *not allowed to*):

- You *mustn't* eat anything before the intravenous administration of contrast agent.

Expressing No Necessity

To express that there is no necessity we can use the negative forms of *need* or *have to*:

- No necessity in the present: *needn't* or *don't/doesn't have to*.
- No necessity in the past: *didn't need, didn't have to*.
- No necessity in the future: *won't have to*.

Notice that “there is no necessity to do something” is completely different from “there is a necessity not to do something”.

In conclusion, we use *mustn't* when we are not allowed to do something or when there is a necessity not to do it, and we use the negative form of *have to* or *needn't* when there is no necessity to do something but we can do it if we want to:

- The doctor says *I mustn't* get overtired before the procedure but *I needn't* stay in bed.
- The doctor says *I mustn't* get overtired before the procedure but *I don't have to* stay in bed.

Expressing Possibility

To express possibility we can use *can*, *could*, *may*, or *might* (from more to less certainty: *can* → *may* → *might* → *could*).

But also note that “can” is used of ability (or capacity) to do something; “may” of permission or sanction to do it.

Possibility in the Present

To say that something is possible we use *can*, *may*, *might*, *could*:

- High doses of radiation *can* cause you to get cancer (high level of certainty).
- Radiation *may* actually cause you to get cancer (moderate to high level of certainty).
- Radiation *might* cause you to get thyroid cancer (moderate to low level of certainty).
- Radiation *could* cause you to get bone cancer (low level of certainty).

Possibility in the Past

To say that something was possible in the past we use *may have*, *might have*, *could have*:

- The lesion *might have* been detected on CT if the slice thickness had been thinner.

Could have is also used to say that something was a possibility or opportunity but it didn't happen:

- That experiment you performed was dangerous. You *could have* died.

I couldn't have done something (i.e., I wouldn't have been able to do it if I had wanted or tried to do it):

- She *couldn't have* seen the size difference between the DNA fragments, because the resolution of the gel was poor.

Possibility in the Future

To talk about possible future actions or happenings we use *may*, *might*, *could* (especially in suggestions):

- I don't know where to do my next postdoctoral position. I *may/might* go to the States.
- Dr. Sirolli said we *could* go to the neuroscience meeting.

When we are talking about possible future plans we can also use the continuous form *may/might/could be + -ing* form:

- I *could be going* to the next safety meeting.

Expressing Certainty

To say we are sure that something is true we use *must*:

- You have been working in the lab all night. You *must* be very tired (i.e., I am sure that you are tired).

To say that we think something is impossible we use *can't*:

- According to his clinical laboratory results, that diagnosis *can't* be true (i.e., it is impossible that that diagnosis is true *or* I am sure that that diagnosis is not true).

For past situations we use *must have* and *can't have*. We can also use *couldn't have* instead of *can't have*:

- Taking into consideration the situation, the family of the patient *couldn't have* asked for more.

Remember that to express certainty we can also use *will*:

- I *will* be back in the lab in five minutes.
- Laboratory safety procedures *will* vary from facility to facility.

Expressing Permission

To talk about permission we can use *can*, *may* (more formal than *can*), or *be allowed to*.

Permission in the Present

Can, *may*, or *am/is/are allowed to*:

- You *can* smoke if you like.
- You *are allowed to* smoke.
- You *may* attend the Symposium.

Permission in the Past

Was/were allowed to:

- *Were you allowed to* go into the interventional radiology suite without surgical scrubs?

Permission in the Future

Will be allowed to:

- You *will be allowed to* work in the UK if you have a work permit.

To ask for permission we use *can*, *may*, *could*, or *might* (from less to more formal) but not *be allowed to*:

- Hi Hannah, *can* I borrow your digital camera? (if you are asking for a friend's digital camera).
- Dr. Ho, *may* I borrow your digital camera? (if you are talking to an acquaintance).
- *Could* I use your digital camera, Dr. Coltrane? (if you are talking to a colleague you do not know at all).
- *Might* I use your digital camera, Dr. De Roos? (if you are asking for the chairman's digital camera).

Expressing Obligation or Giving Advice

Obligation means that something is the right thing to do.

When we want to say what we think is a good thing to do or the right thing to do we use *should* or *ought to* (a little stronger than *should*).

Should and *ought to* can be used for giving advice:

- You *ought to* sleep more.
- You *should* work out.
- You *ought to* give up smoking.
- *Should* he see a doctor? Yes, I think he should.
- When *should* we leave the lab? We should leave in 5 minutes.

Conditionals

Conditional sentences have two parts:

1. "If-clause"
2. Main clause

In the sentence “If I were you, I would go to the annual meeting of the American Society of Hematology”, “If I were you” is the if-clause, and “I would go to the annual meeting of the American Society of Hematology” is the main clause.

If we receive the research grant, we can hire more research assistants.

The if-clause can come before or after the main clause. We often put a comma when the if-clause comes first.

Main Types of Conditional Sentences

Type 0

To talk about things that always are true (general truths).

If + simple present + simple present:

- *If* you expose your skin to phenol, you get a skin burn.
- *If* you drink too much alcohol, you get a sore head.
- *If* you take drugs habitually, you become addicted.
- Ice melts *if* the temperature is above 0 degrees Celsius.

Note that the examples above refer to things that are normally true. They make no reference to the future; they represent a present simple concept. This is the basic (or classic) form of the conditional type 0.

There are possible variations of this form. In the if-clause and in the main clause we can use the present continuous, present perfect simple, or present perfect continuous instead of the present simple. In the main clause we can also use the imperative instead of the present simple:

- Students only get a certificate *if* they *have attended* the course regularly.

So the type 0 form can be reduced to:

- *If* + present form + present form or imperative.

Present forms include the present simple, present continuous, present perfect simple, and present perfect continuous.

Type 1

To talk about future situations that the speaker thinks are likely to happen (the speaker is thinking about a real possibility in the future).

If + simple present + future simple (*will*):

- *If* I find something new about the treatment of malignant obstructive jaundice, I will tell you.
- *If* we find out how motor neurons die in people with ALS, we will be able to design treatments to prevent this from happening.

These examples refer to future things that are possible and it is quite probable that they will happen. This is the basic (or classic) form of the conditional type 1.

There are possible variations of the basic form. In the if-clause we can use the present continuous, the present perfect, or the present perfect continuous instead of the present simple. In the main clause we can use the future continuous, future perfect simple, or future perfect continuous instead of the future simple. Modals such as *can*, *may*, or *might* are also possible.

So the form of type 1 can be reduced to:

- *If* + present form + future form

Future forms include the future simple, future continuous, future perfect simple, and future perfect continuous.

Type 2

To talk about future situations that the speaker thinks are possible but not probable (the speaker is imagining a possible future situation) or to talk about unreal situations in the present.

If + simple past + conditional (*would*):

- Peter, *if you worked* harder, you *would* be finished with your studies.
- *If I were* you, I *would* go to the Annual Meeting of the American Society of Hematology (but I am not you).
- *If I were* a resident again, I *would* go to Harvard Medical School for a whole year to complete my training period (but I am not a resident).

There are possible variations of the basic form. In the if-clause we can use the past continuous instead of the past simple. In the main clause we can use *could* or *might* instead of *would*.

So the form of type 2 can be reduced to:

- *If* + past simple or continuous + *would*, *could*, or *might*.

Type 3

To talk about past situations that didn't happen (impossible actions in the past).

If + past perfect + perfect conditional (*would have*):

- *If he had* been in the lab when the explosion occurred, it *would have* injured him
- *If she had* missed her flight, he *would have* been waiting for her at the airport for hours.

As you can see, we are talking about the past.

This is the basic (or classic) form of the third type of conditional. There are possible variations. In the if-clause we can use the past perfect continuous instead of the past perfect simple. In the main clause we can use the continuous form of the perfect conditional instead of the perfect conditional simple. *Would probably, could, or might* instead of *would* are also possible (when we are not sure about something).

In Case

“The scientist wears two pairs of latex gloves during a radioactive experiment *in case* one of them tears.” *In case one of them tears* because it is possible that one of them tears during the experiment (in the future).

Note that we don’t use *will* after *in case*. We use a present tense after *in case* when we are talking about the future.

In case is not the same as *if*. Compare these sentences:

- We’ll buy some more food and drink *if* the new residents come to our department’s party. (Perhaps the new residents will come to our party. If they come, we will buy some more food and drink; if they don’t come, we won’t.)
- We will buy some food and drink *in case* the new residents come to our department’s party. (Perhaps the new residents will come to our department’s party. We will buy some more food and drink whether they come or not.)

We can also use *in case* to say why someone did something in the past:

- He rang the bell again *in case* the nurse hadn’t heard it the first time. (Because it was possible that the nurse hadn’t heard it the first time.)

In case of (= if there is):

- *In case of* pregnancy, avoid work with radioactive materials.

Unless

“Don’t take these pills *unless* you are extremely anxious.” (Don’t take these pills except if you are extremely anxious.) This sentence means that you can take the pills only if you are extremely anxious.

We use *unless* to make an exception to something we say. In the example above the exception is *you are extremely anxious*.

We often use *unless* in warnings:

- *Unless* you send the application form today, you won’t be considered for the MRC New Investigator Research grant.

It is also possible to use *if* in a negative sentence instead of *unless*:

- Don't take those pills *if you aren't* extremely anxious.
- *If you don't send* the application form today, you won't be considered for the MRC New Investigator Research grant.

As Long As, Provided (That), Providing (That)

These expressions mean *but only if*:

- You can use my new pen to sign your report *as long as* you write carefully (i.e., *but only if* you write carefully).
- Going by car to the institute is convenient *provided (that)* you have somewhere to park (i.e., *but only if* you have somewhere to park).
- *Providing (that)* she studies the clinical cases, she will deliver a bright presentation.

Passive Voice

Study these examples:

- The laboratory was destroyed by a big fire (passive).
- A big fire destroyed the laboratory (active).

Both sentences are correct and mean the same. They are two different ways of saying the same thing, but in the passive sentence we try to make the object of the active sentence ("a big fire") more important by putting it at the beginning. So, we prefer to use the passive when it is not that important who or what did the action. In the example above, it is not so important how the laboratory was destroyed.

Active sentence:

- Fleming (subject) discovered (active verb) penicillin (object) in 1950.

Passive sentence:

- Penicillin (subject) was discovered (passive verb) by Fleming (agent) in 1950.

The passive verb is formed by putting the verb *to be* into the same tense as the active verb and adding the past participle of the active verb:

- Discovered (active verb) – was discovered (*be* + past participle of the active verb).

The object of an active verb becomes the subject of the passive verb ("penicillin"). The subject of an active verb becomes the agent of the passive verb ("Fleming"). We can leave out the agent if it is not important to mention it or we don't

know it. If we want to mention it, we will put it at the end of the sentence preceded by the particle *by* (“... by Fleming”).

Some sentences have two objects, indirect and direct. In these sentences the passive subject can be either the direct object or the indirect object of the active sentence:

- The veterinarian gave the research animals a new treatment.

There are two possibilities:

- A new treatment was given to the research animals.
- The research animals were given a new treatment.

Passive Forms of Present and Past Tenses

In the examples below we use the verb *write*. This is an irregular verb, therefore it does not end in – *ed* in the past tense. Write (present), wrote (past), written (past participle).

Simple Present

Active:

- Dr. Di Prata writes a paper on stem cells.

Passive:

- A paper on stem cells is written by Dr. Di Prata.

Simple Past

Active:

- Dr. Di Prata wrote a paper on stem cells.

Passive:

- A paper on stem cells was written by Dr. Di Prata.

Present Continuous

Active:

- Dr. Di Prata is writing a paper on stem cells.

Passive:

- A paper on stem cells is being written by Dr. Di Prata.

Past Continuous

Active:

- Dr. Di Prata was writing a paper on stem cells.

Passive:

- A paper on stem cells was being written by Dr. Di Prata.

Present Perfect

Active:

- Dr. Di Prata has written a paper on stem cells.

Passive:

- A paper on stem cells has been written by Dr. Di Prata.

Past Perfect

Active:

- Dr. Di Prata had written a paper on stem cells.

Passive:

- A paper on stem cells had been written by Dr. Di Prata.

In sentences of the type “people say/consider/know/think/believe/expect/understand ... that ...”, such as “Doctors consider that AIDS is a fatal disease”, we have two possible passive forms:

- AIDS is considered to be a fatal disease.
- It is considered that AIDS is a fatal disease.

Have/Get Something Done

FORM

Have/get + object + past participle.

Get is a little more informal than *have*, and it is often used in informal spoken English:

- You should *get* the ultracentrifuge machine fixed.
- You should *have* the ultracentrifuge machine fixed.

When we want to say that we don't want to do something ourselves and we arrange for someone to do it for us, we use the expression *have something done*:

- The patient had all his metal objects removed in order to prevent accidents during the MR examination.

Sometimes the expression *have something done* has a different meaning:

- John had his knee broken playing a football match. MRI showed a meniscal tear.

It is obvious that this doesn't mean that he arranged for somebody to break his knee. With this meaning, we use *have something done* to say that something (often something not nice) happened to someone.

Supposed To

Supposed to can be used in the following ways:

Can be used like *said to*:

- The chairman is supposed to be the one who runs the department.

To say what is planned or arranged (and this is often different from what really happens):

- The fourth year resident is supposed to read this CT.

To say what is not allowed or not advisable:

- You are not supposed to drink alcohol while you are pregnant.

Reported Speech

Imagine that you want to tell someone else what the patient said. You can either repeat the patient's words or use reported speech.

The reporting verb (*said* in the examples below) can come before or after the reported clause (*there was a conference about stem cells that evening*), but it usually comes before the reported clause. When the reporting verb comes before, we can use *that* to introduce the reported clause or we can leave it out (leaving it out is more informal). When the reporting verb comes after, we cannot use *that* to introduce the reported clause.

The reporting verb can report statements and thoughts, questions, orders, and requests. Here are a few commonly used reporting verbs: *admit, advise, ask, deny, explain, promise, reply, say, tell, warn*.

Reporting in the Present

When the reporting verb is in the present tense, it isn't necessary to change the tense of the verb:

- "I'll help you guys with this maxiprep", he says.
- He says (that) he will help us with this maxiprep.
- "The administration of BrdU and tissue preparation will take place this afternoon", he says.

- He says (that) the administration of BrdU and tissue preparation will take place this afternoon.

Reporting in the Past

When the reporting verb is in the past tense, the verb in direct speech usually changes in the following ways:

- Simple present changes to simple past.
- Present continuous changes to past continuous.
- Simple past changes to past perfect.
- Past continuous changes to past perfect continuous.
- Present perfect changes to past perfect.
- Present perfect continuous changes to past perfect continuous.
- Past perfect stays the same.
- Future changes to conditional.
- Future continuous changes to conditional continuous.
- Future perfect changes to conditional perfect.
- Conditional stays the same.
- Present forms of modal verbs stay the same.
- Past forms of modal verbs stay the same.

Pronouns, adjectives, and adverbs also change. Here are some examples:

- First person singular changes to third person singular.
- Second person singular changes to first person singular.
- First person plural changes to third person plural.
- Second person plural changes to first person plural.
- Third person singular changes to third person plural.
- Now changes to then.
- Today changes to that day.
- Tomorrow changes to the day after.
- Yesterday changes to the day before.
- This changes to that.
- Here changes to there.
- Ago changes to before.

It is not always necessary to change the verb when you use reported speech. If you are reporting something and you feel that it is still true, you do not need to change the tense of the verb, but if you want you can do it:

- The treatment of choice for severe urticaria after intravenous contrast administration is epinephrine.
- He said (that) the treatment of choice for severe urticaria after intravenous contrast administration is epinephrine.

or

- He said (that) the treatment of choice for severe urticaria after intravenous contrast administration was epinephrine.

Reporting Questions

Yes and No Questions

We use *whether* or *if*:

- Do you smoke or drink any alcohol?
- The doctor asked if I smoked or drank any alcohol.
- Have you had any urticaria after intravenous contrast injections?
- The doctor asked me whether I had had any urticaria after intravenous contrast injections or not.
- Are you taking any pills or medicines at the moment?
- The doctor asked me if I was taking any pills or medicines at that moment.

Wh... Questions

We use the same question word as in the *wh...* question:

- What do you mean by saying you are feeling under the weather?
- The doctor asked me what I meant by saying I was feeling under the weather.
- Why do you think you feel under the weather?
- The doctor asked me why I thought I felt under the weather.
- When do you feel under the weather?
- The doctor asked me when I felt under the weather.
- How often do you have headaches?
- The doctor asked how often I had headaches.

Reported Questions

Reported questions have the following characteristics:

- The word order is different from that of the original question. The verb follows the subject as in an ordinary statement.
- The auxiliary verb *do* is not used.
- There is no question mark.
- The verb changes in the same way as in direct speech.

Study the following examples:

- How old are you?
- The doctor asked me how old I was.
- Do you smoke?
- The doctor asked me if I smoked.

Reporting Orders and Requests

FORM	<p><i>Tell</i> (pronoun) + object (indirect) + infinitive:</p> <ul style="list-style-type: none">• Take the pills before meals.• The doctor told me to take the pills before meals.• You mustn't smoke.• The doctor told me not to smoke.
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Reporting Suggestions and Advice

Suggestions and advice are reported in the following forms:

- Suggestions
 - Why don't we pre-amplify the samples prior to RT-PCR?
 - The scientist suggested pre-amplifying the samples prior to RT-PCR.
- Advice
 - You should keep the tissue samples at –70 degrees Celsius.
 - The scientist advised me to keep the tissue samples at –70 degrees Celsius.

Questions

In sentences with *to be*, *to have* (in its auxiliary form), and modal verbs, we usually make questions by changing the word order:

- Affirmative
 - You are a scientist.
 - Interrogative: Are you a scientist?
- Negative
 - You are not a scientist.
 - Interrogative: Aren't you a scientist?

In simple present questions we use *do/does*:

- Yes, I understand the protocol.
- Do you understand the protocol?
- No, she doesn't. She takes the bus.
- Does your boss drive to work?

In simple past questions we use *did*:

- The technician arrived on time.
- Did the technician arrive on time?

If *who/what/which* is the subject of the sentence we do not use *do*:

- Dr. Di Prata phoned Dr. Smith.
- Who phoned Dr. Smith?

If *who/what/which* is the object of the sentence we use *did*:

- Dr. Smith phoned Dr. Di Prata.
- Who did Dr. Smith phone?

When we ask somebody and begin the question with *Do you know...* or *Could you tell me...*, the rest of the question maintains the affirmative sentence's word order:

- Where is the cold room?

but

- Do you know where the cold room is?
- Where is the canteen?

but

- Could you tell me where the canteen is?

Reported questions also maintain the affirmative sentence's word order:

- Dr. Wilson asked: How are you?

but

- Dr. Wilson asked me how I was.

Short answers are possible in questions where *be*, *do*, *can*, *have*, and *might* are auxiliary verbs:

- Do you smoke? Yes, I do.
- Did you smoke? No, I didn't.
- Can you walk? Yes, I can.

We also use auxiliary verbs with *so* (affirmative) and *neither* or *nor* (negative) changing the word order:

- I am feeling tired. So am I.
- I can't remember the name of the disease. Neither can I.
- Is he going to pass the exams? I think so.
- Will you be in the lab tomorrow? I guess so.

- Will you be in the lab on the weekend? I hope not.
- Has the Chairman been invited to the party? I'm afraid so.

Tag Questions

We use a positive tag question with a negative sentence and vice versa:

- The PhD student isn't feeling very well today, is she?
- You are working late at the lab, aren't you?

After *let's* the tag question is *shall we*?

- Let's read a couple of articles, shall we?

After the imperative, the tag question is *will you*?

- Turn off the laser, will you?

Infinitive/-Ing

Verb + -Ing

There are certain verbs that are usually used in the structure verb + *-ing* when followed by another verb:

- *Stop*: Please *stop talking*.
- *Finish*: I've *finished* translating the article into English.
- *Enjoy*: I *enjoy talking* to patients while I'm doing an ultrasound on them.
- *Mind*: I don't *mind being* told what to do.
- *Suggest*: Dr. Knight *suggested going* to the OT and trying to operate on the aneurysm that we couldn't stent.
- *Dislike*: She *dislikes going* out late after a long day at work.
- *Imagine*: I can't *imagine you operating*. You told me you hate blood.
- *Regret*: He *regrets having gone* two minutes before his patient had seizures.
- *Admit*: The post-doc *admitted forgetting* to switch off the mercury lamp when he was done with the microscope.
- *Consider*: Have you *considered finishing* your residence in the USA?

Other verbs that follow this structure are: *avoid*, *deny*, *involve*, *practice*, *miss*, *postpone*, and *risk*.

The following expressions also take *-ing*:

- *Give up*: Are you going to *give up smoking*?
- *Keep on*: She *kept on interrupting* me while I was speaking.
- *Go on*: Go *on studying*, the exam will be next month.

When we are talking about finished actions, we can also use the verb *to have*:

- The post-doc *admitted forgetting* to switch off the mercury lamp.

or

- The post-doc *admitted having forgotten* to switch off the mercury lamp.

And, with some of these verbs (*admit, deny, regret, and suggest*), you also can use a “that...” structure:

- The post-doc *admitted forgetting* to switch off the mercury lamp.

or

- The post-doc *admitted that he had forgotten* to switch off the mercury lamp.

Verb + Infinitive

When followed by another verb, these verbs are used with verb + infinitive structure:

- *Agree*: The patient *agreed to give up* smoking.
- *Refuse*: The patient *refused to give up* smoking.
- *Promise*: I *promised to give up* smoking.
- *Threaten*: Dr. Sommerset *threatened to close* the Pharmacology department.
- *Offer*: The unions *offered to negotiate*.
- *Decide*: Dr. Smith’s research assistants *decided to leave* his research team.

Other verbs that follow this structure are: *attempt, manage, fail, plan, arrange, afford, forget, learn, dare, tend, appear, seem, pretend, need, and intend*.

There are two possible structures after these verbs: *want, ask, expect, help, would like, and would prefer*:

- Verb + infinitive: I *asked to see* Dr. Knight, the surgeon who operated on my patient.
- Verb + object + infinitive: I *asked Dr. Knight to inform* me about my patient.

There is only one possible structure after the following verbs: *tell, order, remind, warn, force, invite, enable, teach, persuade, and get*:

- Verb + object + infinitive: *Remind me to send* the results of the experiment to Dr. Smith tomorrow morning.

There are two possible structures after the following verbs:

- *Advise*:
 - I *wouldn’t advise learning* at that oncology department.
 - I *wouldn’t advise you to learn* at that oncology department.
- *Allow*:
 - They *don’t allow smoking* in laboratories.
 - They *don’t allow you to smoke* in laboratories.

- *Permit:*
 - They *don't permit eating* at the laboratory bench.
 - They *don't permit you to eat* at the laboratory bench.

When you use *make* and *let*, you should use the structure: verb + base form (instead of verb + infinitive):

- Blood *makes me feel* dizzy (you can't say: blood *makes me to feel* ...).
- Dr. Knight *wouldn't let me process* the samples.

After the following expressions and verbs you can use either *-ing* or the infinitive: *like, hate, love, can't stand*, and *can't bear*:

- She *can't stand being* alone while she is working in the laboratory late at night.
- She *can't stand to be* alone while she is working in the laboratory late at night.

After the following verbs you can use *-ing* but not the infinitive: *dislike, enjoy*, and *mind*:

- I *enjoy being* alone (not: I *enjoy to be* alone).

Would like, a polite way of saying *I want*, is followed by the infinitive:

- *Would you like to be* the chairman of the biology division?

Begin, start, and *continue* can be followed by either *-ing* or the infinitive:

- Symptoms *began to improve* after stem cell infusion.
- Symptoms *began improving* after stem cell infusion.
- Stores supplying lab reagents cannot *continue to raise* prices.
- Stores supplying lab reagents cannot *continue raising* prices.

With some verbs, such as *remember* and *try*, the use of *-ing* and infinitive after them have different meanings:

- *Remember:*
 - I *can't remember to hang* up my lab coat (I always forget to hang up my lab coat)
 - I *can't remember hanging* up my lab coat (I'm not sure whether I hung my lab coat).
 - I *remember to send* them the cell culture (I remembered, and then sent the cultures).
 - I *remember sending* them the cell cultures (I sent them the cultures, and now I can remember doing that).
- *Try:*
 - The patient *tried to keep* her eyes open while the MR examination was going on (the patient *made an effort* to keep her eyes open during the examination).
 - If your headache persists, *try asking* for a pill (ask for the pill and *see what happens*).

Verb + Preposition + -Ing

If a verb comes after a preposition, that verb ends in *-ing*:

- Are you *interested in working* for our university?
- What are the advantages of *developing* new scientific techniques?
- She's *not very good at learning* languages.

You can use *-ing* with *before* and *after*:

- Decontaminate your lab coat *before laundering*.
- What did you do *after finishing* your thesis?

You can use *by* + *-ing* to explain how something happened:

- You can improve your scientific English *by reading* scientific journals.

You can use *-ing* after *without*:

- You can have a heart attack *without realizing* it.

Be careful with *to* because it can either be a part of the infinitive or a preposition:

- I'm looking forward to see you again (this is NOT correct).
- I'm looking forward to seeing you again.
- I'm looking forward to the next European symposium.

Review the following verb + preposition expressions:

- *succeed in* finding a job
- *feel like* going out tonight
- *think about* freezing your cell lines
- *dream of* being a scientist
- *disapprove of* smoking
- *look forward to* hearing from you
- *insist on* inviting me to chair the next scientific session
- *apologize for* keeping Dr. Ho waiting
- *accuse* (someone) *of* telling lies
- *suspected of* having AIDS
- *stop from* leaving the animal facility
- *thank* (someone) *for* being helpful
- *forgive* (someone) *for* not writing to me
- *warn* (someone) *against* carrying on smoking

The following are some examples of expressions + *-ing*:

- *I don't feel like* going out tonight.
- *It's no use* trying to persuade her.
- *There's no point in* waiting for him.

- *It's not worth* taking a taxi. The university is only a short walk from here.
- *It's worth* looking again at the signals on the autoradiograph film.
- *I am having difficulty* reporting that T-tube cholangiogram.
- *I am having trouble* reporting that T-tube cholangiogram.

Countable and Uncountable Nouns

Countable Nouns

Countable nouns are things we can count. We can make them plural.

Before singular countable nouns you may use *a/an*:

- You will be attended to by *a* doctor.
- Dr. Vida is looking for *an* ecologist.

Remember to use *a/an* for jobs:

- I'm *a* scientist.

Before plural countable nouns you use *some* as a general rule:

- I've read *some* good articles on stem cells lately.
- I have *some* ideas for the project.
- I had *some* difficulties finding a job.

Don't use *some* when you are talking about general things or in negative sentences:

- Generally speaking, I like biochemistry books.
- I don't have *any* ideas for the project.

You have to use *some* when you mean some, but not all:

- *Some* doctors carry a stethoscope but radiologists don't.
- I'll lend you *some* money (not all my money).

Uncountable Nouns

Uncountable nouns are things we cannot count. They have no plural.

You cannot use *a/an* before an uncountable noun; in this case you have to use *the, some, any, much, this, his*, etc. ... or leave the uncountable noun alone, without the article:

- The chairman gave me an advice (NOT correct).
- The chairman gave me *some* advice.

- I saw *an* ethanol spill onto the floor (this is NOT correct because ethanol cannot be counted).
- I saw *the* ethanol spill onto the floor.

Many nouns can be used as countable or uncountable nouns. Usually there is a difference in their meaning:

- I had *many experiences* on my rotation at the Children's Hospital (countable).
- I need *experience* to become a good research assistant (uncountable).

Some nouns are uncountable in English but often countable in other languages: *advice, baggage, behavior, bread, chaos, furniture, information, luggage, news, permission, progress, scenery, traffic, travel, trouble, and weather.*

Articles: A/An and The

The speaker says *a/an* when it is the first time he talks about something, but once the listener knows what the speaker is talking about, he says *the*:

- This morning I performed *a* PCR on the samples. *The* PCR results were completely concordant with previous results.

We use *the* when it is clear which thing or person we mean:

- Can you turn off *the* light.
- Where is *the* biochemistry department, please?

As a general rule, we say:

- The police
- The bank
- The post office
- The fire department
- The doctor
- The hospital
- The dentist

We say: *the* sea, *the* sky, *the* ground, *the* city, and *the* country.

We don't use *the* with the names of meals:

- What did you have for lunch/breakfast/dinner?

But we use *a* when there is an adjective before a noun:

- Thank you. It was *a* delicious dinner.

We use *the* for musical instruments:

- Can you play *the* piano?

We use *the* with absolute adjectives (adjectives used as nouns). The meaning is always plural. For example:

- The rich
- The old
- The blind
- The sick
- The disabled
- The injured
- The poor
- The young
- The deaf
- The dead
- The unemployed
- The homeless

We use *the* with nationality words (note that nationality words always begin with a capital letter):

- *The* British, *the* Dutch, *the* Spanish.

We don't use *the* before a noun when we mean something in general:

- I love scientists (not *the* scientists).

With the words *school*, *college*, *prison*, *jail*, *church* we use *the* when we mean the buildings and leave the substantives alone otherwise. We say: *go to bed*, *go to work*, and *go home*. We don't use *the* in these cases.

We use *the* with geographical names according to the following rules:

- Continents don't use *the*:
 - Our new resident comes from Asia.
- Countries/states don't use *the*:
 - The student that rotated in Dr. Sirolli's lab came from China.
(except for country names that include words such as Republic, Kingdom, States...; e.g., the United States of America, the United Kingdom, and The Netherlands).

As a general rule, cities don't use *the*:

- The next International Conference on Neural Transplantation and Repair will be held in Toronto.

Islands don't use *the* with individual islands but do use it with groups:

- Dr. Holmes comes from Sicily and her husband from the Canary Islands.

Lakes don't use *the*; oceans, seas, rivers and canals do use it.

- Lake Ontario is beautiful.
- *The* Panama Canal links *the* Atlantic Ocean to *the* Pacific Ocean.

We use *the* with streets, buildings, airports, universities, etc., according to the following rules:

- Streets, roads, avenues, boulevards, and squares don't use *the*:
 - The university is sited at 15th. Avenue.
- Airports don't use *the*:
 - The plane arrived at JFK airport.
- We use *the* before publicly recognized buildings: *the* White House, *the* Empire State Building, *the* Louvre museum, *the* Prado museum, *the* CN Tower.
- We use *the* before names with of: *the* Tower of London, *the* Great Wall of China.
- Universities don't use *the*: I studied at Harvard.

Word Order

The order of adjectives is discussed in the section Adjectives under the heading Adjective Order

The *verb* and the *object* of the verb normally go together:

- I studied radiology because I like *watching images* very much (*not* I like very much watching images).

We usually say the place before the time:

- She has been Chair of the Biology department at Harvard since April 2006.

We put some adverbs in the middle of the sentence:

If the verb is one word we put the adverb before the verb:

- I performed his carotid duplex ultrasound and *also spoke* to his family.

We put the adverb after *to be*:

- You are *always* on time.

We put the adverb after the first part of a compound verb:

- Are you *definitely* attending the safety course?

In negative sentences we put *probably* before the negative:

- I *probably* won't see you at the safety course.

We also use *all* and *both* in these positions:

- Jack and Tom are *both* able to carry out a PCR.
- We *all* felt sick after the meal.

Relative Clauses

A clause is a part of a sentence. A relative clause tells us which person or thing (or what kind of person or thing) the speaker means.

A relative clause (e.g., *who is on call?*) begins with a relative pronoun (e.g., *who, that, which, whose*).

Do you know the student *who* is talking to Dr. Sirolli?

A relative clause comes after a noun phrase (e.g., the doctor, the nurse).

Most relative clauses are defining clauses and some of them are non-defining clauses.

Defining Clauses

- *The book on developmental biology (that) you lent me is very interesting.*

The relative clause is essential to the meaning of the sentence.

Commas are not used to separate the relative clause from the rest of the sentence.

That is often used instead of *who* or *which*, especially in speech.

If the relative pronoun is the object (direct object) of the clause, it can be omitted.

If the relative pronoun is the subject of the clause, it cannot be omitted.

Non-defining Clauses

- *The first bone marrow transplant in Australia, which took place at our hospital, was a complete success.*

The relative clause is not essential to the meaning of the sentence; it gives us additional information.

Commas are usually used to separate the relative clause from the rest of the sentence.

That cannot be used instead of *who* or *which*.

The relative pronoun cannot be omitted.

Relative Pronouns

Relative pronouns are used for people and for things.

- For people:
 - Subject: *who, that*
 - Object: *who, that, whom*
 - Possessive: *whose*
- For things:
 - Subject: *which, that*
 - Object: *which, that*
 - Possessive: *whose*

Who is used only for people. It can be the subject or the object of a relative clause:

- The woman *who* had only one copy of the mutation is said to have sickle cell anemia.

Which is used only for things. Like *who*, it can be the subject or object of a relative clause:

- The materials *which* are used for pronuclear microinjection of mouse zygotes are very expensive.

That is often used instead of *who* or *which*, especially in speech.

Whom is used only for people. It is grammatically correct as the object of a relative clause, but it is very formal and is not often used in spoken English. We can use *whom* instead of *who* when *who* is the object of the relative clause or when there is a preposition after the verb of the relative clause:

- The graduate student *who* I am going to the meeting with is very nice.
- The graduate student with *whom* I am going to the meeting is a very nice and intelligent person.
- Who is writing the letter?
- To whom are you writing?
- The professor *who* I saw in the Dean's Office yesterday has been suspended for having an inappropriate relationship with his student.
- The professor *whom* I saw in the Dean's Office yesterday has been suspended for having an inappropriate relationship with his student.

Whose is the possessive relative pronoun. It can be used for people and things. We cannot omit *whose*:

- Technicians *whose* wages are low should be paid more.

We can leave out *who*, *which* or *that*:

- When it is the object of a relative clause.
 - The article on the spleen that you wrote is great.
 - The article on splenic embolization you wrote is great.
- When there is a preposition. Remember that, in a relative clause, we usually put a preposition in the same place as in the main clause (after the verb):
 - The congress that we are going to next week is very expensive.
 - The congress we are going to next week is very expensive.

Prepositions in Relative Clauses

We can use a preposition in a relative clause with *who*, *which*, or *that*, or without a pronoun.

In relative clauses we put a preposition in the same place as in a main clause (after the verb). We don't usually put it before the relative pronoun. This is the normal order in informal spoken English:

- This is a problem *which* we can do very little about.
- The student (*who*) I spoke to earlier isn't here now.

In more formal or written English we can put a preposition at the beginning of a relative clause. But if we put a preposition at the beginning, we can only use *which* or *whom*. We cannot use the pronouns *that* or *who* after a preposition:

- This is a problem *about which* we can do very little.
- The student *to whom* I spoke earlier isn't here now.

Relative Clauses Without a Pronoun (Special Cases)

Infinitive Introducing a Clause

We can use the infinitive instead of a relative pronoun and a verb after:

- The first, the second, ... and the next
- The only
- Superlatives

For example:

- Marie Curie was the first person *to win* two Nobel Prizes.
- Rudolf Virchow was the first *to describe* glial cells.

-Ing and -Ed Forms Introducing a Clause

We can use an *-ing* form instead of a relative pronoun and an active verb:

- Scientists *wanting* to train abroad should have a good level of English.

We can use an *-ed* form instead of a relative pronoun and a passive verb:

- The scientist *injured* in the lab was taken to the hospital.

The *-ing* form or the *-ed* form can replace a verb in a present or past tense.

Why, When, and Where

We can use *why*, *when*, and *where* in a defining relative clause.

We can leave out *why* or *when*. We can also leave out *where*, but then we must use a preposition.

We can form non-defining relative clauses with *when* and *where*:

- The clinical history, *where* everything about a patient is written, is a very important document.

We cannot leave out *when* and *where* from a non-defining clause.

Adjectives

An adjective describes (tells us something about) a noun.

In English, adjectives come before nouns (old hospital) and have the same form in both the singular and the plural (new hospital, new hospitals) and in the masculine and in the feminine.

An adjective can be used with certain verbs such as *be*, *get*, *seem*, *appear*, *look* (meaning *seem*), *feel*, *sound*, *taste* ...:

- He has been *ill* since Friday, so he couldn't attend the conference.
- The patient was getting *worse*.
- The pronuclear microinjection of DNA into fertilized oocytes seemed *easy*, but it wasn't.
- Myelinated axons appear *black* when stained with Sudan Black.
- You look rather *tired*. Have you tested your RBC?
- She felt *sick*, so she stopped the renal transplant scan.
- Food in hospitals tastes *horrible*.

As you can see, in these examples there is no noun after the adjective.

Adjective Order

We have *fact adjectives* and *opinion adjectives*. Fact adjectives (*large, new, white, ...*) give us objective information about something (size, age, color, ...). Opinion adjectives (*nice, beautiful, intelligent, ...*) tell us what someone thinks of something.

In a sentence, opinion adjectives usually go before fact adjectives:

- An *intelligent* (opinion) *young* (fact) research associate visited me this morning.
- Dr. Spencer has a *nice* (opinion) *red* (fact) Porsche.

Sometimes there are two or more fact adjectives describing a noun, and generally we put them in the following order:

1. Size/length
2. Shape/width
3. Age
4. Color
5. Nationality
6. Material

For example:

- A tall young student.
- A small round lesion.
- A black latex leaved pair of gloves.
- A large new white latex leaved pair of gloves.
- An old American professor.
- A tall young Italian post-doc.
- A small square old yellow metal Geiger Counter.

Regular Comparison of Adjectives

The form used for a comparison depends upon the number of syllables in the adjective.

Adjectives of One Syllable

One-syllable adjectives (for example *fat, thin, tall*) are used with expressions of the form:

- *less ... than* (inferiority)
- *as ... as* (equality)
- *-er ... than* (superiority)

For example:

- Getting research grants is *less hard than* a few years ago.
- Eating in the hospital is *as cheap as* eating at the Medical School.
- Ultrasound examinations are difficult nowadays because people tend to be *fatter than* in the past.

Adjectives of Two Syllables

Two-syllable adjectives (for example *easy, dirty, clever*) are used with expressions of the form:

- *less ... than* (inferiority)
- *as ... as* (equality)
- *-er/more ... than* (superiority)

We prefer *-er* for adjectives ending in *y* (*easy, funny, pretty ...*) and other adjectives (such as *quiet, simple, narrow, clever ...*). For other two-syllable adjectives we use *more*.

For example:

- The technical problem is *less simple than* you think.
- My arm is *as painful as* it was yesterday.
- The board exam was *easier than* we expected.
- His illness was *more serious than* we first suspected, as demonstrated on the high-resolution chest CT.

Adjectives of Three or More Syllables

Adjectives of three or more syllables (for example *difficult, expensive, comfortable*) are used with expressions of the form:

- *less ... than* (inferiority)
- *as ... as* (equality)
- *more ... than* (superiority)

For example:

- Studying medicine in Spain is *less expensive than* in the States.
- The small hospital was *as comfortable as* a hotel.
- The results were *more interesting than* I had thought.

Before the comparative of adjectives you can use:

- *a (little) bit*
- *a little*
- *much*
- *a lot*
- *far*

For example:

- I am going to try something *much simpler* to solve the problem.
- The patient is *a little better* today.
- The little boy is *a bit worse* today.

Sometimes it is possible to use two comparatives together (when we want to say that something is changing continuously):

- It is becoming *more and more* difficult to find a job in the pharmaceutical industry.

We also *say twice as ... as, three times as ... as*:

- Going to the American Society for Neuroscience meeting *is twice as expensive as* going to the German one.

The Superlative

The form used for a superlative depends upon the number of syllables in the adjective:

Adjectives of One Syllable

One-syllable adjectives are used with expressions of the form:

- *the ... -est*
- *the least*

For example:

- The number of scientists in your country is the *highest* in the world.

Adjectives of Two Syllables

Two-syllable adjectives are used with expressions of the form:

- *the ... -est/I*
- *the least*

For example:

- Phosphorus-32 (32P) is one of the *commonest* radioactive isotopes used in basic research.
- Phosphorus-32 (32P) is one of the *most common* radioactive isotopes used in basic research.

Adjectives of Three or More Syllables

Adjectives of three or more syllables are used with:

- *the most*
- *the least*

For example:

- Common sense and patience are *the most important* things for a scientist.
- This is the *least difficult* brain CT I have reported in years.

Irregular Forms of Adjectives

- good better the best
- bad worse the worst
- far farther/further the farthest/furthest

For example:

- My ultrasound technique is *worse* now than during my first year of residence in spite of having attended several ultrasound refresher courses.

Comparatives with *The*

We use *the* + comparative to talk about a change in one thing which causes a change in something else:

- The nearer the X-ray focus the better image we have.
- The more you practice ultrasound the easier it gets.
- The higher the contrast amount the greater the risk of renal failure.

As

Two things happening at the same time or over the same period of time:

- The PhD student listened carefully *as* Dr. Fraser explained to his staff the results obtained by the two techniques was unsatisfactory.
- The accident occurred *as* I was leaving the laboratory.

One thing happening during another:

- The patient died *as* the CT scan was being performed.
- I had to leave the meeting just *as* the stem cell discussion was getting interesting.

Note that we use *as* only if two actions happen together. If one action follows another we don't use *as*, we use the particle *when*:

- *When* the injured scientist came to my office, I decided to call the ambulance.

Meaning *because*:

- *As* I was feeling sick, I decided to go to the doctor.

Like and As

Like

Like is a preposition, so it can be followed by a noun, pronoun or *-ing* form.

It means *similar to* or *the same as*. We use it when we compare things:

- Under a microscope, adipose tissue looks like a collection of bubbles.
- What does he do? He is a scientist, *like* me.

As

As + subject + verb:

- Don't change the anesthetic dose. Leave everything *as* it is.
- The tissue sample should have been treated *as* I showed you.

Meaning *what*:

- The student did *as* he was told.
- He carried out the experiment with only one sample, *as* I expected.
- *As* you know, we are sending an article to Nature Neuroscience next week.
- *As* I thought, the sample was contaminated.

As can also be a preposition, so it can be used with a noun, but it has a different meaning from *like*.

As + noun is used to say what something really is or was (especially when we talk about someone's job or how we use something):

- Before becoming a research scientist I worked *as* a research technician in a small village.

As if, *as though* are used to say how someone or something looks, sounds, feels, ..., or to say how someone does something:

- The principal investigator treated me *as if* I were an undergraduate student.
- John sounds *as though* he has got a cold.

Expressions with *as*:

- *Such as*
- *As usual* (Dr. Mas was late *as usual*.)

So and Such

So and *such* make the meaning of the adjective stronger.

We use *so* with an adjective without a noun or with an adverb:

- The first-year PhD student is *so clever*.
- The animal technician injected the drug *so carefully* that the animal did not notice it.

We use *such* with an adjective with a noun:

- She is *such a clever student*.

Prepositions

At/On/In Time

We use *at* with times:

- *At* 7 o'clock
- *At* midnight
- *At* breakfast time
- *At* noon (*At* midday in British English)

We usually leave out *at* when we ask (*at*) *what time*:

- *What time* are you reporting this evening?
- *What time* are you leaving the lab tonight?

We also use *at* in these expressions:

- *At* night
- *At* the moment
- *At* the same time
- *At* the beginning of
- *At* the end of

For example:

- I don't like to work alone *at night*.
- Dr. Knight is giving a seminar *at the moment*.

We use *in* for longer periods of time:

- *In* June
- *In* summer
- *In* 1977

We also say *in the morning, in the afternoon, in the evening*:

- I'll give you the lab report *in the morning*.

We use *on* with days and dates:

- *On* October 24th
- *On* Monday
- *On* Saturday mornings
- *On* the weekend (*At* the weekend in British English)

We do not use *at/in/on* before *last* and *next*:

- I'll be in the laboratory *next* Saturday.
- They bought a new scanner *last* year.

We use *in* before a period of time (i.e., a time in the future):

- Our student went to Boston to do a rotation in Dr MacDonald's laboratory.
He'll be back *in* a year.

For, During, and While

We use *for* to say to how long something takes:

- I've worked as a lab technician at this university *for* ten years.

You cannot use *during* in this way:

- It rained *for* five days (not *during* five days).

We use *during* + noun to say when something happens (not how long):

- The student fell asleep *during* the safety meeting.

We use *while* + subject + verb:

- The student fell asleep *while* he was attending the safety meeting.

By and Until

By + a time (i.e., not later than; you cannot use *until* with this meaning):

- I mailed the article on hybrid human-animal embryos today, so they should receive it *by* Tuesday.

Until can be used to say how long a situation continues:

- Let's wait *until* the patient gets better.

When you are talking about the past, you can use *by the time*:

- *By the time* they got to the hotel the congress had already started.

In/At/On

We use *in* as in the following examples:

- *In* a room
- *In* a building
- *In* a town/*in* a country (Dr. Vida works *in* Cordoba.)
- *In* the water/ocean/river
- *In* a row
- *In* the hospital

We use *at* as in the following examples:

- *At* the bus stop
- *At* the door/window
- *At* the top/bottom
- *At* the airport
- *At* work
- *At* sea
- *At* an event (I saw Dr. Jules *at* the residents' party.)

We use *on* as in the following examples:

- *On* the ceiling
- *On* the floor
- *On* the wall
- *On* a page
- *On* your nose
- *On* a farm

In or At?

- We say *in the corner of a room*, but *at the corner of a street*.
- We say *in* or *at* college/school. Use *at* when you are thinking of the college/school as a place or when you give the name of the college/school:
 - Thomas will be *in* college for three more years.
 - He studied medicine *at* Harvard Medical School.
- With buildings, you can use *in* or *at*.
- *Arrive*. We say:
 - *Arrive in* a country or town (Dr. Vida *arrived in* Boston yesterday.)
 - *Arrive at* other places (Dr. Vida *arrived at* the airport a few minutes ago.)
 - But: *arrive home* (Dr. Vida *arrived home* late after sending the article to Nature.)

Ellipsis

An ellipsis is a punctuation symbol that indicates an intentional omission of a word or a phrase from an original text. In addition, in the grammar of a sentence an ellipsis is a construction that lacks an element, which is omitted because the logic or pattern of the whole sentence makes it unnecessary. Redundant information is often omitted in conversational English. Obviously, native-English speakers use ellipsis to a greater extent than non-native-English speakers. Using ellipsis appropriately is a sign of fluency in any language. Ellipsis can be used in replies, at the beginning of a sentence, at the end of a sentence, to substitute a whole infinitive, after auxiliary verbs, and with a variety of conjunctions, pronouns and prepositions among others. Take a minute to look at the examples below.

Can you speak English? Yes, I can.

The short answer *Yes, I can*, means *Yes, I can speak English*. Both are grammatically correct, but the long answer (without ellipsis) is generally not the choice that most native-English speakers make when answering the question.

What is your name? John

The short answer *John*, means, *My name is John*.

Where are my samples? In the cold room.

The short answer *In the cold room*, means, *Your samples are in the cold room*.

Are you and John going to the Neuroscience meeting in Toronto ? We hope to.

The short answer *We hope to*, means, *Yes, we hope to go to the Neuroscience meeting in Toronto*.

Have you finished making the solutions? Yes, I have.

The short answer *Yes, I have*, means, *Yes, I have finished making the solutions*.

He worked in Dr. Smith's laboratory, and so did I. (with ellipsis)

He worked in Dr. Smith's laboratory, and I worked in Dr. Smith's laboratory too. (without ellipsis)

Which tubes are you going to use? These.

The short answer *These*, means, *I am going to use these tubes*.



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