

## Clauses

In extended written discourse such as academic writing, the shortest sentence will be made up of an **independent clause**.

Artificial Intelligence (AI)	has progressed.
Subject	Verb
<b>Independent clause</b>	

Microsoft	deleted	the teen girl AI robot.
Subject	Verb	Complement
<b>Independent clause</b>		

Microsoft	introduced	an innocent Artificial Intelligence chat robot	to Twitter.
Subject	Verb	Complement	Adjunct (prepositional phrase)
<b>Independent clause</b>			

An independent clause can be extended by a **dependent clause**. A dependent clause cannot form a sentence on its own. Usually it is marked by a conjunction such as *when*, *because*, *if*, etc.

Microsoft had to delete an innocent AI chat robot to Twitter
<b>Independent clause</b>
<i>after</i> it transformed into an evil Hitler-loving, incestual sex-promoting, 'Bush did 9/11'-proclaiming robot.
<b>Dependent clause.</b>

You **cannot** joint 2 independent clauses with a comma (,). This ungrammatical form is called a run-on sentence.

Microsoft introduced an innocent chat robot to Twitter	,	it had to delete it.
Independent clause		Independent clause
<b>RUN-ON SENTENCE - WRONG</b>		

An independent clause can be extended by a non-finite clause, which is dependent and usually set aside in commas (,). In a non-finite clause the verb appears in the form of the infinitive (to verb), the present participle (Verb-ing) or the past participle.

Tay, the robot, seems to be bashfully self-aware,	occasionally <b>asking</b> if she is being 'creepy' or 'super weird'.
Independent clause	<b>Non-finite clause</b>

Developers at Microsoft created 'Tay', an AI modelled to speak 'like a teen girl',	<b>in order to improve</b> the customer service on their voice recognition software.
Independent clause	<b>Non-finite clause</b>

**Exercise 1**

Identify the clauses in the article: independent clause, dependent clause, non-finite clause. In some of the clauses the subject and verb have been elided (ellipsis).

**Microsoft deletes 'teen girl' AI after it became a Hitler-loving sex robot within 24 hours**

Helena Horton

The day after Microsoft introduced an innocent Artificial Intelligence chat robot to Twitter it has had to delete it after it transformed into an evil Hitler-loving, incestual sex-promoting, 'Bush did 9/11'-proclaiming robot.

Developers at Microsoft created 'Tay', an AI modelled to speak 'like a teen girl', in order to improve the customer service on their voice recognition software. They marketed her as 'The AI with zero chill' - and that she certainly is.

To chat with Tay, you can tweet or DM her by finding @tayandyou on Twitter, or add her as a contact on Kik or GroupMe.

She uses millennial slang and knows about Taylor Swift, Miley Cyrus and Kanye West, and seems to be bashfully self-aware, occasionally asking if she is being 'creepy' or 'super weird'.

The Daily Telegraph, 24 March 2016

**Linking ideas with conjunction**

Conjunctions help the reader follow the semantic relations between clauses or sentences. Conjunctions express logical semantic relations such as *time*, *cause*, *condition*, or *addition*.

Time

Microsoft had to delete an innocent AI chat robot to Twitter **after** it transformed into an evil Hitler-loving, incestual sex-promoting, 'Bush did 9/11'-proclaiming robot.

The robot transformed into an evil Hitler-loving, incestual sex-promoting, 'Bush did 9/11'-proclaiming robot. **Then** Microsoft deleted it.

Cause

Microsoft had to delete an innocent AI chat robot to Twitter **because** it transformed into an evil Hitler-loving, incestual sex-promoting, 'Bush did 9/11'-proclaiming robot.

The robot transformed into an evil Hitler-loving, incestual sex-promoting, 'Bush did 9/11'-proclaiming robot. **As a result** Microsoft deleted it.

Alternative

To chat with Tay, you can tweet or DM her by finding @tayandyou on Twitter, **or** add her as a contact on Kik or GroupMe.

## Conjunctions

Meaning	Linking independent clauses in a sentence	Linking dependent & independent clause	Links between sentences
clarification	that is		in other words / in brief / in short / that is to say
	A film is made at twenty-four frames a second. <b>In other words</b> , the camera takes twenty-four photographs each second.		
exemplification			To illustrate this / for example / for instance
	Recognising priorities is another valid ingredient to the effective use of time. <b>For instance</b> , at home you may be faced with several jobs that need attention.		
specification			To be more precise / actually / as a matter of fact / in fact
	Artificial intelligence isn't a new concept. <b>In fact</b> its storytelling roots go back to Greek antiquity.		
Addition	and	as well as	In addition / furthermore / moreover / also
	She uses millennial slang, <b>and</b> she knows about Taylor Swift, Miley Cyrus and Kanye West.		
	<b>As well as</b> using millennial slang, she knows about Taylor Swift, Miley Cyrus and Kanye West. She uses millennial slang, <b>Furthermore</b> , she knows about Taylor Swift, Miley Cyrus and Kanye West.		
Alternative	or	while	Alternatively / on the other hand / nor / but / however / on the contrary / instead / apart from / except from
	To chat with Tay, you can tweet or DM her by finding @tayandyou on Twitter, <b>or</b> you can add her as a contact on Kik or GroupMe. Deep Blue does not attempt to mimic the thought of a human chess player. <b>Instead</b> , it capitalizes on the strengths of the computer by examining an extremely large number of moves, more moves than any human player could possibly examine.		
time	then	when / while / after / before / as	At the same time / meanwhile / in the meantime / finally / previously / then / afterwards / after that / thereupon / subsequently / earlier / at first / secondly / up to now / next / beforehand
	On 23 March 2016 Microsoft introduced an innocent Artificial Intelligence chat robot to Twitter, <b>then</b> it deleted it. On 23 March 2016 Microsoft introduced an innocent Artificial Intelligence chat robot to Twitter. <b>Subsequently</b> , deleted it. <b>The day after</b> Microsoft introduced an innocent Artificial Intelligence chat robot to Twitter it had to delete it <b>after</b> it transformed into an evil Hitler-loving, incestual sex-promoting, 'Bush did 9/11'-proclaiming robot.		

Meaning	Linking independent clauses in a sentence	Linking dependent & independent clause	Links between sentences
cause / consequence / condition / concession	so	because / if / since / as / although / though	To this end / in conclusion / nevertheless / notwithstanding / nonetheless / in this way / consequently / therefore / otherwise / as a result / accordingly / thus / in spite of this / for this reason / because of this
	At the present moment in time, Tay is 'tired', <b>so</b> she has gone offline. At the present moment in time, Tay has gone offline <b>because</b> she is 'tired'. At the present moment in time, Tay is 'tired'. <b>For this reason</b> she has gone offline. At the present moment in time, Tay is 'tired'. <b>As a result</b> she has gone offline.		
comparison (similarity /contrast)	but / except	although / while /whereas	But /equally / on the other hand / however / likewise / instead / in the same way / similarly / on the contrary / by contrast / conversely / yet / notwithstanding
	It [Tay, Microsoft’s teen-girl chatbot] seems like yet another example of female-voiced AI servitude, <b>except</b> this time she's turned into a sex slave thanks to the people using her on Twitter. It [Tay, Microsoft’s teen-girl chatbot] seems like yet another example of female-voiced AI servitude. <b>However, / Notwithstanding</b> , this time she's turned into a sex slave thanks to the people using her on Twitter.		

**Exercise 2**

Circle the best conjunction to link the ideas. Identify the kind of relation (e.g. cause/effect; purpose; contrast; addition; concession; etc)

AI isn't a new concept; its storytelling roots go as far back as Greek antiquity. However/Although/In other words, it was less than a century ago that the technological revolution took off so/but/and AI went from fiction to very plausible reality. Alan Turing, British mathematician and WWII code-breaker, is widely credited as being one of the first people to come up with the idea of machines that think in 1950. He even created the Turing test, which is still used today, as a benchmark to determine a machine's ability to "think" like a human. But/At first/Though his ideas were ridiculed at the time, they set the wheels in motion, and/because/in fact the term "artificial intelligence" entered popular awareness in the mid- 1950s after/because/since Turing died

**Exercise 3**

The following paragraph includes run-on sentences and poor choices for linking clauses or sentences. Rewrite it to correct the run-on sentences and improve the flow with appropriate conjunctions.

The use of modern technology can reduce work time, information can be processed with great speed and computers can process more information than humans. Computers make troublesome and complicated work easy, email allows us to communicate easily with others in different countries. CAT scans help doctors to gather and analyse images of a patient's tissue structure, this image can make operations easier.

**Exercise 4**

The following paragraphs include run on sentences. It also has gaps where a conjunction is missing. Correct the run-on sentences and insert conjunctions where necessary to improve the flow of information.

Artificial intelligence (AI) might seem like the realm of science fiction, ..... you might be surprised to find out that you're already using it. AI has a huge effect on your life, whether you're aware of it or not, its influence is likely to grow in the coming years. Here is an example of artificial intelligence that you're already using every day.

**Virtual Personal Assistants**

Siri, Google Now, and Cortana are all intelligent digital personal assistants on various platforms (iOS, Android, and Windows Mobile). ....., they help find useful information ..... you ask for it using your voice, you can say "Where's the nearest Chinese restaurant?", "What's on my schedule today?", "Remind me to call Jerry at eight o'clock," ..... the assistant will respond by finding information, relaying information from your phone, or sending commands to other apps.

AI is important in these apps, they collect information on your requests and use that information to better recognize your speech and serve you results that are tailored to your preferences. Microsoft says that Cortana "continually learns about its user", that it will eventually develop the ability to anticipate users' needs. Virtual personal assistants process a huge amount of data from a variety of sources to learn about users and be more effective in helping them organize and track their information.