

24<sup>th</sup> October – Reading Part C

## Text 2: Predicting side effects of medication

### Paragraph 1 – Vocab:

- Multi-institutional
- To accelerate
- To spot

15 When Robert letsvaart says that says '**Machine learning is not a silver bullet**' he is making the point that

1. What is your existing knowledge of the phrase “silver bullet”?
2. The question uses the phrase “making the point” – Whose point do we need to understand – the writer’s or someone else’s?

A multi-institutional group of researchers has created an open-source machine learning tool that offers a new method for developing safer medicines by identifying potential adverse reactions – side effects – in new candidate medicines. One of the researchers, genetics expert Robert letsvaart, says '**Machine learning is not a silver bullet** for drug discovery, but I do believe it can accelerate many different aspects in the difficult and long process of developing new medicines. Although it cannot predict all possible adverse effects, we hope that our work will help researchers spot potential trouble early on and develop safer drugs in the future.'

15 When Robert letsvaart says that says '**Machine learning is not a silver bullet**' he is making the point that

- (A) it will only be a partial solution to the problems of developing new medication.
- (B) it is too early to be sure of its impact on the amount of research time required.
- (C) it is uncertain whether it will help to simplify medical research procedures.
- (D) it is unlikely to lead to the discovery of innovative new medications.

How does Robert letsvaart use contrast linkers?

**Paragraph 2 – Vocab:**

- Fatal
- Off-label use
- Tactics

**16** What is the writer's purpose in the second paragraph?

1. The question asks use to find “the writer’s purpose” – Do we need to find a detail in the paragraph or read the whole paragraph to understand the writer’s purpose?

Adverse drug reactions, ranging from mild to fatal, may occur when taking a drug as prescribed, as well as through incorrect dosages, the interaction of multiple medicines or off-label use (taking a drug for something other than what it was approved for). In the USA alone, they cause 2 million hospitalizations each year and are a factor in up to 20 percent of hospitalizations, according to research. Researchers have applied many tactics to avoid or at least minimize these issues, but because a single drug often interacts with multiple proteins in the body – not always limited to the intended targets – identifying which of these was responsible can be hard if a drug does cause an adverse reaction. The same goes for predicting what, if any, side effects may happen.

**16** What is the writer's purpose in the second paragraph?

- (A) to describe some recent trends in the numbers of adverse drug reactions.
- (B) to summarise the difficulties involved in reducing adverse drug reactions.
- (C) to improve prescribing practices in order to reduce adverse drug reactions.
- (D) to outline various methods that have been used to reduce adverse drug reactions.

**What does the phrase “the same goes” mean?**

**Paragraph 3 – Vocab:**

- Algorithm
- Novel
- End up

**17** What does the writer say was unusual about the hackathon following Laszlo Urban's presentation?

1. The question uses the word "unusual" – What type of information might we need to answer this question?
2. How can we find the information we need to answer this question?

The project was born three years ago when pharmacologist Laszlo Urban gave a presentation on some of the problems his team faces when assessing the safety of new drug candidates. A group of graduate and post-doctorate students then participated in a hackathon – an event in which people meet to carry out computer programming together. The aim was to apply their knowledge of data science and machine learning to the problem of creating an algorithm that could possibly predict adverse reactions to medication. Most of the time, such projects simply end up as learning exercises, but on this occasion, the interaction of scientists from different institutions actually generated a novel application published in a highly respected journal.

**17** What does the writer say was unusual about the hackathon following Laszlo Urban's presentation?

- (A) the backgrounds of those that were involved
- (B) the speed with which it was carried out
- (C) the fact that it achieved a worthwhile result
- (D) the educational benefits for participants

**Why does the writer say "Most of the time ... but on this occasion"?**

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- (A) it will only be a **partial solution** to the problems of developing new medication.
- (B) it is **too early** to be sure of its impact on the amount of research time required.
- (C) it is **uncertain** whether it will help to simplify medical research procedures.
- (D) it is **unlikely** to lead to the **discovery of innovative new medications.**

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**Answers:**

15) A

16) B

17) C