Dear Participant,

We are a team of researchers from the BLINDED lab and we are working to understand how understandable Neverlang is, a language workbench that serves to define other languages (Domain-Specific Languages, extensions of existing languages, etc.).

To study the comprehensibility of Neverlang, we have created a test, structured in two distinct phases (both to be carried out online).

Below you will find a description of the two phases and instructions for carrying them both out.

Here is your identifier (ID)

Remember this for the duration of the test, you will be asked to enter it during the different phases.

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ID: xxx

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Please read the following instructions carefully in order to complete the test in both phases.

We ask you to carry out the two phases at two separate times (possibly on two separate days) so that a natural cognitive fatigue after the first phase does not impair performance in the second phase.

1. PHASE ONE: Measuring the performance of your working memory.

Working memory is a cognitive system responsible for the short-term storage and processing of information required to complete a task. There is a limit to the amount of information that users can simultaneously store and process in their working memory, this limit is called the working memory span.

The working memory span has been shown to be highly predictive of performance in a wide range of tasks including programming skills.

To evaluate this limit, specific tasks called working memory span tasks are used in which the user is asked to remember a series of numbers of varying lengths while simultaneously processing other information (e.g. evaluating an equation or sentence).

During this phase of the study, the user will have to perform two different working memory span tasks:

- Operation span task: it will have to evaluate whether the equations presented on the screen are correct or incorrect and simultaneously remember a list of numbers of varying length (from 2 to 5).

- Reading span task: you will have to evaluate whether the sentences presented on the screen are real (meaning true) or not real (meaning not true) and simultaneously remember a list of numbers of variable length (from 2 to 5).

The two tasks will be presented one after the other in random order. They will be preceded by an explanation and a short training session. There is a two-minute break between tasks.

To carry out the task, you must use the platform accessible at the BLINDED link using the Mozilla Firefox or Google Chrome browser.

At the start of the test you will be asked to enter your ID.

2. PHASE TWO: Test on Neverlang

The second phase consists of 3 sub-phases:

Training Phase:

At this link BLINDED will find a video tutorial on Neverlang.

The video lasts about 14 minutes and contains all the information you need to complete the test.

Please watch the video carefully and only try to use it before the start of the test.

If you find it necessary, you can watch the video tutorial again during the test phase, but remember to mark the times you needed to use this support.

If you do not see the video clearly, change the video quality to 1080p (HD) from the video settings on YouTube.

Test Phase:

At this link BLINDED will find the Neverlang questionnaire.

The questionnaire consists of 8 multiple choice questions in which you will have to evaluate pieces of Neverlang code of varying length. Each question has only one correct answer.

Before the questions you will be asked to enter your ID.

Post-test questionnaire:

At this BLINDED link you will find a final questionnaire with general background questions, demographic information and feedback on the test in general and on Neverlang. Again, you will be asked to enter your ID.

Please complete the test and do your best in each of its parts!

At the end of this e-mail you will find a recap of useful links and information.

Thank you for your support.

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ID: xxx

Working Memory Span Tasks: BLINDED

Video tutorial: BLINDED

Neverlang questionnaire: BLINDED

Post-study questionnaire: BLINDED

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