

Group 13

<u>Name</u>	<u>IST number</u>	<u>% Contribution</u>	<u>Justification</u>
Filipe Sousa	90714	50%	In question 1, each one of us built 2 of the 4 transducers. We did question 2 together (remotely) because some transducers depended on others.
Pedro Vilela	90762	50%	

Options taken

For the transducer “**text2num**”, we first concatenated a transducer that receives the string “e” as input and has no output with the transducer “**minutos**”, resulting in the transducer “**e_minutos**”. Then, we concatenated the transducer “**horas**” with “**e_minutos**” resulting in “**text2num**”.

For the transducer “**lazy2num**”, we created a transducer that either does the same as the transducer “**e_minutos**” or writes “:00” when there are no minutes in the input, resulting in the transducer “**lazy_end**”. Then, we concatenated the transducer “**horas**” with “**lazy_end**” resulting in “**lazy2num**”.

For the transducer “**rich2text**”, we first created a transducer that accepts (doesn’t change) the hours followed by the word “e”, named “**horas_e_acc**”. Then, we created a transducer that either does the same as the transducer “**meias**” or the transducer “**quartos**”, resulting in the transducer “**meias_ou_quartos**”. Finally, we concatenated the transducer “**horas_e_acc**” with “**meias_ou_quartos**” resulting in “**rich2text**”.

For the transducer “**rich2num**”, we first composed our transducer “**rich2text**” with “**text2num**”, resulting in the transducer “**rich2text2num**” which converts a rich expression (using “meia” or “quarto(s)”) directly to a numeric string. We then created a transducer that either does the same as the transducer “**rich2text2num**” or the transducer “**lazy2num**”, resulting in the transducer “**rich2num**”.

For the transducer “**num2text**” we inverted the transducer “**text2num**”.

Comments on our solution

We had to change the weights for the “**horas**” and “**minutos**” transducers, in order for the inverted transducer of question “**num2text**” to choose the arc which prints the words “horas” and “minutos”, instead of choosing the epsilon-transition arcs. However, changing these weights did not change in any way the functionality of the transducers “**horas**” and “**minutos**”.

For the test transducers:

- the ones to be tested by “**num2text**” have the letter “A”, and their output has the letter “C”;
- the ones to be tested by “**text2num**” have the letter “B”, and their output has the letter “D”.