

1. Is abc a word of Language $(abc \cup (bc)^*) \cdot cba$? Why?

No, because abc should be followed by cba .

2. Is $bcbccba$ a word of Language $(abc \cup (bc)^*) \cdot cba$? Why?

Yes, $bcbccba$ comes out of:

$(abc \cup (bc)^*) \cdot \underline{cba}$
twice this part this suffix.

3. Is 00 a word of Language $01^* (00 \cup 11) 1^* 0$? Why?

No, all words of the language start with a 0 and end with a 0, but there has to be at least 00 or 11 in the middle.

4. Is 0100 a word of Language $01^* (00 \cup 11) 1^* 0$? Why?

No, 0100 would correspond to: $\frac{01^*}{01} (\frac{00 \cup 11}{00})$

but miss the suffix $1^* 0$.

5. Is 1100010 a word of Language $(00 \cup 11)^+ 01^* 0$? Why?

Yes, it corresponds to:

$(\underline{00} \cup \underline{11})^+ 01^* 0$
 $\swarrow \quad \searrow$
 $\underline{11} \quad \underline{00} \quad 010$
 The 1st time The 2nd time.