$\langle \{\}, \{\}, \ id, \ \{[a][b]X \approx_? [b][a]X\} \rangle$

$(\approx_? \ [\mathbf{ab}])$

$\langle \{\}, \{\}, \ id, \ \{[b]X \approx_? [b](a\,b).X, \ a \#_? [a]X\} \rangle$

$(\approx_? \ [\mathbf{aa}])$

$\langle \{\}, \{\}, \ id, \ \{X \approx_? (a\,b).X, \ a \#_? [a]X\} \rangle$

$(\approx_? \ \mathbf{inv})$

$\langle \{\}, \{\}, \ id, \ \{a \#_? [a]X, \ (a\,b).X \approx_? X\} \rangle$

$(\#_? \ \mathbf{a[a]})$

$\langle \{\}, \{\}, \ id, \ \{(a\,b).X \approx_? X\} \rangle$

$(\top)$