# THE ABSTRACT GROUP $G$ SIMPLY ISOMORPHIC WITH THE ALTERNATING GROUP ON SIX LETTERS.

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1. A SLIGHT correction of a theorem due to De Séguier * leads to the result that $G$ is generated by three operators $a, b, c$, subject only to the relations

$$(1) \qquad a^2 = I, \qquad b^4 = I, \qquad c^3 = I, \qquad (ac)^3 = I,$$

$$(2) \qquad (ab^{-1}ab)^3 = I, \qquad (ab^{-2}ab^2)^2 = I,$$

$$(3) \qquad (cb^{-1}ab)^2 = I, \qquad (cb^{-2}ab^2)^2 = I.$$

But these generators are not independent, since

$$(4) \qquad a = cb^{-1}cbc.$$

A simple verification of (4) results from the correspondence

$$a \sim (12)(34), \qquad b \sim (12)(3456), \qquad c \sim (123)$$

between the generators of the simply isomorphic groups.

It is shown in this section that $G$ is generated by the two operators $b$ and $c$, subject to the complete set of generational relations

$$(5) \qquad b^4 = I, \quad c^3 = I, \quad (b^{-1}cbc^{-1})^2 = I, \quad (b^2c)^4 = I.$$

These relations follow from (1), (2), (3); for, by the above correspondence, $b^{-1}cbc^{-1} \sim (14)(23)$, $b^2c \sim (1235)(46)$.

*If $a$ be defined by* (4), *relations* (1), (2), (3) *follow from* (5).

$$a^2 = cb^{-1}cbc^{-1}b^{-1}cbc = c(b^{-1}cbc^{-1})^2c^{-1} = I,$$

$$(ac)^3 = cb^{-1}c^3bc^{-1} = I.$$

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**Journal de Math.*, 1902, p. 262. For $y = 2, \ldots, n-3$ in his formula (6), should stand $y = 1, \ldots, n-4$.