EXTENSION OF THE CANTOR SET: 
THE SECOND FOURTH CONCEPT

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Review Article

Abstract
Cantor came out with the Cantor Ternary Set. In this research another concept has been developed. The process is done by deleting the second fourth.

Keywords:
Cantor set, extension, second fourth set, general formula

1 Introduction
If $A_0 = [0, 1]$, then the general formula for the second-fourth can be derived as depicted in the section on Main Result which took the signal from the Cantor set which was obtained by deleting the middle third (Obeng-Denteh, Amoako-Yirenkyi & Asare, 2016).
2 Main Results

Let \( A_0 = [0, 1] \). Then,

For \( A_1 \),

\[
A_1 = \left[ 0, \frac{1}{4} \right] \cup \left[ \frac{1}{2}, 1 \right]
\]

For \( A_2 \),

\[
A_2 = \left[ 0, \frac{1}{16} \right] \cup \left[ \frac{1}{8}, \frac{1}{4} \right] \cup \left[ \frac{1}{2}, \frac{5}{8} \right] \cup \left[ \frac{3}{4}, 1 \right]
\]

For \( A_3 \),

\[
A_3 = \left[ 0, \frac{1}{64} \right] \cup \left[ \frac{1}{32}, \frac{1}{16} \right] \cup \left[ \frac{1}{8}, \frac{5}{32} \right] \cup \left[ \frac{1}{4}, \frac{9}{16} \right] \cup \left[ \frac{1}{2}, \frac{17}{32} \right] \cup \left[ \frac{3}{4}, \frac{13}{16} \right] \cup \left[ \frac{7}{8}, 1 \right]
\]

Culminating into

\[
A_n = \frac{A_{n-1}}{4} \cup \left[ \frac{1}{2} + \frac{A_{n-1}}{2} \right], \quad n \in \mathbb{N}
\]

3 Concluding Remarks

Thus the formula for the second- fourth is given by

\[
A_n = \frac{A_{n-1}}{4} \cup \left[ \frac{1}{2} + \frac{A_{n-1}}{2} \right], \quad n \in \mathbb{N}
\]

REFERENCE