CORRIGENDUM TO: BOUNDS ON THE NUMBER OF
EDGES OF EDGE-MINIMAL, EDGE-MAXIMAL AND
l-HYPERTREES [DISCUSSIONES MATHEMATICAE
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Abstract

In this corrigendum, we correct the proof of Theorem 10 from our paper titled „Bounds on the number of edges of edge-minimal, edge-maximal and l-hypertrees”.

Keywords: hypertree, chain in hypergraph, edge-minimal hypertree, edge-maximal hypertree, 2-hypertree, Steiner system.

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1. The Corrected Proof of Theorem 10

In the original proof of Theorem 10, we stated that

\[ \frac{1}{k-1} \binom{n}{k-1} - \frac{1}{(k-1)(n-k+1)} |E| \leq \frac{1}{k-1} \binom{n}{k-1} - \frac{1}{(k-1)^2(n-k+1)} \binom{n}{k-1}. \]

This can only be true if \( |E| \geq \frac{1}{k-1} \binom{n}{k-1} \), but in reality, the exact opposite is true, i.e., \( |E| \leq \frac{1}{k-1} \binom{n}{k-1} \) (see Theorem 9).

Below, we present the corrected proof of Theorem 10.

**Theorem 10.** If \( H = (V, E) \) is a \( k \)-uniform 2-hypertree, then \( |E| \leq \frac{1}{k-1} \binom{n}{k-1} - \frac{1}{(k-1)^2} \binom{n}{k-2} \).
Proof. We use the simple fact that \( \sum_{i=1}^{n-k+1} C_i \geq \frac{1}{n-k+1} |\mathcal{E}| \), which follows from
\[
|\mathcal{E}| = \sum_{i=1}^{n-k+1} i C_i \leq (n-k+1) \sum_{i=1}^{n-k+1} C_i.
\]
Comparing it to the Star-equation (Theorem 9), we get
\[
|\mathcal{E}| \leq \frac{1}{k-1} \binom{n}{k-1} - \frac{1}{(k-1)(n-k+1)} |\mathcal{E}| - \frac{1}{k-1},
\]
which implies that
\[
|\mathcal{E}| \leq \left( (k-1) + \frac{1}{n-k+1} \right)^{-1} \binom{n}{k-1}
\]
\[
= \left( \frac{1}{k-1} - \frac{1}{(k-1)^2(n-k+1) + (k-1)} \right) \binom{n}{k-1}
\]
\[
\leq \left( \frac{1}{k-1} - \frac{1}{(k-1)^2(n-k+2)} \right) \binom{n}{k-1}
\]
\[
= \frac{1}{k-1} \binom{n}{k-1} - \frac{1}{(k-1)^3} \binom{n}{k-2}.
\]

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