

BILL, RECORD LECTURE!!!!

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Computable Ramsey Theorem For Graphs

Exposition by **William Gasarch**

March 26, 2026

Queries

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I will not prove this, but I will use it.

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We give the first few steps of the process.

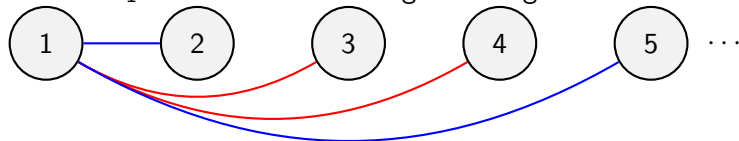
Examples of The First Few Steps of The Process

First Step of Our Process

Look at $x_1 = 1$ and all of the edges coming out of it:

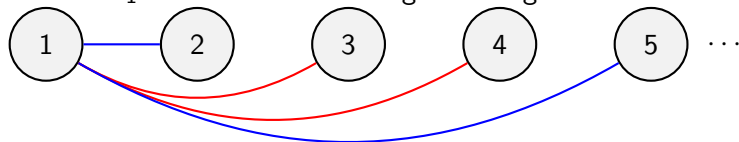
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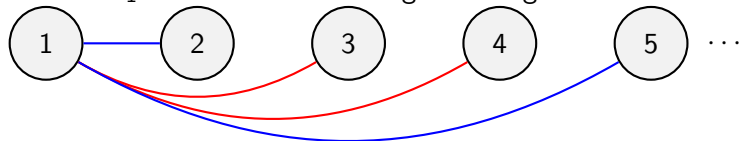
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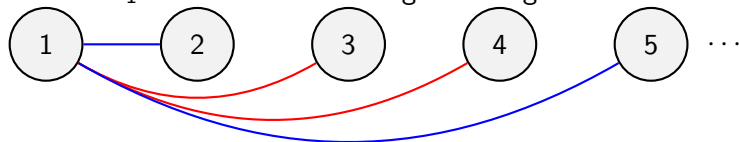


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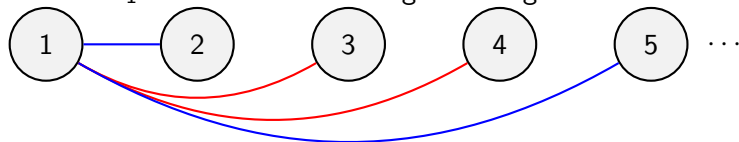
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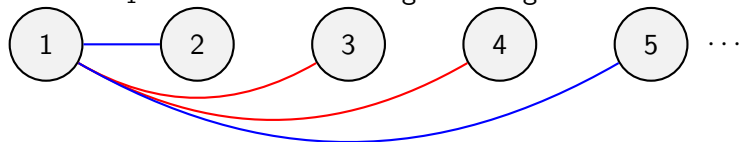
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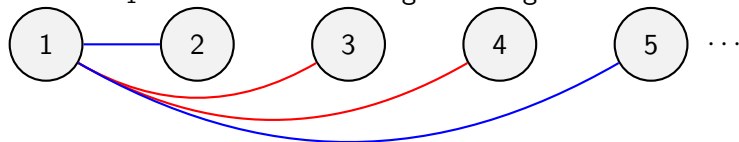
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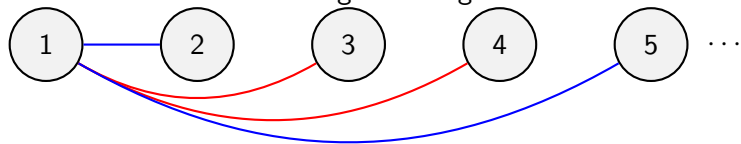
We have a picture of this on the next slide.

Node x_1 Has the Reds

Look at 1 and all of the edges coming out of it:

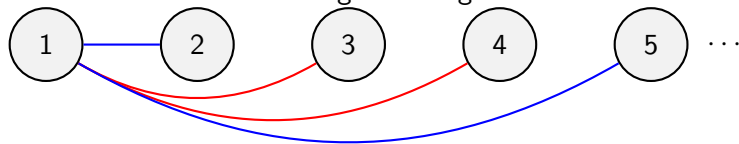
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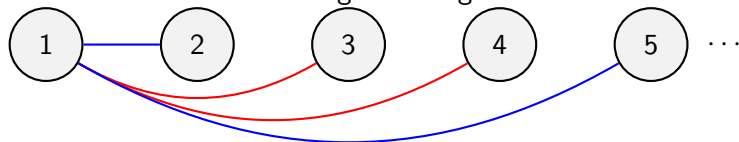
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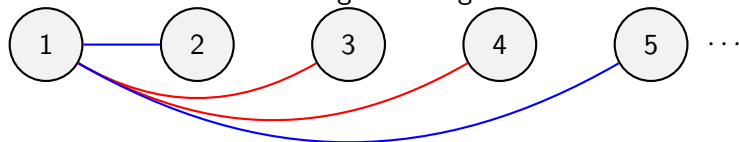
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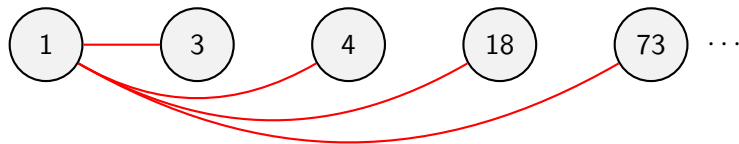
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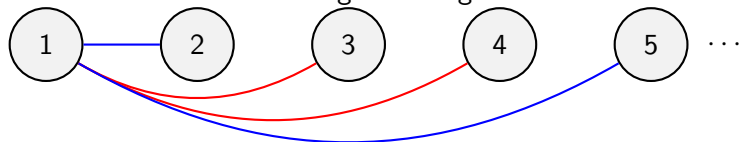


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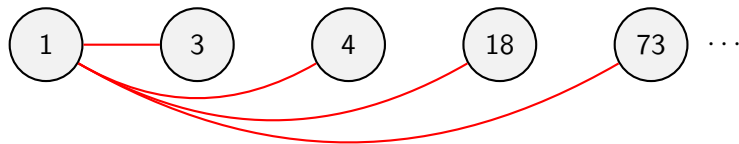


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We Omit 1 from future pictures but its **Still Alive and Well**.
<https://www.youtube.com/watch?v=8--jVqaU-G8>.

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What about c_2 . This is the **Key**.

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At least one of them will be an algorithm for an ∞ homog set that makes queries Π_2 queries.

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 you see $(x_i, c_i), (x_{i+1}, c_{i+1})$ where $x_i < x < x_{i+1}$. Output NO and stop.

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Not even a little!

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\forall comp. COL: $\binom{\mathbb{N}}{2} \rightarrow [2] \exists$ an ∞ homog Π_2 set.

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Open Narrow the gap between Π_{2a-1} and Σ_a .