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EVERY INTEGER CAN BE FOUND WITHIN A PRIME NUMBER

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Abstract of Poster Presentation: This presentation demonstrates an application of the Kempner Series in proving that certain sequences are disjunctive. A Kempner Series is a modified harmonic series in which no denominator contains a specified digit, or string of digits (e.g. 23 is said to contain 2, 3, and 23), and a disjunctive sequence is a sequence where for any integer N , there is some element in our sequence that contains N . It is a surprising fact that every Kempner Series converges, and we utilize this property to produce an elementary proof that the prime numbers are disjunctive. We expand this result to more general classes of sequences (e.g. arithmetic progressions), and discuss potential applications in demonstrating that certain irrational constants are disjunctive.

[Joint work with David Aulicino]

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