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Aposyndesis in \mathbb{N}

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Abstract: We consider the Golomb and the Kirch topologies in the set of natural numbers. Among other results, we show that while with the Kirch topology every arithmetic progression is aposyndetic, in the Golomb topology only for those arithmetic progressions $P(a, b)$ with the property that every prime number that divides a also divides b , it follows that being connected, being Brown, being totally Brown, and being aposyndetic are all equivalent. This characterizes the arithmetic progressions which are aposyndetic in the Golomb space.

Keywords: aposyndesis; arithmetic progression; Golomb topology; Kirch topology; totally Brown space; totally separated space

AMS Subject Classification: 11B25, 54D05, 11A41, 11B05, 54A05, 54D10

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