

On the enumeration of Krom functions

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	x_1	x_2	x_3	$(x_1 + 1)x_3 + 1$	
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	1	1	0	1	
Arguments (3-bitvectors), sorted by decreasing lexicographic order	1	0	1	1	← <i>truth vector</i> (2^3 -bitvector)
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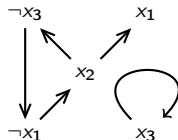
Fact (enumeration of Boolean functions). There are 2^{2^n} possible n -ary Boolean functions.

Krom functions

Now consider a **Krom digraph**: a digraph whose vertices are variables or negated variables, e.g. the following one.

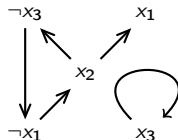
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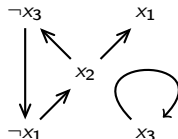
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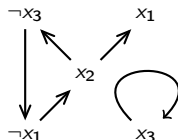


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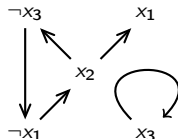
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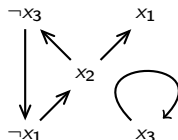


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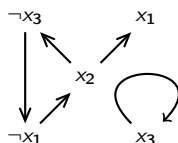


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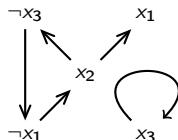
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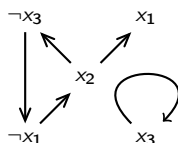
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Note. Only the first eight terms of K are currently known: 4, 16, 166, 4170, 224716, 24445368, 5167757614, 2061662323954 (computed by Knuth, see OEIS A109457).

Some observations (see OEIS A004211)

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Note. There are palindromic truth vectors which do not represent any Krom function, for example 01111110.