Structured Electronic Design

EE3C11
Topics from Network Theory
Modified Nodal Analysis

Anton J.M. Montagne

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Voltage-controlled notation

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Nodal Analysis only suited for networks with elements of which the(ir) branch current(s) can be expressed in terms of branch voltage(s)

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Voltage source (example)

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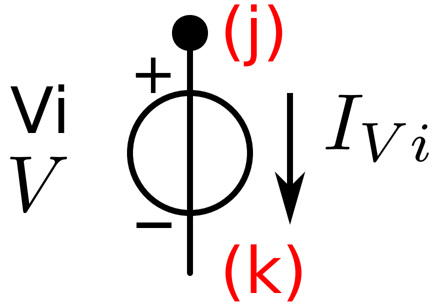

$$V_j - V_k = V, \forall I_{Vi}$$

Branch voltage equation
in current-controlled notation.

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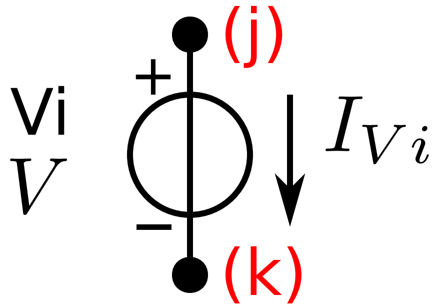

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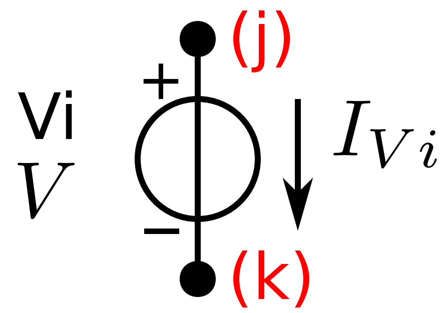

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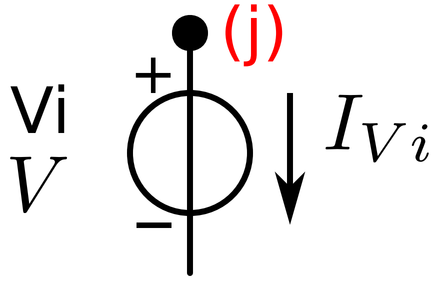

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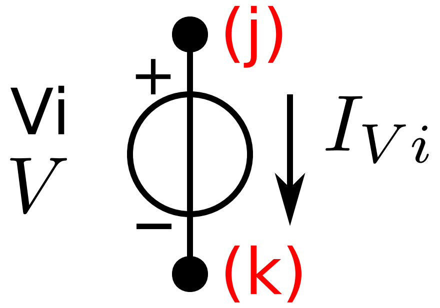

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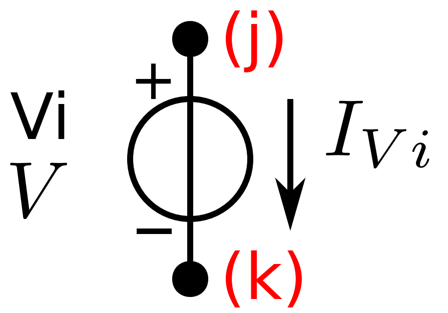

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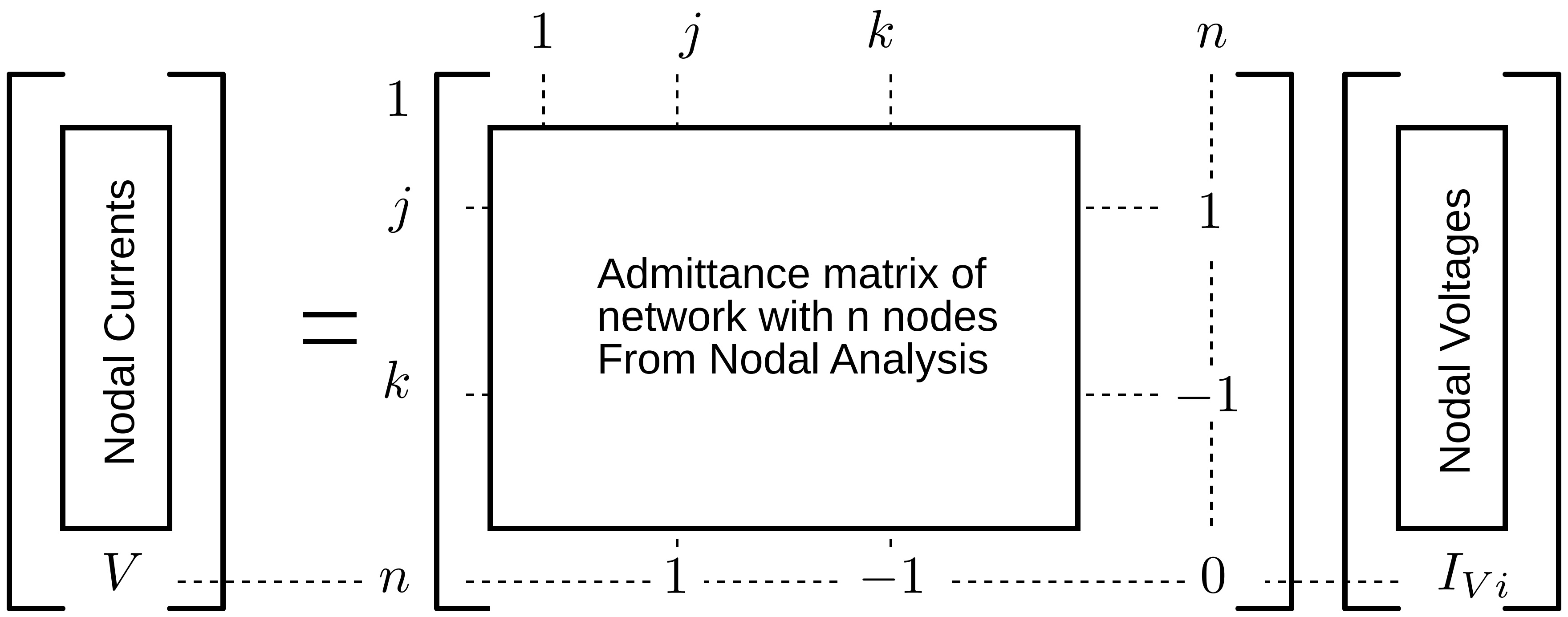

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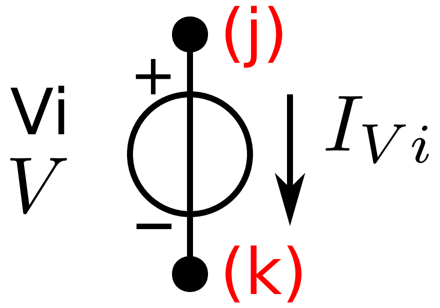

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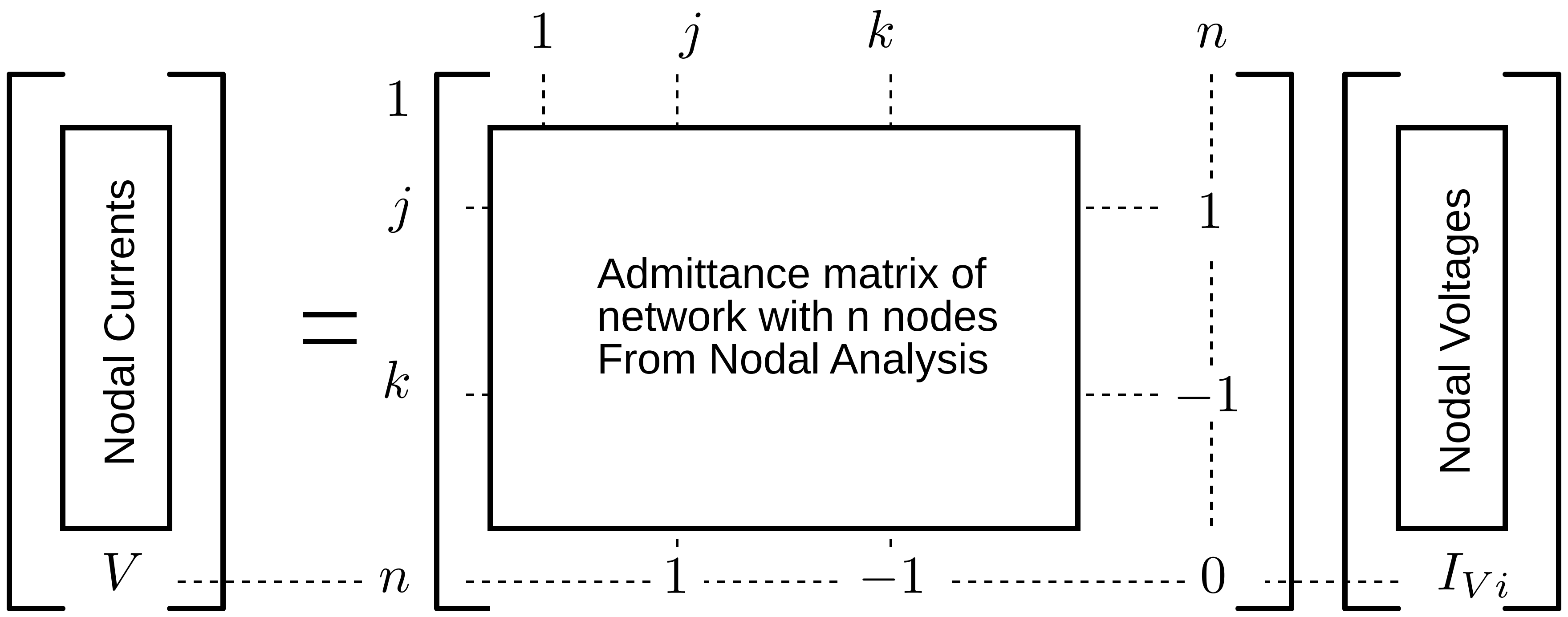

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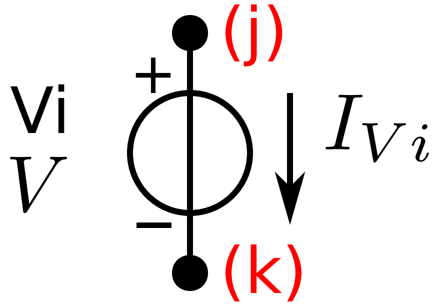

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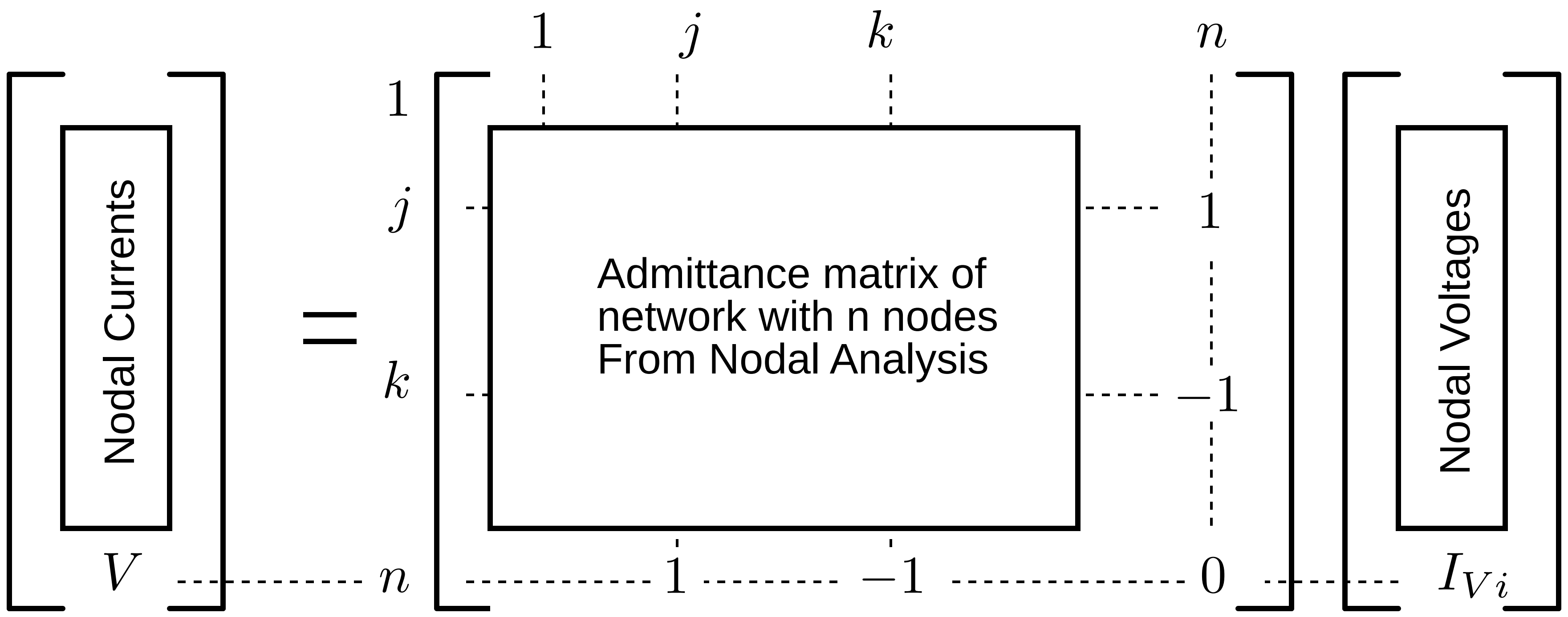

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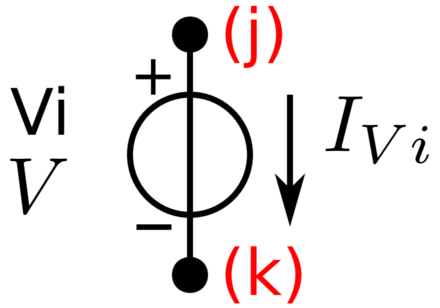

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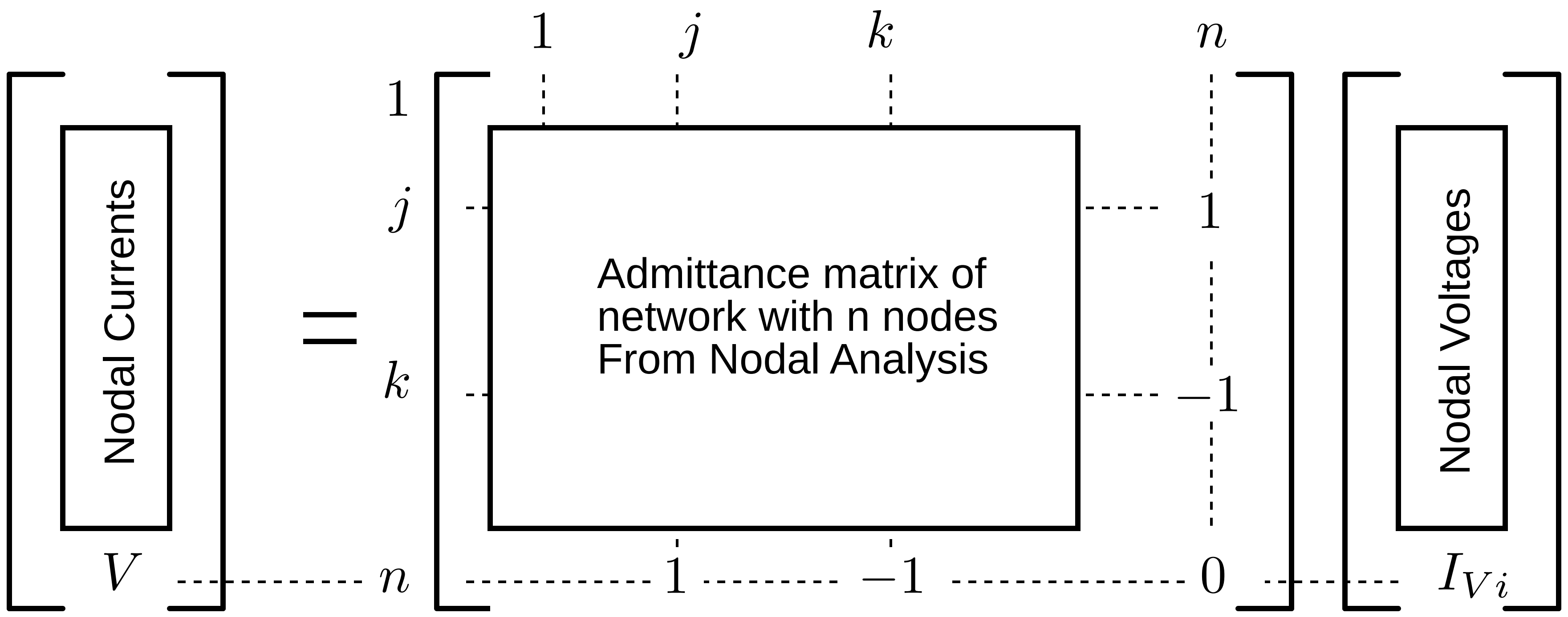

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