

Nowhere-zero Flows: An Introduction

Daniel W. Cranston

Virginia Commonwealth University

dcranston@vcu.edu

[Slides available on my webpage](#)

VCU Discrete Math Seminar

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What's a flow?

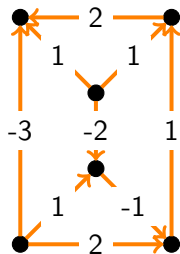
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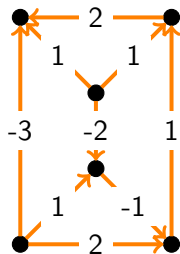
Def: A k -**flow** is flow where

$$|f(e)| \in \{0, 1, \dots, k-1\}$$

for all $e \in E(G)$. A flow is

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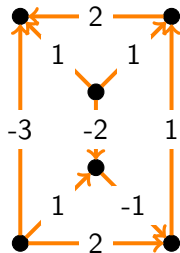
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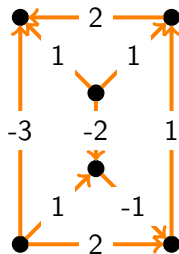
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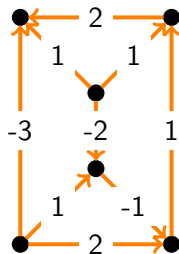
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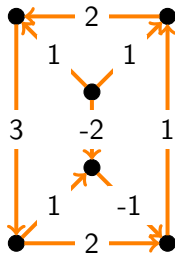
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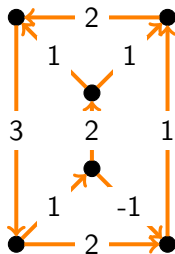
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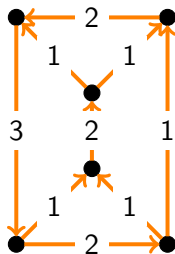
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Cor: Each bridgeless G has nowhere-zero k -flow for some k .

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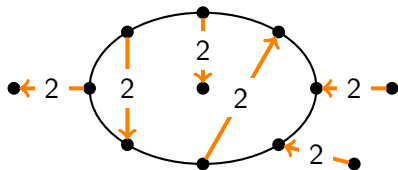
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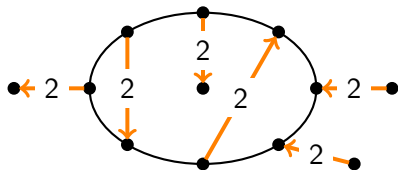


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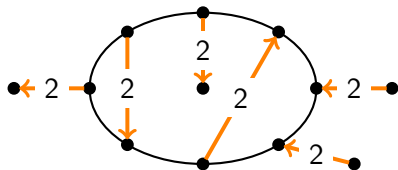


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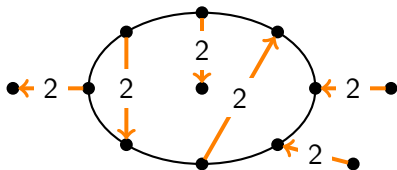


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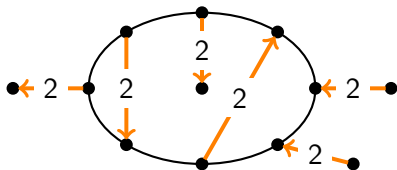


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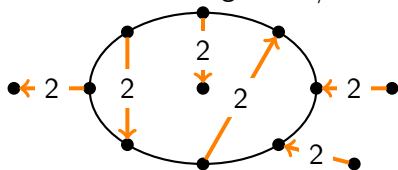


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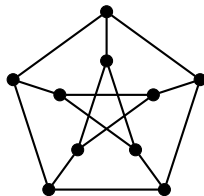
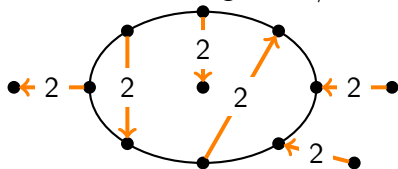


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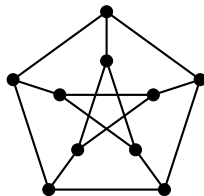
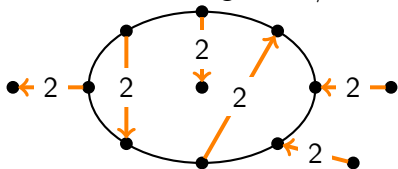


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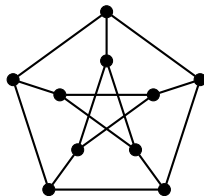
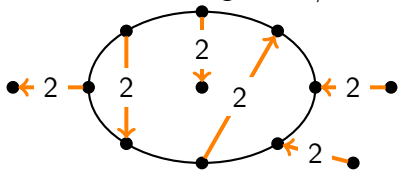
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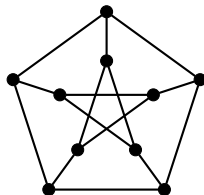
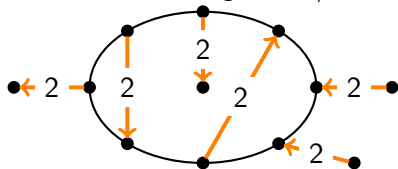
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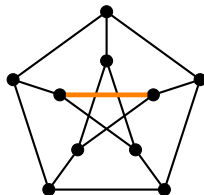
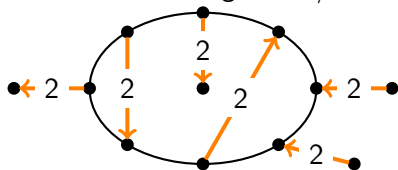
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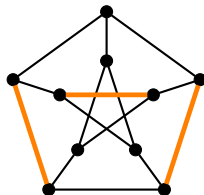
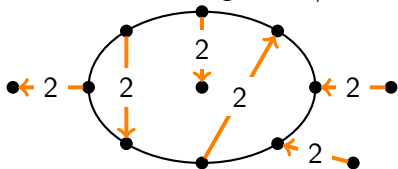
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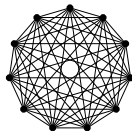
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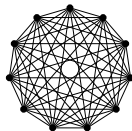
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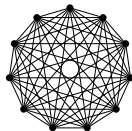
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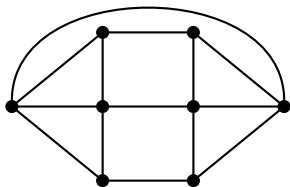
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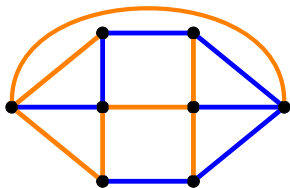
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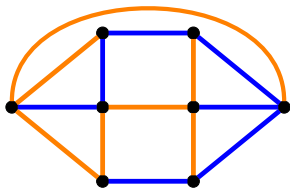
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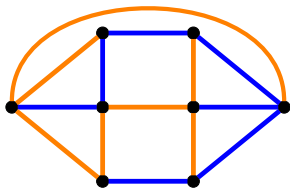
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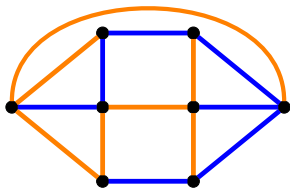


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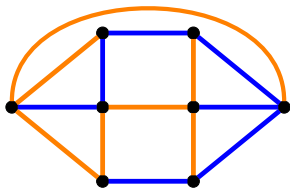
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Obs: The complement of a parity subgraph is an even graph.

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