Byzantine Generals: OM(2) with Traitor Commander

$N = 7$ generals, $t = 2$ traitors. Commander G_0 is a traitor.

- Commander: $G_0(\mathcal{T})$
- Lieutenants: $G_1(\mathcal{T})$, $G_2(\mathcal{L})$, $G_3(\mathcal{L})$, $G_4(\mathcal{L})$, $G_5(\mathcal{L})$, $G_6(\mathcal{L})$

Traitor Strategies:

- $G_0(\mathcal{T})$: Sends A to G_2, G_4, G_6. Sends R to G_1, G_3, G_5.
- $G_1(\mathcal{T})$: (Received R from G_0) When sending/relaying: sends A to G_2, G_4, G_6; sends R to G_3, G_5.

Round 1: Commander G_0 (Traitor) Sends Commands

G_0 sends its chosen messages to the lieutenants.

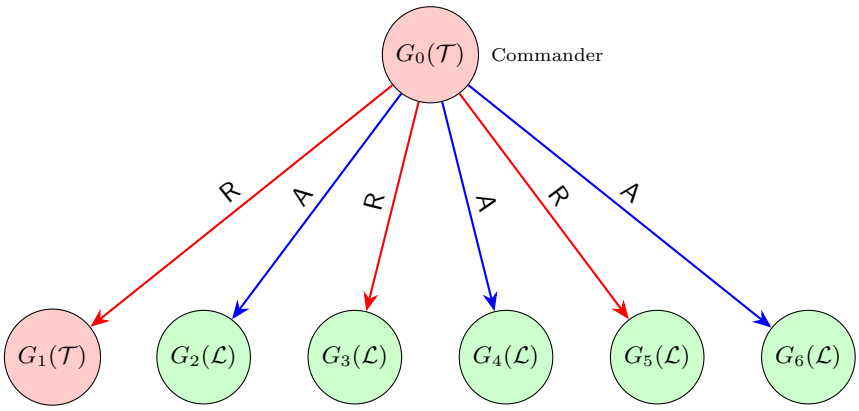

Figure 1: Round 1: Traitor Commander G_0 sends messages.

$G_1(\mathcal{T})$	$G_2(\mathcal{L})$	$G_3(\mathcal{L})$	$G_4(\mathcal{L})$	$G_5(\mathcal{L})$	$G_6(\mathcal{L})$
R					
	A				
		R			
			A		
				R	
					A

The grid above shows the initial values v_i that each lieutenant G_i (represented by row and column headers) receives from Commander G_0 and stores. This value is placed on the diagonal cell (G_i, G_i). Off-diagonal cells are empty, to be filled by messages exchanged between lieutenants in later algorithm phases (e.g., OM(m-1) rounds).

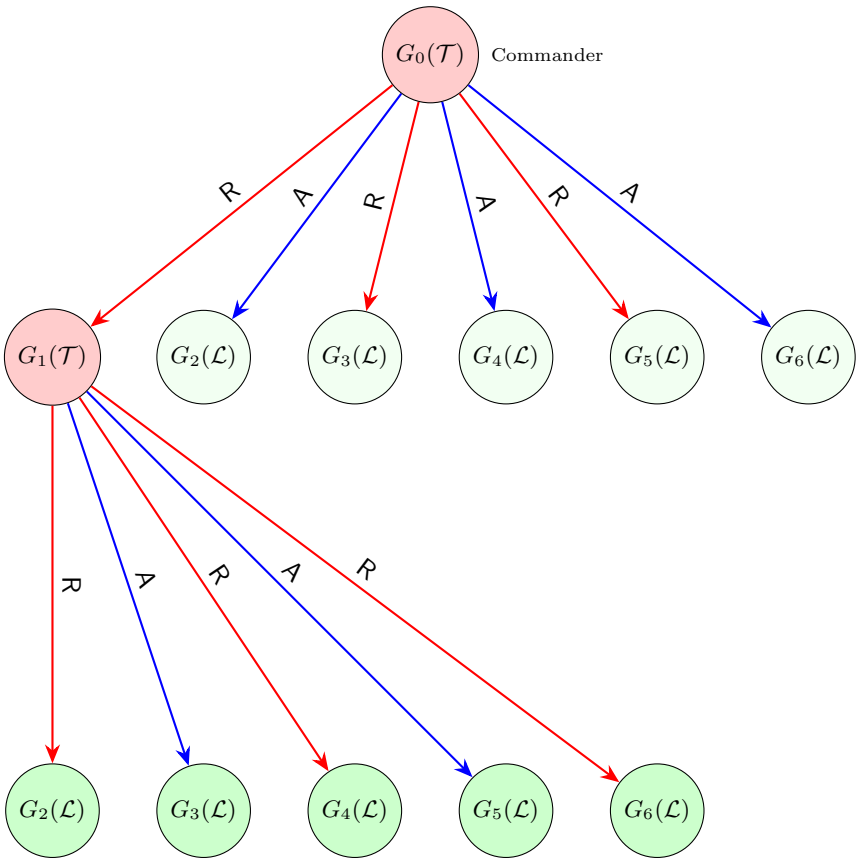

Figure 2: Round 2: Traitor Lieutenant G_0 sends conflicting messages. Lieutenants now communicate with each other.

Receiver

Sender	G_2	G_3	G_4	G_5	G_6
G_2	**R**	R	R	R	R
G_3	A	**A**	A	A	A
G_4	R	R	**R**	R	R
G_5	A	A	A	**A**	A
G_6	R	R	R	R	**R**
Majority	**R**	**R**	**R**	**R**	**R**

Legend: Rows (left) are senders, columns (top) are receivers. Each cell shows the message the sender tells the receiver that it received from G_1. Yellow diagonal: sender's own message from G_1. Blue = Attack (A), Red = Retreat (R).

$G_1(\mathcal{T})$	$G_2(\mathcal{L})$	$G_3(\mathcal{L})$	$G_4(\mathcal{L})$	$G_5(\mathcal{L})$	$G_6(\mathcal{L})$
R	**R**	**R**	**R**	**R**	**R**
	A				
		R			
			A		
				R	
					A

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