Simulations Project Proposal

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Proposal: For our project, we propose a simulation of a Marine Infantry Battalion Fire Support Plan with an objective of identifying shortfalls in the Commander's Guidance for Fires and/or fire support asset allocation. To do this, we will generate an order of battle for a simulated enemy based on ATP 7-100.3: Chinese Tactics and produce a template concept of operations for friendly forces. Multiple friendly sensors (Forward Observers) will be placed based on the friendly concept of operations, and they will simulate the process of sensing enemy units moving into the area of operations with assets commonly found in a Marine Infantry Battalion. Once the enemy unit is sensed, a call for fire will be generated and, after a delay based on the Training and Readiness Standards for firing agencies, effects will be delivered based on the attack guidance matrix found in the Commander's Guidance for Fires. Metrics we will use to determine success or failure include the enemy's ability to penetrate friendly lines and firing agency utilization. For our data, we will use firing data found in the MCRP 3-31.6: TTPs for Joint Application of Firepower (JFIRE) and sensor detection ranges found in each sensor's Technical Manual.

1 Enemy Targets Enter

- 3 different locations to enter from
- 3 different types of targets
  - Dismounted troops
  - Mechanized/armored
  - Motorized

2 Observers observe

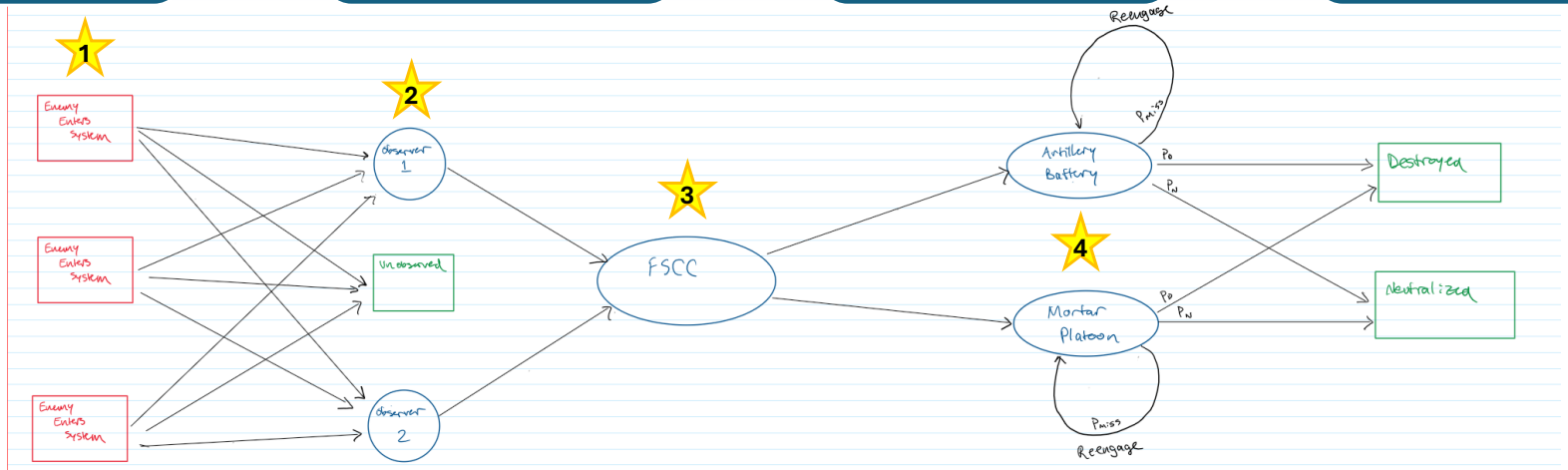
- Probability of observing: function of distance and target type.
- Unobserved targets go undestroyed (renege) if not prosecuted in time

3 CFF goes from Observer to FSCC

- FSCC passes mission to either artillery or mortars based on HPTL/Target priority.
- FSCC will have a queue of waiting CFFs.

4 Firing agency shoots fire mission.

- Each mission has a probability to miss, destroy, or neutralize the target
- Reengage until hit achieved.
- Agencies will have a queue of waiting fire missions.



Notes:

- Enemy entities will go undestroyed (renege) if they are not prosecuted in time
- Adjustment time is built into artillery/mortar service time
- If destruction/neutralization not achieved, firing agency will immediately repeat until one is achieved
- FSCC assigns targets to firing agencies based on HPTL/Target Priority
- Firing agencies process missions based on priority of fires
- System can be modified to simulate decentralized fires by removing FSCC and connecting observers to firing agencies
- FSCC and both firing agencies will all have queues of fire missions waiting to be prosecuted (observers could have queues as well if they observe multiple targets)
- Probability of being observed will be a function of distance from observer and type of target generated at the source