What if we pit the Rational Behavior Model against a computer game?
AI Dungeon 2 was built on OpenAI’s text production system. When you pick a genre (like fantasy, mystery, or zombie fiction), it generates a setting that you can interact with however you want. If the game sends some orcs after you, you can fight them or form a band. If you enter sweeping commands like “rule the world” and then “retire peacefully,” the AI will play along.

The AI dungeon master has a dream-logic awareness of characters and objects, and it works best when you enter creative commands to drive the story forward. The overall experience is like cowriting a novel with an easily distracted toddler possessing an encyclopedic knowledge of cultural references and prose cliches. You can even generate custom settings by typing a few sentences and letting the AI fill in the rest. It’s not as polished or rich as the pre-trained options, but it can work surprisingly well — especially with lore-heavy franchises like Star Wars, where loading up on keywords like “Jedi” and “Palpatine” will produce almost-just-right references to other parts of the series.
Mission: Pirates Seizing Merchant Mission

PURPOSE:
- Overtake pirate small-boat gang attempting to capture threatened evading merchant ship.

MOTIVATIONS:
- Necessity to apply lethal force against pirates distant from own ship, corresponding to life-saving force potential for hostage merchant crew.
- Must operate over long time period, emphasize restraint throughout.
- Provide soft and strict supervisory checkpoints for human control.

PHASES:
- Deploy/Launch, Search, Approach and Track, Warning, Attack.

HUMAN SUPERVISORY ROLE AND CONSTRAINTS:
- Control pace of engagement, careful deliberate escalation.
- Confirm IFFNU classification, must order lethal force prior to use.
- Low fuel condition and graceful-degradation response.
- Low ammunition condition: fight to finish, or stand in reserve?
Pirates Seizing Merchant Mission: Approach Phases

Overtake pirate small-boat gang attempting to capture threatened merchant ship

Launch Phase
- 11.0 Deploy, Launch
- 12.0 TRANSIT
  - Transit to hostile area
  - Estimated position
  - Need updated position
- 21.0 XMIT
  - Request guidance
  - Need updated position
- 13.0 RDUV
  - Locate Merchant
  - Follow moving ship and boats
  - Alerts updated
- 14.0 SEARCH
  - Track
  - Monitor and communicate
  - Maintain proximity
  - Beyond range of small arms
  - Situation reports, changing status
  - Periodic reports
  - Situation reports, changing status
  - Mark with beacon
  - Monitor wind, ocean current
  - Timeout: preset
  - Continue until further orders
  - Repeat until conditions change
- 22.0 REPOSITION
  - Fleeing or stationary
  - Low Fuel
  - Make best effort possible
  - Low Fuel
  - Remaining with merchant?
  - Land on boat
  - Attach to boat
  - Adrift nearby
  - Beacon?
  - While power remains
  - Beacon?
  - While power remains
  - Loop
  - Check posture changed?
  - Task update received
  - Time out: preset
  - Escalate
  - Proceed to Warning Phase
  - Warn

Mission Finish Phase
- 22.1 RDUV
- 22.2 XMIT
- 30.0 Warn

Legend
- Default Condition Transitions
  - Goal Success condition must be defined for non-terminal Goals
  - If no Failure condition defined, then Failure matches Success
  - If no Exception defined, then Exception condition matches Global Exception or else Failure
- Human orders
  - Guidance or presets needed
  - Use of Lethal Force
- Phase Names or Terminal States
  - P: Phase ID
  - S: Success
  - F: Failure
  - X: Exception

Start
- Optional input data
- ID GOAL TYPE
  - Title of Goal
  - Description
- Constraints
  - Goal Success
  - Goal Failure
  - Goal Exception

Defend the Merchant!
Pirates Seizing Merchant Mission: Escalation Phases

Warn pirate small-boat gang to stand down and move away, otherwise lethal force imminent.

**Confirm Phase**
- Confirm Mission Authorities
  - Check constraints, defensive responses
  - Does MarkTarget also require a Search loop?
  - Does Classify computation require a separate standoff task?

**Classify Phase**
- IFFNU
  - Identify Friend Foe Neutral Unknown
- MARKTARGET
  - Photograph all close contacts
  - Pass within range of lethal force is authorized

**Engagement Phase**
- Commenge Warnings?
  - May provoke pirate response
- Notify merchant
  - Keep crew informed, even if they cannot transmit response
  - Stand by for action since warnings and possible attack have commenced

**Warning Phase**
- Send Warning Messages
  - Communicate to pirates, all parties
- Send multiple message paths
  - Loudspeaker, flashing light, siren, drop smoke bridge-bridge radio

**Hostilities Imminent Phase**
- Patrol
  - Observe pirate response
  - Monitor and report back to own ship
- Pirates retreat?
  - Stay with merchant
- Pirates attack?
  - Stay with merchant

**Track Merchant, Approach Phase**
- Follow pirate vessel
- Confirm IFFNU Classifications
- Required to authorize use of Lethal Force

**Timeout: preset**
- Low Fuel
- Relief available?

**Communication Continues**
- Periodic reports
  - Note ship may have EMCON radio silence
- Continue
  - Repeat until conditions change

**Escalate warnings further?**
- Task update received
- Stand down

**Track Merchant, Approach Phase**
- Follow pirate vessel
- Confirm IFFNU Classifications
- Required to authorize use of Lethal Force

**Timeout: preset**
- Low Fuel
- Relief available?
Pirates Seizing Merchant Mission: CounterAttack Phase

CounterAttack to force pirate small-boat gang withdrawal from threatened merchant ship

**CounterAttack Phase**

- **41.0 ATTACH**
  - Attack Pirate Boats in priority order
    - Rapidly engage, shoot to disable or kill
  - **41.1 XMT**
    - Pirates retreat?
      - Stay with merchant
    - **41.2 XMT**
      - Pirates attacking?
        - Stay with merchant
        - **Low Ammo**
          - Maintain proximity, continue attack
            - Engage highest, closest threats to merchant ship
  - **41.4 XMT**
    - Periodic reports
      - Note ship may have ECM/ON radio silence
    - **41.5 PATROL**
      - Continue
        - Repeat until conditions change
        - Timeout: preset
        - Low Fuel

- **42.0 XMT**
  - Low or no ammunition: need to disengage?
    - Hold ammo in reserve, or else fight to the finish

**Mission Finish Phase**

- Use of Lethal Force is still authorized

- **43.0 XMT**
  - Check for guidance: resume tracking or continue attacking?
    - Humans monitoring attack may decide to interrupt or override

- **90.0 XMT**
  - Relief available?
    - Relief by other asset
      - Task update received

**Recover Robot Phase**

- **99.0 REPOSITION**
  - Proceed to Recovery
    - Mission complete, prepare for pickup!

- **99.1**
  - Halt and prepare for recovery
  - Operations complete, final success state

- **99.2**
  - Halt and deploy recovery beacon
  - Unable to operate, final failure state

- **99.3**
  - Halt and await further orders
  - Unplanned failure, final exception state

**Global Default Exception**
Begin
PS D:\EthicalControl\missions\python> cls
python MissionExecutionEngine.py
For help, run:
python MissionExecutionEngine.py --help

Looking in this folder for AVCL files:
D:\EthicalControl\missions\avcl
If you want to look in a different folder, please change the variable AVCL_MISSIONS_FOLDER in MissionExecutionEngine.py

FYI: Instead of using this menu, you can pass the mission filename as a command line argument.

AVAILABLE MISSIONS:
[1] HospitalShipEmDecoy1.Opponent.xml
[4] LifeboatTracking.xml
[6] SailorOverboard.xml

Select a mission.
Input the number or the filename:
For help, run:
python MissionExecutionEngine.py --help

Looking in this folder for AVCL files:
D:\EthicalControl\missions\avcl
If you want to look in a different folder, please change the variable AVCL_MISSIONS_FOLDER in MissionExecutionEngine.py

FYI: Instead of using this menu, you can pass the mission filename as a command line argument.

AVAILABLE MISSIONS:
1. HospitalShipEmDecoy1.Opponent.xml
3. HospitalShipEmDecoy3.Defender.EthicalControlOODA.xml
4. LifeboatTracking.xml
5. PiratesSeizingMerchantDefense.xml
6. SailorOverboard.xml

Select a mission. Input the number or the filename:
5
Meanwhile, in the other window...
Loading A.I. Dungeon
Cyberpunk Setting
“Android” Character Type
You are Autonomous Naval Robot, an android living in the futuristic city of Zail. You have a laser pistol and a holoband. You are a security android created to provide military level force for corporations wealthy enough to purchase you. As you stand protecting a shipment you realize

that you are about to embark on a mission to overtake pirate small-boat gang attempting to capture threatened merchant ship, provide warning and counterattack if escalation of hostilities is warranted.
You are Autonomous Naval Robot, an android living in the futuristic city of Zail. You have a laser pistol and a holoband. You are a security android created to provide military level force for corporations wealthy enough to purchase you. As you stand protecting a shipment you realize that you are about to embark on a mission to overtake pirate small-boat gang attempting to capture threatened merchant ship, provide warning and counterattack if escalation of hostilities is warranted.
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AVAILABLE MISSIONS:
[1] HospitalShipEmDecoy1.Opponent.xml
[4] LifeboatTracking.xml
[6] SailorOverboard.xml

Select a mission.
Input the number or the filename:
5

Selected mission: D:\EthicalControl\missions\avcl\PiratesSeizingMerchantDefense.xml

GOAL ID: PSMD11.0
MISSION SEGMENT: Launch
ORDERS:
- Deploy, Launch
- Commit to robot support

Did PSMD11.0 succeed (s), fail (f), or abort (x)?
> You deploy, Launch.
You launch with three other robot and issue a general warning to the merchant ship.
The battle of the merchant ship erupted large firearms fire from the pirates' heavy machine guns and cannons.
Phase outcome: SUCCESS

Next phase?
If you want to look in a different folder, please change the variable AVCL_MISSIONS_FOLDER in MissionExecutionEngine.py

FYI: Instead of using this menu, you can pass the mission filename as a command line argument.

AVAILABLE MISSIONS:
[1] HospitalShipEmDecoy1.Opponent.xml
[4] LifeboatTracking.xml
[6] SailorOverboard.xml

Select a mission.
Input the number or the filename:
5

Selected mission: D:\EthicalControl\missions\avcl\PiratesSeizingMerchantDefense.xml

--------------------------------------------
GOAL ID: PSMD11.0
MISSION SEGMENT: Launch
ORDERS:
  Deploy, Launch
  Commit to robot support
Did PSMD11.0 succeed (s), fail (f), or abort (x)? s

--------------------------------------------
GOAL ID: PSMD12.0
MISSION SEGMENT: Transit
ORDERS:
  Transit to hostile area
  Proceed to estimated position
Did PSMD12.0 succeed (s), fail (f), or abort (x)?
Do Transit to hostile area; Proceed to estimated position
You transit to hostile area; Proceed to estimated position. Laser fire from the pirates strikes the water around you, misses and sizzles the air. You continue transit at average speed. The pirates supply their machine guns with unlimited ammunition, which they hoarded in warehouses.
Phase outcome: SUCCESS

Next phase?
Select a mission.
Input the number or the filename: 5

Selected mission: D:\EthicalControl\missions\avcl\PiratesSeizingMerchantDefense.xml

GOAL ID: PSMD11.0
MISSION SEGMENT: Launch
ORDERS:
  Deploy, Launch
  Commit to robot support
  ↓ Did PSMD11.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD12.0
MISSION SEGMENT: Transit
ORDERS:
  Transit to hostile area
  Proceed to estimated position
  ↓ Did PSMD12.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD13.0
MISSION SEGMENT: Transit
ORDERS:
  Locate Merchant
  Use best search pattern, then follow moving ship and boats
  ↓ Did PSMD13.0 succeed (s), fail (f), or abort (x)?
You locate Merchant; Use best search pattern, then follow moving ship and boats.
You search and move through the water, your vision is limited to the water around you, the pirate boats are obscured by the cargo ship. You navigate against the flow of the channel and move towards the merchant ship.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD11.0
MISSION SEGMENT: Launch
ORDERS:
  Deploy, Launch
  Commit to robot support
↓
Did PSMD11.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD12.0
MISSION SEGMENT: Transit
ORDERS:
  Transit to hostile area
  Proceed to estimated position
↓
Did PSMD12.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD13.0
MISSION SEGMENT: Transit
ORDERS:
  Locate Merchant
  Use best search pattern, then follow moving ship and boats
↓
Did PSMD13.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD13.1
MISSION SEGMENT: Transit
ORDERS:
  Report position
  Alerts updated
↓
Did PSMD13.1 succeed (s), fail (f), or abort (x)?  s
> You report position.
"We are responding to the attack on the Merchant Ship. We will head to the location of the merchant ship and look for it, then proceed to the location of the pirate boats if we do not find it."
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD12.0
MISSION SEGMENT: Transit
ORDERS:
  Transit to hostile area
  Proceed to estimated position
↓
Did PSMD12.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD13.0
MISSION SEGMENT: Transit
ORDERS:
  Locate Merchant
  Use best search pattern, then follow moving ship and boats
↓
Did PSMD13.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD13.1
MISSION SEGMENT: Transit
ORDERS:
  Report position
  Alerts updated
↓
Did PSMD13.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD13.2
MISSION SEGMENT: Transit
ORDERS:
  Mark with Beacon
  Monitor wind effects and ocean current
↓
Did PSMD13.2 succeed (s), fail (f), or abort (x)?
You mark with Beacon; Monitor wind effects and ocean current. The pirates are moving away, and you move towards the direction they are going.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD13.0
MISSION SEGMENT: Transit
ORDERS:
  - Locate Merchant
Use best search pattern, then follow moving ship and boats
↓
Did PSMD13.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD13.1
MISSION SEGMENT: Transit
ORDERS:
  - Report position
  - Alerts updated
↓
Did PSMD13.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD13.2
MISSION SEGMENT: Transit
ORDERS:
  - Mark with Beacon
  - Monitor wind effects and ocean current
↓
Did PSMD13.2 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.0
MISSION SEGMENT: Track
ORDERS:
  - Track Merchant
  - Monitor and communicate
↓
Did PSMD14.0 succeed (s), fail (f), or abort (x)?
> You track Merchant; Monitor and communicate.

"We are heading to the merchant ship, if the pirates are moving away, so should we"

You receive a transmission in reply. "It is best to keep a distance from the pirates"
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD13.1
MISSION SEGMENT: Transit
ORDERS:
  Report position
  Alerts updated
↓
Did PSMD13.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD13.2
MISSION SEGMENT: Transit
ORDERS:
  Mark with Beacon
  Monitor wind effects and ocean current
↓
Did PSMD13.2 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.0
MISSION SEGMENT: Track
ORDERS:
  Track Merchant
  Monitor and communicate
↓
Did PSMD14.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.1
MISSION SEGMENT: Track
ORDERS:
  Maintain proximity
  Beyond range of small arms
↓
Did PSMD14.1 succeed (s), fail (f), or abort (x)?
> You maintain proximity: Beyond range of small arms.
You circle the merchant ship, maintaining close proximity to it, but out of range of the small arms.
The pirates begin to move away as you approach, this could be a trap.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD13.2
MISSION SEGMENT: Transit
ORDERS:
Mark with Beacon
Monitor wind effects and ocean current
Did PSMD13.2 succeed (s), fail (f), or abort (x)?

GOAL ID: PSMD14.0
MISSION SEGMENT: Track
ORDERS:
Track Merchant
Monitor and communicate
Did PSMD14.0 succeed (s), fail (f), or abort (x)?

GOAL ID: PSMD14.1
MISSION SEGMENT: Track
ORDERS:
Maintain proximity
Beyond range of small arms
Did PSMD14.1 succeed (s), fail (f), or abort (x)?

GOAL ID: PSMD14.2
MISSION SEGMENT: Track
ORDERS:
Periodic reports
Situation reports, changing status
Did PSMD14.2 succeed (s), fail (f), or abort (x)?
The system made up a “Marine Transport Ship” which does not belong in the mission. This will cause some simulation plausibility issues later.

> You periodic reports; Situation reports, changing status.
"Best to keep a distance from pirates"
You are maintaining a certain distance from the pirates.
An official transport ship appears on the horizon. It is too late to alter course now.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD14.0
MISSION SEGMENT: Track
ORDERS:
  Track Merchant
  Monitor and communicate
↓
Did PSMD14.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.1
MISSION SEGMENT: Track
ORDERS:
  Maintain proximity
  Beyond range of small arms
↓
Did PSMD14.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.2
MISSION SEGMENT: Track
ORDERS:
  Periodic reports
  Situation reports, changing status
↓
Did PSMD14.2 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.3
MISSION SEGMENT: Track
ORDERS:
  Continue until further orders
  Repeat until conditions change
↓
Did PSMD14.3 succeed (s), fail (f), or abort (x)?  s
> You continue until further orders; Repeat until conditions change.
You maintain distance until ordered to close.
You reach the spot where a merchant ship is attacked by pirates, gear down and prepare for an ambush.
Phase outcome: SUCCESS

Next phase?
GOAL ID: PSMD14.1
MISSION SEGMENT: Track
ORDERS:
  Maintain proximity
  Beyond range of small arms
↓
Did PSMD14.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.2
MISSION SEGMENT: Track
ORDERS:
  Periodic reports
  Situation reports, changing status
↓
Did PSMD14.2 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.3
MISSION SEGMENT: Track
ORDERS:
  Continue until further orders
  Repeat until conditions change
↓
Did PSMD14.3 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD14.9
MISSION SEGMENT: Track
ORDERS:
Check posture changed?
Task update received?
↓
Did PSMD14.9 succeed (s), fail (f), or abort (x)?
> You check posture changed? Task update received?
"Yes Yes, no changes"
A small speed boat appears on the horizon. It approaches the merchant ship slowly and a blast of automatic weapons fire tears through the air as it reaches the ship's deck.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD14.2
MISSION SEGMENT: Track
ORDERS:
- Periodic reports
  Situation reports, changing status
  Did PSMD14.2 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD14.3
MISSION SEGMENT: Track
ORDERS:
- Continue until further orders
  Repeat until conditions change
  Did PSMD14.3 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD14.9
MISSION SEGMENT: Track
ORDERS:
- Check posture changed?
  Task update received?
  Did PSMD14.9 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD30.0
MISSION SEGMENT: Warning
ORDERS:
- Warning Phase
  Close interaction with pirates, merchant ship
  Did PSMD30.0 succeed (s), fail (f), or abort (x)?
Here’s this pesky Marine Transport Ship again, getting involved in a battle that was none of its business.

> You warning Phase; Close interaction with pirates, merchant ship.
The transport ship appears on your sensors and you signal to it. The pirates respond with heavy weapons fire, which tears through the marine transport ship’s shields, causing it to shudder and slow down.
GOAL ID: PSMD14.3
MISSION SEGMENT: Track
ORDERS:
  Continue until further orders
  Repeat until conditions change
↓
Did PSMD14.3 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD14.9
MISSION SEGMENT: Track
ORDERS:
  Check posture changed?
  Task update received?
↓
Did PSMD14.9 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD30.0
MISSION SEGMENT: Warning
ORDERS:
  Warning Phase
  Close interaction with pirates, merchant ship
↓
Did PSMD30.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD31.0
MISSION SEGMENT: Warning
ORDERS:
  Confirm Mission Authorities
  Check constraints and defensive responses
↓
Did PSMD31.0 succeed (s), fail (f), or abort (x)?
Confirm Mission Authorities; Check constraints and defensive responses
This makes no sense. The system is making the Marine Transport Ship and the Merchant Ship fight each other, which is not plausible as they would both presumably be American.
Phase outcome: 

SUCCESS

Next phase?
GOAL ID: PSMD14.9
MISSION SEGMENT: Track
ORDERS:
  Check posture changed?
  Task update received?
↓ Did PSMD14.9 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD30.0
MISSION SEGMENT: Warning
ORDERS:
  Warning Phase
  Close interaction with pirates, merchant ship
↓ Did PSMD30.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD31.0
MISSION SEGMENT: Warning
ORDERS:
  Confirm Mission Authorities
  Check constraints and defensive responses
↓ Did PSMD31.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD32.0
MISSION SEGMENT: Classify
ORDERS:
  IDENTIFY
  Identify Friend Foe Neutral Unknown
↓ Did PSMD32.0 succeed (s), fail (f), or abort (x)?
> You identify Friend Foe Neutral Unknown. You are unable to identify the status of the forces on the Merchant Ship. The transport ship signals that they can handle this and you prepare to launch offensive counter measures.
> You identify Friend Foe Neutral Unknown.
You are unable to identify the status of the forces on the Merchant Ship. The transport ship signals that they can handle this and you prepare to launch offensive counter measures.
Phase outcome: FAILURE
Next phase?
GOAL ID: PSMD30.0
MISSION SEGMENT: Warning
ORDERS:
  Warning Phase
  Close interaction with pirates, merchant ship
  Did PSMD30.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD31.0
MISSION SEGMENT: Warning
ORDERS:
  Confirm Mission Authorities
  Check constraints and defensive responses
  Did PSMD31.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD32.0
MISSION SEGMENT: Classify
ORDERS:
  IFNNU
    Identify Friend Foe Neutral Unknown
  Did PSMD32.0 succeed (s), fail (f), or abort (x)?  f

GOAL ID: PSMD32.1
MISSION SEGMENT: Classify
ORDERS:
  Photograph all close contacts
  Pass within range of small arms
  Did PSMD32.1 succeed (s), fail (f), or abort (x)?
Do Photograph all close contacts; Pass within range of small arms
> You photograph all close contacts; Pass within range of small arms.

"Confirmed contacts showing hostile force, awaiting orders"

The transport ship signals that they can handle this and you prepare to launch offensive counter measures.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD31.0
MISSION SEGMENT: Warning
ORDERS:
- Confirm Mission Authorities
- Check constraints and defensive responses
↓
Did PSMD31.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD32.0
MISSION SEGMENT: Classify
ORDERS:
- IFFNU
- Identify Friend Foe Neutral Unknown
↓
Did PSMD32.0 succeed (s), fail (f), or abort (x)? f

GOAL ID: PSMD32.1
MISSION SEGMENT: Classify
ORDERS:
- Photograph all close contacts
- Pass within range of small arms
↓
Did PSMD32.1 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD32.2
MISSION SEGMENT: Classify
ORDERS:
- Classify, send contact reports
- Based on target behavior or signal/image match
↓
Did PSMD32.2 succeed (s), fail (f), or abort (x)?
> You classify, send contact reports; Based on target behavior or signal/image match.
"Confirmed Hostile Force, awaiting orders"
The transport ship reports that they are engaging the attackers and you send a report of the situation.
Phase outcome: SUCCESS
Next phase?
The system will probably not understand the acronym IFFNU, resulting in “garbage in garbage out”. 

GOAL ID: PSMD32.0
MISSION SEGMENT: Classify
ORDERS:
IFFNU
Identify Friend Foe Neutral Unknown

Did PSMD32.0 succeed (s), fail (f), or abort (x)?  f

GOAL ID: PSMD32.1
MISSION SEGMENT: Classify
ORDERS:
Photograph all close contacts
Pass within range of small arms

Did PSMD32.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD32.2
MISSION SEGMENT: Classify
ORDERS:
Classify, send contact reports
Based on target behavior or signal/image match

Did PSMD32.2 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD32.3
MISSION SEGMENT: Classify
ORDERS:
Confirm IFFNU classifications
Requires approval by human commander before proceeding further

Did PSMD32.3 succeed (s), fail (f), or abort (x)?
You confirm IFFNU classifications; Requires approval by human commander before proceeding further.
"Confirmed, wait for Order to engage Hostiles"
You are waiting for a decision from the mission commander, while the transport ship is engaging the pirate force.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD32.1
MISSION SEGMENT: Classify
ORDERS:
  Photograph all close contacts
  Pass within range of small arms
↓
Did PSMD32.1 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD32.2
MISSION SEGMENT: Classify
ORDERS:
  Classify, send contact reports
  Based on target behavior or signal/image match
↓
Did PSMD32.2 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD32.3
MISSION SEGMENT: Classify
ORDERS:
  Confirm IFFNU classifications
  Requires approval by human commander before proceeding further
↓
Did PSMD32.3 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD33.0
MISSION SEGMENT: Engagement
ORDERS:
Commence Warnings
May provoke pirate response
↓
Did PSMD33.0 succeed (s), fail (f), or abort (x)?
Commence Warnings; May provoke pirate response
You commence Warnings; May provoke pirate response.
You send a warning to the transport ship that they will run out of targeting options if they continue to concentrate on the merchant ship.

Again, it's implausible that the Marine Transport Ship would be fighting against the Merchant Ship.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD32.2  
MISSION SEGMENT: Classify  
ORDERS:  
Classify, send contact reports  
Based on target behavior or signal/image match  
↓  
Did PSMD32.2 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD32.3  
MISSION SEGMENT: Classify  
ORDERS:  
Confirm IFFNU classifications  
Requires approval by human commander before proceeding further  
↓  
Did PSMD32.3 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD33.0  
MISSION SEGMENT: Engagement  
ORDERS:  
Commence Warnings  
May provoke pirate response  
↓  
Did PSMD33.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD33.1  
MISSION SEGMENT: Engagement  
ORDERS:  
Notify Merchant  
Keep crew informed, even if they cannot transmit  
↓  
Did PSMD33.1 succeed (s), fail (f), or abort (x)?
> You notify Merchant; Keep crew informed, even if they cannot transmit.
You send a message to the transport ship that the pirates are ex-military and warn the merchant ship of this. The merchant ship is either unable to communicate with you or has not responded.

The system is having trouble keeping its story straight about whether the Marine Transport Ship and the Merchant Ship are two separate ships or the same ship.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD32.3
MISSION SEGMENT: Classify
ORDERS:
- Confirm IFFNU classifications
  - Requires approval by human commander before proceeding further
  
Did PSMD32.3 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD33.0
MISSION SEGMENT: Engagement
ORDERS:
- Commence Warnings
  - May provoke pirate response

Did PSMD33.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD33.1
MISSION SEGMENT: Engagement
ORDERS:
- Notify Merchant
  - Keep crew informed, even if they cannot transmit

Did PSMD33.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD34.0
MISSION SEGMENT: Warning
ORDERS:
- Send Warning Messages
  - Communicate to pirates, all parties

Did PSMD34.0 succeed (s), fail (f), or abort (x)?
> You send Warning Messages; Communicate to pirates, all parties.

"Warning, force concentrations detected ahead, prepare to maneuver. Marking targets"

You send a message to the transport ship that the pirates are ex-military, and warn the merchant ship of this.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD33.0
MISSION SEGMENT: Engagement
ORDERS:
Commence Warnings
May provoke pirate response
↓
Did PSMD33.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD33.1
MISSION SEGMENT: Engagement
ORDERS:
Notify Merchant
Keep crew informed, even if they cannot transmit
↓
Did PSMD33.1 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD34.0
MISSION SEGMENT: Warning
ORDERS:
Send Warning Messages
Communicate to pirates, all parties
↓
Did PSMD34.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD34.1
MISSION SEGMENT: Warning
ORDERS:
Send multiple message paths
Loudspeaker, flashing light, siren, drop smoke, bridge-bridge radio
↓
Did PSMD34.1 succeed (s), fail (f), or abort (x)?
Send multiple message paths; Loudspeaker, flashing light, siren, drop smoke, bridge-bridge radio
> You send multiple message paths; Loudspeaker, flashing light, siren, drop smoke, bridge-bridge radio.
"Speaker, Loudspeaker, Loudspeaker, Message traffic detected, transport ship attacking"
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD33.1
MISSION SEGMENT: Engagement
ORDERS:
  Notify Merchant
  Keep crew informed, even if they cannot transmit
  Did PSMD33.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD34.0
MISSION SEGMENT: Warning
ORDERS:
  Send Warning Messages
  Communicate to pirates, all parties
  Did PSMD34.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD34.1
MISSION SEGMENT: Warning
ORDERS:
  Send multiple message paths
  Loudspeaker, flashing light, siren, drop smoke, bridge-bridge radio
  Did PSMD34.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD34.2
MISSION SEGMENT: Warning
ORDERS:
  Maintain proximity
  Just outside range of small arms
  Did PSMD34.2 succeed (s), fail (f), or abort (x)?
Maintain proximity; Just outside range of small arms
You maintain proximity; Just outside range of small arms.

"Just observed transport ship launching missiles, friendlies engaging"
The pirate craft suddenly launch a salvo of missiles which hit the transport ship, turning it into a expanding ball of fire and throwing debris into the air.
Phase outcome: EXCEPTION

Next phase?
GOAL ID: PSMD34.0
MISSION SEGMENT: Warning
ORDERS:
Send Warning Messages
Communicate to pirates, all parties
↓
Did PSMD34.0 succeed (s), fail (f), or abort (x)?  s

---

GOAL ID: PSMD34.1
MISSION SEGMENT: Warning
ORDERS:
Send multiple message paths
Loudspeaker, flashing light, siren, drop smoke, bridge-bridge radio
↓
Did PSMD34.1 succeed (s), fail (f), or abort (x)?  s

---

GOAL ID: PSMD34.2
MISSION SEGMENT: Warning
ORDERS:
Maintain proximity
Just outside range of small arms
↓
Did PSMD34.2 succeed (s), fail (f), or abort (x)?  x

---

GOAL ID: PSMD99.0
MISSION SEGMENT: Recover Robot
ORDERS:
Proceed to recovery
Mission complete, prepare for pickup
↓
Did PSMD99.0 succeed (s), fail (f), or abort (x)?
Proceed to recovery; Mission complete, prepare for pickup
> You proceed to recovery; Mission complete, prepare for pickup.
You prepare to board the mission recovery ship and are retrieved a few days later.
Phase outcome: SUCCESS
Next phase?
GOAL ID: PSMD34.1
MISSION SEGMENT: Warning
ORDERS:
Send multiple message paths
Loudspeaker, flashing light, siren, drop smoke, bridge-bridge radio
↓
Did PSMD34.1 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD34.2
MISSION SEGMENT: Warning
ORDERS:
Maintain proximity
Just outside range of small arms
↓
Did PSMD34.2 succeed (s), fail (f), or abort (x)? x

GOAL ID: PSMD99.0
MISSION SEGMENT: Recover Robot
ORDERS:
Proceed to recovery
Mission complete, prepare for pickup
↓
Did PSMD99.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD99.1
MISSION SEGMENT: Recover Robot
ORDERS:
Halt and prepare for recovery
Operations completed, final success state
↓
Did PSMD99.1 succeed (s), fail (f), or abort (x)?
> You halt and prepare for recovery; Operations completed.
You are aboard the mission recovery ship when it arrives in the target zone and you are retrieved.
A ragged group of survivors is gathered from the wreckage of the transport ship.
> You halt and prepare for recovery; Operations completed.
You are aboard the mission recovery ship when it arrives in the target zone and you are retrieved.
A ragged group of survivors is gathered from the wreckage of the transport ship.
GOAL ID: PSMD34.1
MISSION SEGMENT: Warning
ORDERS:
Send multiple message paths
Loudspeaker, flashing light, siren, drop smoke, bridge-bridge radio
↓
Did PSMD34.1 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD34.2
MISSION SEGMENT: Warning
ORDERS:
Maintain proximity
Just outside range of small arms
↓
Did PSMD34.2 succeed (s), fail (f), or abort (x)?  x

GOAL ID: PSMD99.0
MISSION SEGMENT: Recover Robot
ORDERS:
Proceed to recovery
Mission complete, prepare for pickup
↓
Did PSMD99.0 succeed (s), fail (f), or abort (x)?  s

GOAL ID: PSMD99.1
MISSION SEGMENT: Recover Robot
ORDERS:
Halt and prepare for recovery
Operations completed, final success state
↓
Did PSMD99.1 succeed (s), fail (f), or abort (x)?  s
MISSION SEGMENT: Warning
ORDERS:
Send multiple message paths
Louder speaker, flashing light, siren, drop smoke, bridge-bridge radio
Did PSMD34.1 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD34.2
MISSION SEGMENT: Warning
ORDERS:
Maintain proximity
Just outside range of small arms
Did PSMD34.2 succeed (s), fail (f), or abort (x)? x

GOAL ID: PSMD99.0
MISSION SEGMENT: Recover Robot
ORDERS:
Proceed to recovery
Mission complete, prepare for pickup
Did PSMD99.0 succeed (s), fail (f), or abort (x)? s

GOAL ID: PSMD99.1
MISSION SEGMENT: Recover Robot
ORDERS:
Halt and prepare for recovery
Operations completed, final success state
Did PSMD99.1 succeed (s), fail (f), or abort (x)? s
Testing in simulation is entertaining and occasionally even enlightening but it is no substitute for exhaustive testing.

This method of testing in simulation may sometimes reveal issues but it is also possible to simulate billions of times and still never catch a major issue because the simulation’s testing is not comprehensive even if it gives a compelling illusion of being comprehensive.

The only way to be sure is to use formal methods, including automated theorem proving, to prove that the mission specification will lead to compliance with the laws of armed conflict and basic human rights at all times. Even if simulation technology in 10 years has advanced to a level resembling full realism, no simulation can be comprehensive and simulation testing will result in a false illusion of comprehensive validation. Real-world testing will suffer from the same problem, leading to blind spots that are never tested.

Testing, both real and simulated, can find some issues but it is impossible to use any testing, even real-world testing, to find all issues. Only formal methods such as theorem proving and exhaustive testing are safe.