

# SUPERCAT

## a procedural non-player system for solo Arcs

*version 0.2*

This is a non-player system, or “bot”, for playing the board game Arcs. It’s intended for solo play, i.e. one human player versus one or more bots. It should also work as the 3rd or 4th player in a multiplayer game, but that was not the goal and has not been rigorously tested.

## Components

You will need some way to track two numbers per bot, for instance two dice of different colors rotated to show a specific number face up. These are referred to as “counters” in the rules. You will also separately need one six sided die.

## Setup

Follow the instructions in the Arcs rulebook for your desired player count. If using the optional difficulty mode (see next page), the player will be last in turn order and one bot will start with the initiative; if playing with other bots, they will take the remaining positions in turn order.

## Playing a chapter

Shuffle the action deck and deal the player 6 cards. Place the remaining cards in a face down stack. Place a counter on each bot’s board, with a value of 6. This represents the number of cards in the bot’s hand. On the bot’s turn, reveal two cards from this stack, and decrement the counter. The bot will play one of these cards, and discard the other. The procedures on the following pages will instruct you on how to select a card, and how to execute the bot’s turn.

If at any time the stack runs out, shuffle the discard pile before revealing 2 cards. If at any time the bot gains an action card, place the card near the bot’s player board, and increment the hand counter. Play card(s) gained as the last card(s) of the round. When the bot seizes initiative, decrement the counter to represent the bot discarding an extra card. Continue until the player has no cards and each bot’s hand counter is at zero.

# How to follow the procedures

The procedures use some special vocabulary that is specific to SUPERCAT. See the “Terminology” page for explanations of words which appear like this: **contend**.

Start with the “Bot Turn” page and read from top to bottom. Follow the instructions, executing statements if possible. When posed with a yes or no question, evaluate the situation, and follow the nested steps. For more detailed explanation of interpreting nested procedures, see Questions.

When taking actions using multiple pips from a card, follow the procedures to take as many actions as indicated. If action pips remain, restart the procedure from the top, re-evaluating questions from top to bottom.

Aside from the changes to card play described above, and the additional advantages below, the bot will follow every rule in the game.

## Difficulty mode (Optional but recommended)

The procedures attempt to simulate good play, but the bot cannot plan multiple cards ahead nor execute combos using guild abilities. To compensate and make for a more challenging game, start each game with the player last in turn order, and give the bot some additional advantages when it does not have more power than the player:

- **Efficient Logistics:** bot performs 1 extra action per card
- **Elite Pilots:** bot collects 1 extra die during Battle

If the bot is tied with the player, it does not have more power, and will gain these advantages. It's intended that this applies at the start of the game when all players have zero power.

Relative power should be evaluated per bot, so in a game with 2 bots, if one bot is ahead of the player, and the other is behind, apply these only to the losing bot. In a multiplayer game, check power between bots and humans: grant the bot advantages when it is behind all human players.

For an even harder game:

- Apply the above advantages even if the bot is ahead in power.
- The bot with the most power starts every chapter with initiative.

# Terminology

## **claim**

open building slot controlled by bot

## **combat card**

any card combined with fuel and a weapon, or an Aggression card. use Aggression procedures to resolve

## **contend**

take an action causing bot to improve its position with respect to an ambition AND bot will be either winning or tied for first or second place. (see Clarifications)

## **contested card**

court card with bot agents and rival agents, and more rival agents than bot agents

## **double city**

a second loyal city on planet that already has a loyal city

## **favorable combat**

a series of Move and Battle actions that the bot considers likely to result in a specific goal (see Combat Doctrine)

## **new resources**

type of resource that bot does not have OR type of planet bot does not have a building on

## **task force**

group of bot ships with the most fresh ships

## **unbuilt city**

a loyal city on bot's player board (not a destroyed city in a rival's trophy area)

## **unclaimed**

system that is not controlled by a rival

## **uncontested card**

court card with no agents

## **undeclared ambition**

ambition that has not been declared yet AND there are markers available

# Bot turn (START HERE)

## ◆ Does bot have no cards left? (check hand counter)

- Pass initiative

## ◆ Draw 2 cards. Decrement hand counter. Use procedures below to select a card. Then go to the page for selected card's suit and discard the other card.

## ◆ Does bot have initiative?

- Remove seize counter, if present.
- Is bot winning or tied for first place for a matching **undeclared ambition**?
  - Yes:
    - Select matching card (if multiple options, select card with more pips).
    - Declare the ambition.
  - No:
    - Is bot winning a matching declared ambition and is an ambition marker available?
      - Select matching card (if multiple options, select card with more pips).
      - Declare the ambition.
    - If both cards are the same suit, select card with higher number.
    - Otherwise, use General Priorities to select card.

## ◆ Can bot surpass with either card?

- Yes:
  - Select card to surpass.
  - If more than one option, select card with high number.
- No:
  - If seize counter is on bot's board, increment it, else place seize counter, with a value of 1.
  - If hand counter is 2 or greater and initiative was not already seized this round, check for seize:
    - Roll 1d6, and subtract 1 for each **undeclared ambition** that bot is winning. Seize initiative if result is less than seize counter. Decrement hand counter to represent bot discarding an extra card.
  - Use General Priorities to select card.

# General Priorities

Use these priorities to select a card: lead or pivot with indicated suit from bot's options, or copy the lead card if it is of the indicated suit. If suit not available, proceed to next question. Once a card has been selected, go to the page for the selected card's suit.

♦ Can bot Tax/Secure to **contend** declared ambition? → Administration/Aggression

♦ Can bot **favorable combat** to **contend** declared ambition? → **Combat card**

♦ Does bot have no starport?

- Does bot have a **claim**?
  - Yes: → Construction
  - No: → Mobilization/Aggression

♦ Does bot have **unbuilt cities**?

- Does bot have fewer **claims** than **unbuilt cities**?
  - Yes:
    - Can bot move to get a new **claim**? → Mobilization/Aggression
  - No:
    - Does bot have at least one **claim**? → Construction

♦ Are any bot buildings in a system controlled by a rival?

- Can bot Move to neutralize control? → Mobilization/Aggression
- Can bot Build or Repair to neutralize control? → Construction/Administration

♦ Can bot Tax/Secure to **contend undeclared ambition** or take captives?

→ Administration/Aggression

♦ Can bot Secure other card or grow a lead in a declared ambition? → Aggression

♦ Can bot Influence **uncontested card**? → Mobilization/Administration

♦ Can bot Influence **contested card** with more agents than rivals? → Mobilization/  
Administration

♦ Does bot have ships available to Build? → Construction

♦ Does bot have ships available to Repair? → Administration/Construction

# Prelude

## Restrictions

Bot will spend resources and guild cards according to these guidelines. If bot is **contending** a declared ambition and spending a resource or guild card will take it out of contention, it will not spend that resource or guild card.

Specifically:

- if tycoon is declared AND bot is **contending** for tycoon then do not spend fuel or material resources or guild cards
- if empath is declared AND bot is **contending** for empath then do not spend psionic resources or guild cards
- if seeker is declared AND bot is **contending** for seeker then do not spend relic resources or guild cards, UNLESS securing another relic card

## Resources

**Material:** spend to Build starport if none on map and able. otherwise Build ships

**Fuel and Weapon:** spend for **Combat card**

**Relic:** Secure guild card to take captives or **contend** for a declared ambition

**Psionic:** Tax/Secure to **contend** for a declared ambition, or spend for **Combat card**

## Guild cards

Bot will discard some guild card for their prelude effect at the first opportunity.

Bot will discard a Weapon guild card for effect, if it has 3 ships available. Place ships at starport with most fresh ships, otherwise with **task force**.

Bot will discard a Union card for effect. Place action card in bot's play area, and increment bot's hand counter. Play action card as bot's last card.

# Administration - Tax | Repair | Influence

- ◆ Can bot Tax to **contend** a declared ambition?
- ◆ Can bot Repair to neutralize control of loyal city or take control of rival city?
- ◆ Can bot Tax a rival city and take captives?
- ◆ Can bot Influence an **uncontested card** which would **contend** a declared ambition, if Secured?
- ◆ Can bot Tax to **contend** an **undeclared ambition** or take captives?
- ◆ Can bot Tax to grow a lead in a declared ambition?
- ◆ Are there any **contested cards**?
  - Can bot Influence to place more agents than rivals?
    - Yes:
      - Influence up to +1 agent vs rival
    - No:
      - Influence to match rival
- ◆ Can bot Influence an **uncontested card** to **contend** an **undeclared ambition**?
- ◆ Can bot Influence any other card?
  - Prefer: Weapon, Union, Captives, Grow a lead in a declared ambition, Loyal card matching outraged resource
- ◆ Can bot Tax for **new resources**?
- ◆ Can bot Repair any ships or buildings?
  - Prefer:
    - ships in **task force**, then other ships
    - starport, if only one on map
    - cities
- ◆ Can bot Tax for other resources?

# Aggression - Move | Battle

- ◆ Can bot Secure a card to **contend** a declared ambition?
- ◆ Are any bot cities controlled by a rival?
  - Can bot neutralize control by moving?
    - Move to neutralize control
- ◆ Can bot **favorable combat** to **contend** a declared ambition?
  - Use Combat Doctrine to resolve
- ◆ Can bot **favorable combat** for control in a system with any bot buildings?
  - Use Combat Doctrine to resolve
- ◆ Are there any **undeclared ambitions** and can bot **favorable combat** for trophies?
  - Use Combat Doctrine to resolve
- ◆ Can bot Secure a card to **contend** an **undeclared ambition**?
- ◆ Can bot Secure a card to grow a lead in a declared ambition?
- ◆ Does bot have **unbuilt cities** and fewer **claims** than **unbuilt cities**?
  - Could bot Move to get a new **claim**?
    - Move to get new **claims**, until bot has as many **claims** as **unbuilt cities**. Prefer:
      - **new resources**
      - **unclaimed**
      - two slot planets
- ◆ Can bot take control of a gate adjacent to a loyal starport or rival starport?
  - Prefer: Gate previously controlled by rival, Other gate
- ◆ Can bot Secure a card to grow a lead in an **undeclared ambition**?
- ◆ Are there any ships which are not in the **task force**, and not controlling gates or **claims** or rival cities?
  - Concentrate ships towards **task force**
  - Move **task force** towards loyal starport if not already at a starport
- ◆ Can bot take control of rival city?



# Combat Doctrine

When asked if bot can **favorable combat** to achieve some result, first identify the goal, then refer to the corresponding section below. Goal will always be one of:

- Trophies for warlord
- Raid for resource(s) or card(s) to **contend** an ambition
- Control of a system

## Trophies

A Battle for trophies is considered favorable if bot has at least 1:1 ratio of fresh ships.

If bot has multiple actions, first roll skirmish dice until ratio of fresh ships is better than 1:1, or only 1 action left. Then roll all assault dice if ratio is better than 1:1, or select half skirmish dice and half assault dice (round in favor of skirmish dice). Allocate hits prioritizing trophies.

## Raid

A raid is considered favorable if bot can roll raid dice equal to 2x the number of keys on the target AND bot has better than 1:1 ratio of fresh ships to defender OR has 1:1 ratio AND more than one Battle action available after moving to the target.

If favorable, the bot will first spend actions to roll dice like a trophies Battle, up to the last action available, when it will roll raid dice.

## Control

A Battle for control is favorable is bot can roll at least 1 die per fresh defending ship.

If favorable, bot will select dice like a trophies Battle. Bot will allocate hits to take control, then allocate hits to take trophies.

## Outrage

Prior to Battle, check for risk of outrage. Battle not considered favorable if outrage would cause bot to stop **contending** a declared ambition. Otherwise, Battle which risks outrage is only considered favorable if bot could ransack the court after triggering outrage.

# Construction - Build | Repair

- ◆ Does bot have no starport and a loyal piece at planet with an empty slot?
  - Build a starport
  - Prefer:
    - **claimed**
    - most ships
    - neutral control
    - least rival ships
- ◆ Does bot have **unbuilt cities** and at least one **claim**?
  - Build cities at **claims**
  - Only Build **double city** if winning a declared ambition AND **double city** is a bonus power city
- ◆ Are any loyal buildings controlled by rival, and can bot Build or Repair to neutralize control?
  - Build or Repair ships to neutralize control
- ◆ Can bot Build or Repair to take control of rival city?
  - Build or Repair to take control
- ◆ Can bot Build or Repair to defend any undefended buildings?
  - Build or Repair until at least 1 fresh ship defending planets with buildings
- ◆ Does bot have ships available to build?
  - Build ships
  - Prefer:
    - With **task force**
    - Fresh ships
- ◆ Does bot have starports available to build?
  - Build starports
  - Prefer:
    - With **task force**

# Mobilization - Move | Influence

## ◆ Are any bot buildings controlled by a rival?

- Can bot neutralize control by moving?
  - Move to neutralize control

## ◆ Does bot have **unbuilt cities**?

- Does bot have fewer **claims** than **unbuilt cities**, and could bot Move to control any open slots?
  - Move to control open slots, until bot has as many **claims** as **unbuilt cities**. Prefer:
    - **new resources**
    - **unclaimed**
    - two slot planets

## ◆ Can bot Influence a card?

- place 2 agents on **uncontested card** if possible, otherwise 1
- place one more than most rival agents on **contested card**, if possible, otherwise up to most rival agents
- Prefer:
  - **uncontested card** to **contend** declared ambition
  - **contested card** to defend agents
  - **uncontested card** to **contend** undeclared ambition
  - Weapon, Union, Captives, Grow a lead in a declared ambition, Loyal card matching outraged resource

## ◆ Can bot take control of a gate adjacent to a loyal starport or rival starport?

- Prefer:
  - Gate previously controlled by rival
  - Other gate

## ◆ Can bot take control of rival city?

# Questions

Every question should have a yes or no answer. There are four types of questions. Use the following guide if you are confused how to follow the procedures.

**Type 1:** This type of question will be a single line like this:

*Can bot take some action to achieve some goal?*

If the bot is able to take the action, following all the rules of the game, to achieve the stated goal, then take the action. If the answer is “no”, continue reading to the next section.

**Type 2:** This type of question will have one nested subsection that is not marked.

*Question about the game state?*

- *Action to take, or other question to evaluate, if answer to first question was “yes”*

If the answer is “yes”, follow the nested procedures. If the answer is “no”, then continue reading to the next section.

**Type 3:** This type of question will have two nested subsections, one marked “yes” and the other marked “no”.

*Question about the game state?*

- *Yes:*
  - *Action to take, or other question to evaluate, if answer to first question was “yes”*
- *No:*
  - *Action to take, or other question to evaluate, if answer to first question was “no”*

If the answer is “yes”, continue with subsection marked “yes”, otherwise continue with the subsection marked “no”.

**Type 4:** This type of question is only used on the General Priorities page.

*Can bot take some action? → Card suit*

In this case, if the answer is “yes” AND the bot has a card of the indicated suit available (either one of 2 cards draw, or the lead card to copy), then select that card. Proceed to the page for the selected suit.

# Clarifications

The concept of **contending** ambitions is very important. This is a special keyword in the context of this non-player system: to **contend** an ambition means take any action which results improves the bot's position for that ambition to second or first place, including ties.

There is an important difference between **contending** an ambition and “winning or tied for first place”, which is that **contending** also includes second place. Note that the bot will only declare an **undeclared ambition** if it is winning or tied for first place; it will not declare an ambition if it is in second place.

Bot will only declare an ambition already declared (i.e. double or triple declare to add second or third marker) if it is winning the ambition. It will not double or triple declare if it is tied for first place.