

Constructed mode version

In this version, we further extend LOCM 1.0 and LOCM 1.2 by completely revamping the way players are building decks.

Instead of choosing one card from each of 30 sets, now a new, bigger set of **120** cards is generated every game. And player gets to freely build his deck out of the presented cards.

Additionally, **Area** effect has been added.

The Goal

Construct a deck of cards, battle an opponent with those cards and reduce their Health Points (HP) from 30 to 0.

Rules

This game is a two-player card game which is played in two phases: the **Constructed** phase and the **Battle** phase.

- During the **Constructed** phase, both players must create a deck of **30** cards.
- Once the **Constructed** phase is over, both decks are shuffled.
- During the **Battle**, the board is divided in two parts: each player plays cards from their hand on their side of the board.
- Each player starts with **30** HP. Some cards can increase this number.
- To reduce the health points of an opponent, the player must make use of cards to deal **damage**.

Constructed Phase

- Each player is presented with **120** cards. From them, each player chooses **30** cards for their deck.
- Each card can be chosen by each of the players up to **2** times. Players will receive copies of that card, each with its own instanceld .
- By default, the **PASS** command will pick the first still available card.

Battle Phase

Card Draw

- First player starts with **4** cards in hand whereas the second player starts with **5**.
- Each turn, the active player draws one additional card from their deck.
- Some cards can make players draw additional cards at the beginning of the next turn when played.
- Player draws an additional card for every **5** HP lost due to opponent dealing damage to player in last round.

Mana

- Mana is necessary to play cards from the hand.
- The first player starts with **1 max mana**, the second with **2 max mana**.
- Each player can spend as much mana per turn as they have max mana.
- The second player receives his **+1 max mana bonus** until he spends all his mana during a turn.
- Each turn, the active player is granted one additional max mana, unless they already have **12** max mana (**13** for the second player who didn't spend his bonus).

Card Types

There are two different types of cards: **Creatures** and **Items**.

Creatures

- Placing a creature card from the hand to the board is called **summoning**.
A player summons **creatures** to their side of the board by paying their cost in **mana**. They are used to attack the

opponent and also serve as a defense against the creatures of the opposing player.

- Creatures have a cost in mana, attack points and defense points. Some creatures start with certain abilities.
- By default, creatures can't attack the turn they are summoned. They can attack once per turn only.
- When a creature attacks another one, they both deal **damage** equals to their attack to the defense of the other creature. When a creature attacks the opponent, it deals **damage** equals to its attack to the HP of the opponent.
- Creatures are removed from play when their defense reaches **0** or less.
- Creatures can have an effect on the player's health, the opponent's health or the card draw of the player when played.
- Creatures can be placed on one of two lanes. Creatures on different lanes can not interact with each other.
- Creatures can have different abilities:
 - **Breakthrough**: Creatures with Breakthrough can deal extra **damage** to the opponent when they attack enemy creatures. If their attack **damage** is greater than the defending creature's defense, the excess **damage** is dealt to the opponent.
 - **Charge**: Creatures with Charge can attack the turn they are summoned.
 - **Drain**: Creatures with Drain heal the player of the amount of the **damage** they deal (when attacking only).
 - **Guard**: Enemy creatures from the same lane must attack creatures with Guard first.
 - **Lethal**: Creatures with Lethal kill the creatures they deal **damage** to.
 - **Ward**: Creatures with Ward ignore once the next **damage** they would receive from any source. The "shield" given by the Ward ability is then lost.
- Single card with **Area** effect can summon multiple copies with single summon:
 - **Target**: During summoning a single copy of that creature is created.
 - **Lane1**: During summoning creature is cloned, and additional copy appears on the **same** lane (if there is free space).
 - **Lane2**: During summoning creature is cloned, and additional copy appears on the **other** lane (if there is free space).
- Effects of `myHealthChange` , `opponentHealthChange` and `cardDraw` are applied for every clone of creature summoned.

Items

- When played, **items** have an immediate and permanent effect on the board or on the players. They are then removed from play.
- Items have a cost in mana and one or multiple effects out of the following:
 - Permanent modifier of a creature's attack and/or defense characteristics. Example: +0/+2 or -1/-1.
 - The addition or removal of one or more abilities to one creature.
 - Additional card draw the next turn they're played.
 - Health gain for the player or health loss for the opponent.
- There are three types of **items**:
 - **Green items** should target the active player's creatures. They have a positive effect on them.
 - **Red items** should target the opponent's creatures. They have a negative effect on them.
 - **Blue items** can be played with the "no creature" target identifier (**-1**) to give the active player a positive effect or cause **damage** to the opponent, depending on the card. Blue items with negative defense points can also target enemy creatures.
- Items with **Area** effect have effect on multiple creatures:
 - **Target**: affects only target creature.
 - **Lane1**: affects all creatures on the same lane and side of board as the original target.
 - **Lane2**: affects all creatures on all lanes and same side of the board as the original target.
- Effects of `myHealthChange` , `opponentHealthChange` and `cardDraw` are applied for every creature affected by item.

Gameplay

Possible Actions

- `SUMMON id lane` to summon the creature **id** from your hand to the lane **lane** (0 - left, 1 - right).
- `ATTACK id1 id2` to attack creature **id2** with creature **id1** that has to be on the same lane.
- `ATTACK id -1` to attack the opponent directly with creature **id**.

- USE `id1 id2` to use item `id1` on creature `id2`.
- USE `id -1` to use item `id`.
- PASS to do nothing this turn.

A player can do any number of valid actions during one turn. Actions must be separated by a semi-colon `;`.

Game End

- The game is over once any player reaches `0` or less HP.

Victory Conditions

- Reduce your opponent Health Points (HP) from `30` to `0` or less.

Loss Conditions

- Your HP gets reduced to `0` or less.
- You do not respond in time or output an unrecognized command.

Advanced Details

You can see the game's source code on <https://github.com/acatai/Strategy-Card-Game-AI-Competition>.

Constraints

- If a player already has the maximum number of `8` cards in hand and must draw, the draw is cancelled.
- If a player already has the maximum number of `3` creatures on a lane and tries summoning a new one on this lane, the summoning action is cancelled.
- If a player tries to attack an untargetable target (wrong instance id or presence of other defensive creatures with Guard) with one of his creatures, the attack action is cancelled.
- Once a player has played over `50` turns, they will take `10` damage each passing turn.
- When player has empty deck and has to draw a card, then that player is dealt `10` damage.

Abilities special cases

- Giving an ability to a creature with that same ability has no effect.
- Attacking a creature with Ward with a creature with Lethal does not kill the creature (since no **damage** is dealt to the creature).
- Attacking a creature with Ward with a creature with Breakthrough never deals excess **damage** to the opponent (since no **damage** is dealt to the creature).
- Attacking a creature with Ward with a creature with Drain does not heal the player (since no **damage** is dealt to the creature).

Changes from 1.2 version

- Replaced **Draw** phase with **Constructed** phase.
- New ability **Area** has been added. It allows creatures to summon two copies at once, and items to affect several targets at once.
- Runes have been completely removed.
- Player gets to draw additional card for every `5` health lost in previous round.
- Response time for Constructed round has been extended to `4000` ms.

Changes from 1.0 version

- Creatures can now be placed on **two** lanes.
- Number of creatures per lane has been limited to `3`.
- Creature can only attack creature, if it is on the same lane.
- **Guard** works only for creatures on the same lane.

- Response time per Battle round has been extended to **200** ms.
 - All the changes from 1.2.
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Game Input

Input for one game turn

First 2 lines: for each player, `playerHealth` , `playerMana` , `playerDeck` and `playerDraw` :

- Integer `playerHealth` : the remaining HP of the player.
- Integer `playerMana` : the current maximum mana of the player.
- Integer `playerDeck` : the number of cards in the player's deck.
- **---- NO RUNES ---**
- Integer `playerDraw` : the additional number of drawn cards - this turn draw for the player, next turn draw (without reward for damage received) for the opponent.

The player's input comes first, the opponent's input comes second.

During the Constructed phase, `playerMana` is always **0**.

Next line:

- Integer `opponentHand` , the total number of cards in the opponent's hand. These cards are hidden until they're played.
- Integer `opponentActions` , the number of actions performed by the opponent during his last turn.

Next `opponentActions` lines: for each opponent's action, string `cardNumberAndAction` containing the `cardNumber` of the played card, followed by a space, followed by the action associated with this card (see **Possible Actions** section).

Next line: Integer `cardCount` : during the Battle phase, the total number of cards on the board and in the player's hand. During the Constructed phase, always **120**.

Next `cardCount` lines: for each card, `cardNumber` , `instanceId` , `location` , `cardType` , `cost` , `attack` , `defense` , `abilities` , `myHealthChange` , `opponentHealthChange` , `cardDraw` , `area` and `lane` :

- Integer `cardNumber` : the identifier of a card.
- Integer `instanceId` : the identifier representing the instance of the card (there can be multiple instances of the same card in a game).
- Integer `location` , during the Battle phase:
 - **0**: in the player's hand
 - **1**: on the player's side of the board
 - **-1**: on the opponent's side of the board

Always **0** during the Constructed phase.

- Integer `cardType` :
 - **0**: Creature
 - **1**: Green item
 - **2**: Red item
 - **3**: Blue item
- Integer `cost` : the mana cost of the card,
- Integer `attack` :
 - Creature: its attack points
 - Item: its attack modifier
- Integer `defense` :
 - Creature: its defense points
 - Item: its defense modifier. Negative values mean this causes damage.

- String abilities of size 6: the abilities of a card. Each letter representing an ability (B for Breakthrough, C for Charge and G for Guard, D for Drain, L for Lethal and W for Ward).
- Integer myHealthChange : the health change for the player.
- Integer opponentHealthChange : the health change for the opponent.
- Integer cardDraw : the additional number of cards drawn next turn for the player.
- Integer area :
 - 0: Target
 - 1: Lane1
 - 2: Lane2
- Integer lane :
 - Creature on board: 0 - left, 1 - right
 - Other: -1

Output for only game turn of the Constructed phase

Series of 30 actions separated by semi-colon ; :

- CHOOSE id where id is id of chosen card.
- PASS to do nothing (fills rest of the deck with subsequent available cards).

Output for one game turn of the Battle phase

The available actions are:

- SUMMON id lane to summon the creature of instanceId id from the player's hand to the lane lane (0 - left, 1 - right).
- ATTACK idAttacker idTarget to attack an opposing creature or opposing player of instanceId idTarget with a creature on the board of instanceId idAttacker .
idTarget can be the "no-creature" identifier -1 . It is used to attack the opponent directly.
- USE idCard idTarget to use an item of instanceId idCard on a creature of instanceId idTarget or without a target with the "no-creature" identifier -1 .
- PASS to do nothing.

Players may use several actions by using a semi-colon ; .

Players may append text to each of their actions, it will be displayed in the viewer.

Example: SUMMON 3 1;ATTACK 4 5 yolo; ATTACK 8 -1 no fear .

Constraints

- 0 ≤ cost ≤ 12
- 0 ≤ creatures on each lane of the board (per player) ≤ 3
- 0 ≤ cards in hand ≤ 8

Response time for the Constructed turn ≤ 4000 ms

Response time for the first Battle turn ≤ 1000 ms

Response time per turn ≤ 200 ms

Acknowledgments

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