Magic: The Gathering Database Documentation

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1 Philosophy of Design

write something about why we did the things we did.

2 Tables

2.1 CARD

The MTG wiki had the following to say about what a card is.

> In Magic: The Gathering, a card is the standard component of the game. The word card usually refers to a Magic card with a Magic card front and a Magic card back, or to double-faced cards.

The CARD table is reflective of the elements you will find on a magic card.

2.1.1 Attributes

- card_name

    - **Description**: The name of the card.
    - **Data type**: String
    - **Domain**: Any valid card name.
    - **Is primary key**: Yes.
    - **Nullable**: No.

- text

    - **Description**: Everything in the text area of the card.
    - **Data type**: String
    - **Domain**: Any valid card text.
    - **Is primary key**: No.
    - **Nullable**: True

- power

    - **Description**: The card's power.
    - **Data type**: Integer
    - **Domain**: Any non-negative integer.
    - **Is primary key**: No.
    - **Nullable**: Yes.

- toughness

    - **Description**: The card's toughness.

- – **Data type**: Integer
- – **Domain**: Any non-negative integer.
- – **Is primary key**: No.
- – **Nullable**: Yes.

- loyalty

  - – **Description**: The card's loyalty.
  - – **Data type**: Integer
  - – **Domain**: Any non-negative integer.
  - – **Is primary key**: No.
  - – **Nullable**: Yes.

2.2 SET

The MTG wiki had the following to say about what a set is.

> A set in Magic: The Gathering is a pool of cards released together and designed for the same play environment. Cards in a set can be obtained either randomly through booster packs, or in box sets that have a fixed selection of cards. An expansion symbol and, more recently, a three-character abbreviation is printed on each card to identify the set it belongs to.

2.2.1 Attributes

- set_code

  - – **Description**: The alphanumeric code associated with a set.
  - – **Data type**: String
  - – **Domain**: Combinations of letters and digits.
  - – **Is primary key**: Yes.
  - – **Nullable**: No.

- set_name

  - – **Description**: The name of the set.
  - – **Data type**: String
  - – **Domain**: Any valid set name.
  - – **Is primary key**: No.
  - – **Nullable**: No

- release_date

– **Description**: The date the set was released.

– **Data type**: String

– **Domain**: Any valid date.

– **Is primary key**: No.

– **Nullable**: No.

- set_type

    – **Description**: The type of set it is (core, expansion, etc).

    – **Data type**: String

    – **Domain**: Any valid set type.

    – **Is primary key**: No.

    – **Nullable**: No.

2.3   FORMAT

The MTG wiki had the following to say about what a format is.

Formats are different modes in which the Magic: The Gathering collectible card game can be played. Each format provides rules for deck construction and gameplay.

2.3.1   Attributes

- format_name

    – **Description**: The name of the format.

    – **Data type**: String

    – **Domain**: Any valid format name.

    – **Is primary key**: Yes.

    – **Nullable**: No.

- min_deck_size

    – **Description**: The minimum number of cards allowed in a deck.

    – **Data type**: Integer

    – **Domain**: Any non-negative integer.

    – **Is primary key**: No.

    – **Nullable**: No.

- max_deck_size

    – **Description**: The maximum number of cards allowed in a deck.

- **Data type**: Integer.
- **Domain**: Any integer, negative integers are interpreted as infinity.
- **Is primary key**: No.
- **Nullable**: No.

- copies_allowed

  - **Description**: The maximum number of copies of a card allowed in a deck.
  - **Data type**: Integer
  - **Domain**: Any non-negative integer.
  - **Is primary key**: No.
  - **Nullable**: No.

- format_type

  - **Description**: The type of the format (constructed, draft, etc)
  - **Data type**: String
  - **Domain**: Valid magic format types.
  - **Is primary key**: No.
  - **Nullable**: No.

- multiplayer

  - **Description**: If the format can be played by more than 2 people.
  - **Data type**: Boolean
  - **Domain**: Any valid boolean.
  - **Is primary key**: No.
  - **Nullable**: No.

2.4 CONTAINS

This table is the implementation of the many-to-many relationship between CARD and SET. A card may be included in may sets and A set may contain many cards.

2.4.1 Attributes

- set_code

  - **Description**: A foreign key from SET.
  - **Data type**: String
  - **Domain**: Combinations of letters and digits.

- **Is primary key**: Yes.
- **Nullable**: No.

- card_name

  - **Description**: A foreign key from CARD.
  - **Data type**: String
  - **Domain**: Any valid card name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- rarity

  - **Description**: The rarity of the card (common, uncommon, etc).
  - **Data type**: String
  - **Domain**: Any valid magic card rarity.
  - **Is primary key**: No.
  - **Nullable**: No.

2.5 LIMITATION

This table is the implementation of the many-to-many relationship between FORMAT and CARD. A format may limit many cards and a card may be limited by many formats.

2.5.1 Attributes

- format_name

  - **Description**: A foreign key from FORMAT.
  - **Data type**: String
  - **Domain**: Any valid format name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- card_name

  - **Description**: A foreign key from CARD.
  - **Data type**: String
  - **Domain**: Any valid card name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- limitation_type

  - **Description**: The way in which a card is limited (banned, restricted, etc).
  - **Data type**: String
  - **Domain**: Any valid limitation.
  - **Is primary key**: No.
  - **Nullable**: No.

2.6 COLOR

MTG wiki had the following to say about color.

> Color is a basic property of cards in Magic: The Gathering, forming the core of the game's mana system and overall strategy.

2.6.1 Attributes

- card_name

  - **Description**: A foreign key from CARD.
  - **Data type**: String
  - **Domain**: Any valid card name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- color

  - **Description**: The color a card is associated with, usually indicated by the physical color of the card.
  - **Data type**: String
  - **Domain**: Any valid magic card color.
  - **Is primary key**: No.
  - **Nullable**: No.

2.7 COLOR_COST

Due to the fact that converted_cost depends on cost_string which is not the primary key. This table solves that problem.

2.7.1 Attributes

- card_name

  - **Description**: A foreign key from CARD.
  - **Data type**: String
  - **Domain**: Any valid card name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- cost_string

  - **Description**: An alphanumeric representation of a cards mana cost.
  - **Data type**: String
  - **Domain**: Strings over the alphabet $\sum = \{R, U, G, B, W, X, \phi\}$ where $\phi \in \mathbb{Z}_{>0}$ and each string that contains ϕ begins with ϕ.
  - **Is primary key**: No.
  - **Nullable**: Yes.

- converted_cost

  - **Description**: The sum over a cards mana cost. Each occurrence of

Table 1: How to sum a cost_string.

$\sum$	value
R	1
U	1
G	1
B	1
W	1
X	0
ϕ	ϕ

  a character in a cost_string is summed according to the above table.
  - **Data type**: Integer
  - **Domain**: Any non-negative integer.
  - **Is primary key**: No.
  - **Nullable**: No.

2.8 SUPERTYPE

Magic cards may have one or more supertypes, this table implements that one-to-many relationship.

2.8.1 Attributes

- card_name

  - **Description**: A foreign key from CARD.
  - **Data type**: String
  - **Domain**: Any valid card name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- supertype

  - **Description**: The supertype of the card (legendary, snow, etc).
  - **Data type**: String
  - **Domain**: Any valid magic card subtype.
  - **Is primary key**: No.
  - **Nullable**: No.

2.9 TYPE

Magic cards may have one or more types, this table implements that one-to-many relationship.

2.9.1 Attributes

- card_name

  - **Description**: A foreign key from CARD.
  - **Data type**: String
  - **Domain**: Any valid card name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- type

  - **Description**: The type of the card (creature, artifact, etc).
  - **Data type**: String
  - **Domain**: Any valid magic card type.
  - **Is primary key**: No.
  - **Nullable**: No.

2.10 SUBTYPE

Magic cards may have zero or more subtypes, this table implements that one-to-many relationship.

2.10.1 Attributes

- card_name

  - **Description**: A foreign key from CARD.
  - **Data type**: String
  - **Domain**: Any valid card name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- subtype

  - **Description**: The subtype of the card (equipment, curse, etc).
  - **Data type**: String
  - **Domain**: Any valid magic card subtype.
  - **Is primary key**: No.
  - **Nullable**: No.

2.11 COLOR_IDENTITY

Each mana symbol that appears on a card is included within that cards color identity. Each card is associated with one or more colors.

2.11.1 Attributes

- card_name

  - **Description**: A foreign key from CARD.
  - **Data type**: String
  - **Domain**: Any valid card name.
  - **Is primary key**: Yes.
  - **Nullable**: No.

- red

  - **Description**: A flag to indicate the cards alignment with red.
  - **Data type**: Boolean
  - **Domain**: Any valid boolean.
  - **Is primary key**: No.
  - **Nullable**: No.

- blue

  - **Description**: A flag to indicate the cards alignment with blue.

- **Data type**: Boolean
- **Domain**: Any valid boolean.
- **Is primary key**: No.
- **Nullable**: No.

- green
  - **Description**: A flag to indicate the cards alignment with green.
  - **Data type**: Boolean
  - **Domain**: Any valid boolean.
  - **Is primary key**: No.
  - **Nullable**: No.

- white
  - **Description**: A flag to indicate the cards alignment with white.
  - **Data type**: Boolean
  - **Domain**: Any valid boolean.
  - **Is primary key**: No.
  - **Nullable**: No.

- black
  - **Description**: A flag to indicate the cards alignment with black.
  - **Data type**: Boolean
  - **Domain**: Any valid boolean.
  - **Is primary key**: No.
  - **Nullable**: No.

3 Domain Descriptions of Certain Attributes

In this section we describe in detail and give examples of the attributes domain for those attributes that we can reasonably do so.

3.1 SET.set_type

3.1.1 Domain Values

- archenemy
- box
- commander

- core
- draft_innovation
- duel_deck

- expansion
- from_the_vault
- funny

- masterpiece
- masters
- memorabilia
- planechase

- premium_deck
- promo
- spellbook
- starter

- token
- treasure_chest

3.2 CONTAINS.rarity

3.2.1 Domain Values

- common
- uncommon

- rare
- mythic

3.3 COLOR.color

3.3.1 Domain Values

- black
- blue

- colorless
- green

- red
- white

3

3.4 LIMITATION.limitation_type

3.4.1 Domain Values

- none

- restricted

- banned

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