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.
- text
  - **description**: Everything in the text area of the card.
  - **data type**: String
  - **domain**: Any valid card text.
- type
  - **description**: The type of the card (creature, artifact, etc).
  - **data type**: String
  - **domain**: Any valid magic card type.
- power
  - **description**: The card's power.
  - **data type**: Integer
  - **domain**: Any non-negative integer.
- toughness
  - **description**: The card's toughness.
  - **data type**: Integer

  - **domain**: Any non-negative integer.

- loyalty
  - **description**: The card's loyalty.
  - **data type**: Integer
  - **domain**: Any non-negative integer.

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.

- set_name
  - **description**: The name of the set.
  - **data type**: String
  - **domain**: Any valid set name.

- year
  - **description**: The year the set was released.
  - **data type**: Integer
  - **domain**: Any valid year.

- set_type
  - **description**: The type of set it is (core, expansion, etc).
  - **data type**: String
  - **domain**: Any valid set type.

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.
- min_deck_size
  - **description**: The minimum number of cards allowed in a deck.
  - **data type**: Integer
  - **domain**: Any non-negative integer.
- 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.
- copies_allowed
  - **description**: The maximum number of copies of a card allowed in a deck.
  - **data type**: Integer
  - **domain**: Any non-negative integer.

2.4 IS_ALLOWED

This table is the implementation of the many-to-many relationship between FORMAT and SET. A format may allow many sets and a set may be included in many formats.

2.4.1 Attributes

- set_code
  - **description**: A foreign key from SET.
  - **data type**: String
  - **domain**: Combinations of letters and digits.
- format_name
  - **description**: A foreign key from FORMAT.
  - **data type**: String
  - **domain**: Any valid format name.

2.5 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.

2.5.1 Attributes

- set_code
  - **description**: A foreign key from SET.
  - **data type**: String
  - **domain**: Combinations of letters and digits.
- card_name
  - **description**: A foreign key from CARD.
  - **data type**: String
  - **domain**: Any valid card name.
- rarity
  - **description**: The rarity of the card (common, uncommon, etc).
  - **data type**: String
  - **domain**: Any valid magic card rarity.

2.6 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.

2.6.1 Attributes

- format_name
  - **description**: A foreign key from FORMAT.
  - **data type**: String
  - **domain**: Any valid format name.
- card_name
  - **description**: A foreign key from CARD.
  - **data type**: String
  - **domain**: Any valid card name.
- limitation_type
  - **description**: The way in which a card is limited (banned, restricted, etc).
  - **data type**: String
  - **domain**: Any valid limitation.

2.7 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.

2.7.1 Attributes

- card_name
  - **description**: A foreign key from CARD.
  - **data type**: String
  - **domain**: Any valid card name.
- 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.

2.8 COLOR_COST

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

2.8.1 Attributes

- card_name
  - **description**: A foreign key from CARD.
  - **data type**: String
  - **domain**: Any valid card name.
- 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.
- 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.

2.9 DOUBLE_CARD

This table allows us to describe double faced cards which are magic cards with two faces.

2.9.1 Attributes

- side_a
  - **description**: A foreign key from CARD, specifically a card_name.
  - **data type**: String
  - **domain**: Any valid card name.

- side_b
  - **description**: A foreign key from CARD, specifically a card_name.
  - **data type**: String
  - **domain**: Any valid card name.
- set_code
  - **description**: A foreign key from SET.
  - **data type**: String
  - **domain**: Combinations of letters and digits.

2.10 SUPERTYPE

Magic cards may have one or more supertypes, 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.
- supertype
  - **description**: The supertype of the card (legendary, snow, etc).
  - **data type**: String
  - **domain**: Any valid magic card subtype.

2.11 SUBTYPE

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

2.11.1 Attributes

- card_name
  - **description**: A foreign key from CARD.
  - **data type**: String
  - **domain**: Any valid card name.
- subtype
  - **description**: The subtype of the card (equipment, curse, etc).
  - **data type**: String
  - **domain**: Any valid magic card subtype.

2.12 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.

2.12.1 Attributes

- card_name
  - **description**: A foreign key from CARD.
  - **data type**: String
  - **domain**: Any valid card name.
- red
  - **description**: A flag to indicate the cards alignment with red.
  - **data type**: Boolean
  - **domain**: Any valid boolean.
- blue
  - **description**: A flag to indicate the cards alignment with blue.
  - **data type**: Boolean
  - **domain**: Any valid boolean.
- green
  - **description**: A flag to indicate the cards alignment with green.
  - **data type**: Boolean
  - **domain**: Any valid boolean.
- white
  - **description**: A flag to indicate the cards alignment with white.
  - **data type**: Boolean
  - **domain**: Any valid boolean.
- black
  - **description**: A flag to indicate the cards alignment with black.
  - **data type**: Boolean
  - **domain**: Any valid boolean.
- colorless
  - **description**: A flag to indicate the cards alignment with colorless.
  - **data type**: Boolean
  - **domain**: Any valid boolean.

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.