Normalization of LEGO Schema

Name of Table
Attributes
Functional dependency
Normalization

1. inventories
Attributes: `id`, `version`, `set_num`
- id → version, set_num

The `inventories` table is already in BCNF because `id` is a superkey and it determines all other attributes.

2. inventory_parts
Attributes: `inventory_id`, `part_num`, `color_id`, `quantity`, `is_spare`
- inventory_id, part_num, color_id → quantity, is_spare

The `inventory_parts` table is already in BCNF because the combination of `inventory_id`, `part_num`, and `color_id` is a superkey and it determines all other attributes.

3. inventory_minifigs
Attributes: `inventory_id`, `fig_num`, `quantity`
- inventory_id, fig_num → quantity

The `inventory_minifigs` table is already in BCNF because the combination of `inventory_id` and `fig_num` is a superkey and it determines all other attributes.

4. inventory_sets
Attributes: `inventory_id`, `set_num`, `quantity`
- inventory_id, set_num → quantity

The `inventory_sets` table is already in BCNF because the combination of `inventory_id` and `set_num` is a superkey and it determines all other attributes.

5. part_categories

Attributes: `id`, `name`

- id → name

The `part_categories` table is already in BCNF because `id` is a superkey and it determines all other attributes.

6. parts

Attributes: `part_num`, `name`, `part_cat_id`

- part_num → name, part_cat_id

The `parts` table is already in BCNF because `part_num` is a superkey and it determines all other attributes.

7. colors

Attributes: `id`, `name`, `rgb`, `is_trans`

- id → name, rgb, is_trans

The `colors` table is already in BCNF because `id` is a superkey and it determines all other attributes.

8.minifigs

Attributes: `fig_num`, `name`, `num_parts`

- fig_num → name, num_parts

The `minifigs` table is already in BCNF because `fig_num` is a superkey and it determines all other attributes.

9. sets

Attributes: `set_num`, `name`, `year`, `theme_id`, `num_parts`

- set_num → name, year, theme_id, num_parts

The `sets` table is already in BCNF because `set_num` is a superkey and it determines all other attributes.

10. themes

Attributes: `id`, `name`, `parent_id`

- id → name, parent_id

The `themes` table is already in BCNF because `id` is a superkey and it determines all other attributes.

11. elements

Attributes: `element_id`, `part_num`, `color_id`

- element_id → part_num, color_id

The `elements` table is already in BCNF because `element_id` is a superkey and it determines all other attributes.

12. part_relationships

Attributes: `rel_type`, `child_part_num`, `parent_part_num`

- rel_type, child_part_num → parent_part_num

The `part_relationships` table is already in BCNF because the combination of `rel_type` and `child_part_num` is a superkey and it determines all other attributes.