Discourse on the PhD thesis

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Basic info

- **Title:** Brand identity in design of industrial product

- **Mentor:** Doc. Ing. arch Jan Rajlich

- **Study of NAREX brand identity and its reflection in design of industrial products**

*Typical product communicating brand identity – Coca Cola bottle [1]*
Definition of problem and preliminary objective

- Brand identity is a key marketing strategy – product design is important element
- Design and brand identity through shape grammar method
- Objective methods of comparing design

- Study of innovation process on NAREX product throughout its history, with use of shape grammar and objective methods for analysis of shape
- Defining a shape grammar of NAREX brand identity
- Simulation of new product design including brand identity
Current state of art – general knowledge

**Brand identity**

- Set of associations with the brand, which the company tries to define and maintain
- Definition of actual company or product

- Must be clearly defined
- Product communicates with customer through direct, indirect, qualitative messages

*Nokia - Historical evolution of products [2]*
Current state of art – general knowledge

- Shape grammar
  - Defined by Stiny and Gips, studied by Knight
  - Generative specification method used to generate and study art, sculpture

- Contains 4 elements
  - Set of general shapes
  - Set of markers
  - Set of rules
  - Set of initial shapes

- Potentially creates infinite number of solutions from finite number of shapes
- May have qualitative element – colour
- Always combination of known elements
Current state of art – general knowledge

STINY - Basic shape grammar [3]

Nokia -
Historical evolution
of products [2]
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Current state of art design research with SG

- Studied to define design language of product family
- Finding solutions to engineering problems – construction

**Capturing brand identity**
- Using 2D image representations
- Generating designs corresponding to brand identity

**Innovation of product**
- Typical shapes of brand in SG
- Generating designs which are innovative by parametrization of known shapes
Current state of art – SG interpreters

- Computer support makes shape grammar useful
- Optimization needed – generating undesirable designs
- Sketching tool
- Most helpful in early phase of design

Current trends
- Use of genetic algorithms for optimization of generated design
- Study of phenomenons in design, rules of SG
Current state of art – product analysis

- Visual decomposition
  - Choosing between different level of image representation
  - Finding aesthetic elements important to brand recognition

Visual decomposition of vehicles [10]
Current state of art – product analysis

- Method for finding similarities
  - Objective method for finding similar design elements
  - Position, orientation, shape

Analysis of basic shapes[11]
Interpretation of gained knowledge

- Brand identity arises with visual communication of the brand (product design)
- Most research of product innovation uses shape grammar
  - Uses only combination of existing elements
  - Shape grammar based on past products bears brand identity
  - Finding possibilities we may have missed
  - Finding large number of possible solutions to one problem
  - Use of 2D pictures is enough to recognize brand
  - Rules of shape grammar and their relationship to brand identity were not studied
  - SG does not implement the ordinary innovation process
  - Necessity to optimize results when computer support is used

- Objective methods may be used to find similar elements of design
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Definition of objectives

- Description of brand identity transition throughout the innovation of product

- Reaching objective include necessary milestones
  - Analysis of NAREX products and finding their key design elements
  - Creating shape grammar for NAREX brand
  - Definition of methodics of innovation of product with brand identity
  - Simulation of early phase of design of new industrial product

*Impact drill – NAREX Česká Lípa*
Solution

- Collecting and analysing data
  - Photographies from company, archives, collectors
  - If available scanning of 3D data
  - Preparation of data for analysis
  - Analysis of design between product family and between product throughout history
  - Finding key elements to maintain in shape grammar

- Shape grammar
  - Using CAD (Rhinoceros with Grasshopper module)
  - Optional development of own interpreter
  - Verification of SG correctness
Solution

- Methodics
  - Creating design of new product with shape grammar
  - Study of processes during the designing
  - Finding criteria for design of product with NAREX brand identity
Current state of PhD thesis

- **Done**
  - Current state of art (continuously updated)
  - Collected methods for research
  - Collaboration with company

- **In process**
  - Collecting research data
  - Choosing representation of product
  - Data first analysis
Current state of PhD thesis

- Wrist stump
- Engine vents
- Area with significant shape element
- Unimportant part for study
Current state of PhD thesis

Graph for silhouette of Narex drill

radial length (mm, scaled down)

Graph for silhouette of Narex drill

points
Discourse on the PhD thesis

Current state of PhD thesis

Future

- Finding key design elements
- Shape grammar
- Study of innovation processes
- Publishing
Conclusion

- The discourse summarizes knowledge about brand identity, and research about its transition during design of an industrial product.
- Disadvantage of Shape grammar is restriction to use of existing data, therefore it is helpful to study methods designer uses in reality throughout the innovation of product.
- Study of brand identity of Czech company may be useful in further research of Czech design.
- For reaching objective it is necessary to collect enough data about NAREX products.
Thank you for your attention

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Bibliography