Fig. 6.9 Mock-up for the implementation of the Thonet grammar

6.5 Designs

This section illustrates several designs generated in ChairDNA. The designs are divided by design styles, design types, and design collections (generated by the developer using ChairDNA). and random designs (automatically generated by ChairDNA). The implementation of designs comprehends the introduction of values, either in ChairDNA or in an Excel spreadsheet readable by ChairDNA. The majority of the designs presented in this chapter only consider an accurate precision in the overall measures of the chair (width, depth, height and seat height); the remaining values were approximately attributed, based on the 3D models available in the producer's website.4 Only Thonet designs regarded a precision in all values. The values of all the designs presented in this section are available in Appendix 6.E.2.

The ChairDNA Design Tool

6.5.1 Design Styles

This section comprehends designs from two individual design styles (Daciano and Jasper), common and hybrid designs between those two styles, and one design family manufactured by one company (Thonet). Each style is defined by the specific grammars previously described (respectively, DCG, JCG, DJCG, DJHG and TCG). The designs include corpus designs and existing designs (documented in the chapter Multipurpose Chair Sample) and new designs, generated in ChairDNA and restricted to the mentioned grammars.

Daciano Designs

Daciano designs relate to the individual style of the Portuguese designer Daciano da Costa. Fig. 6.10 illustrates eight designs generated in ChairDNA within the DCG restrictions. It includes the five designs from the corpus, one existing design and two new designs. From the analysis of the DCG and the corpus designs, qualitative characteristics of the style may be inferred. The chairs are three- and four-legged without angles or taper. The seat is either square or semicircular and the backrest can be solid or open. The chairs do not have stretchers and the base is rarely used. The arms supports are extended from both front and back legs and the chair frame only comprises square sections.

DC Daciano Corpus















Fig. 6.10 Daciano designs generated in ChairDNA

Gallery, Tokyo. A retrospective exhibition of Morrison's work, called Thingness, took place between 2015 and 2017 in places such as the Tate Modern (London) and the Bauhaus Archive (Berlin). His work is exhibited in the most important museums of art and design around the world, including the Design Museum (London, UK), the Vitra Design Museum (Weil am Rhein, Germany), the Victoria & Albert Museum (London, UK) and MoMA (New York, USA).

The subpopulation database contains 55 seats and is available in Appendix 3.A.2. The subpopulation was extracted from one source: the official web page of Jasper Morrison (Morrison 2017b). The sample was selected from this database.

A Computational Study on Form: a Grammar-based Tool for Multipurpose Chair Design



Móveis Sousa Braga, 1970-71 Cutting, hand weaving W.618 x D.550 x H.775 x SH.431 (author's me Author's photo



Daciano da Costa, 1971-75 Móveis Sousa Braga, 1971-75 Beech wood (darkened), fabric upholstery Cutting, upholstering W.570 x D.480 x H.680 x SH.UNK (Neves 2003) Daciano wooden frame chair (Martins 2001; Neves 2003)





Daciano da Costa, 1970 Metalúrgica da Longra Beech wood, leather upholster Author's photo

Cutting, upholstering
W.456 x D.403 x H.679 x SH.430 (author's measurements)

Fig. 3.2 Daciano Chairs Sample

⁴ Some models available in the producer's website are inaccurate (e.g. in the DCW model, the back leg is not angled).

^{5 (}Morrison 2017a) is a selection of handcrafted artefacts of everyday rural life in Portugal. It illustrates pure and beautiful objects that are derived from trial-and-error evolution and simple resources.