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Standardizing design-based font classification system for Hangul font services

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ABSTRACT

Recently, text-based communication applications have been developed for several smart mobile devices. Unlike traditional print-based publishing, publishing in electronic media, such as eBooks, webcomics, games, and video/TV program captions tends to utilize a wide range of fonts, often decorative, in order to allow users to easily visualize the content. Thus, font makers have released new fonts to keep up with the market requirements.

Although many new fonts have been released, they have not seen widespread use because the fonts can be searched only by their name or the font provider's name. This means that there is no way for users to search for new fonts. Moreover, there is no common rule for service managers to classify fonts delivered from different providers.

After reviewing the standards document on font-information exchange and several service sites, we suggest Hangul font classification attributes and a system for font-selection services, based on design features. We proved the validity of the classification system by experimenting with 50 commercial fonts. Our proposed system had a more balanced classification and uncertainty elimination when compared to the other systems. As such, the proposed classification attributes could be a basis for classifying aspects of future computer-aided font judgment systems. The results of this study were provided to the Korea Telecommunication Technology Association and were adopted as the Korean industry standard.

1. Introduction

With the advent of smart mobile devices, the Korea publishing market has begun to use more fonts than it did in the paper-publishing era, in which it mainly used the classic serif and sans-serif fonts. With the introduction of sophisticated and interesting fonts for mobile environments, e.g., games, webcomics, eBooks, video programs, and social networking services (SNSs), users have become interested in selecting appropriate fonts to display emotions and engage in meaningful communication [1,2].

In the current Hangul-font management system, Korean font services do not reflect the uniqueness of Hangul fonts; the fonts can only be found by their name or the font manufacturer's name. Thus, font management and retrieval services do not reflect the characteristics or feature classification of more than 6000 commercial Hangul fonts.

In addition, companies no longer sell only their own fonts in font-package products; many have changed their business model to incorporate the sales of licenses to use a given font in a cloud environment. Font sites provide a service environment that can integrate and manage many types of fonts from multiple font makers. However, because of the present issues involving search-by-name, managing and searching through several thousand fonts is an inefficient use of time and resources from both the user standpoint and the provider standpoint.

The National Hangul Museum in 2013 emphasized that as Hangul materials represent Korea's unique cultural contents, a systematic service should be implemented [3].

It is difficult for both users and registration-system managers to use the existing font-classification systems, because they are dedicated to classic typefaces for the desktop-publishing environment and are based on the historical stroke transformation factor rather than on visual font-recognition criteria.

Therefore, a new design classification scheme is needed for the systematic management of Hangul fonts. We expect that our proposed classification system will reflect a visual perception structure, divide the fonts evenly, and handle newly released fonts.

The results of this study were proposed by the Korea Telecommunication Technology Association (Project Group 608) as a standard for Korean font-design classification [4]. It was adopted as the Industrial Standards Act, dated June 24, 2016, after considerable review and amendments. The usability was verified through the 'Hangul Maeul' [5] integrated font-service site.

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Fig. 1. Google Font Service with five design groups.

2. Literature and service review

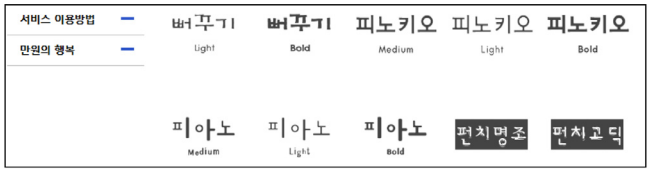
2.1. Classification systems in domestic and foreign services

Typical English font-service sites were examined to investigate the types of classification systems being used to register and retrieve fonts. First, the Google service [6] was shown to use five design classifications, including Serif, Handwriting, Display, Sans Serif, and Monospace, as shown in Fig. 1.

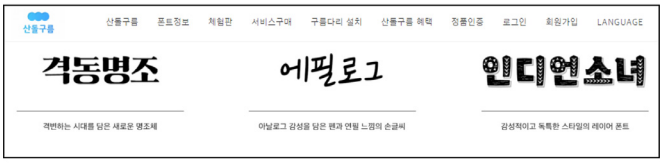
The Google service is only for Roman fonts, and its classification categories have distinctive and distinguishing characteristics only for Roman font-design classification. These categories are unsuitable for combining Hanja and other characters, e.g., Chinese, Japanese, and Hangul.

The Fonts2u.com site [7] provides various types of fonts, e.g., Chinese, Arabic, and Japanese, in addition to English-based fonts, and uses a two-phase classification system. This system has six major categories, including Basic, Dingbat, Fancy, Gothic, Holiday, and Script. The Basic category has five sub-categories: Fixed, Monospace, Sans, Serif, and Various. This site shows that two-step distinctions are appropriate for handling a large number of fonts.

The Adobe TypeKit service [8], shown in Fig. 2, which recently launched services for Japanese clientele, uses five categories—Sans, Serif, Mono, Hand, and Decorative—and three new classification criteria—Slab Serif, Script, and Blackletter—as the classification system. This service shows that different classification categories are used in different language areas. Also it suggests a classification-criteria relationship between Japanese and Roman fonts, e.g., Mincho-Serif, Gothic-Sans Serif, and Brush-Script.



(a) Yoon Font Cloud Service



(b) Sandoll Cloud Service

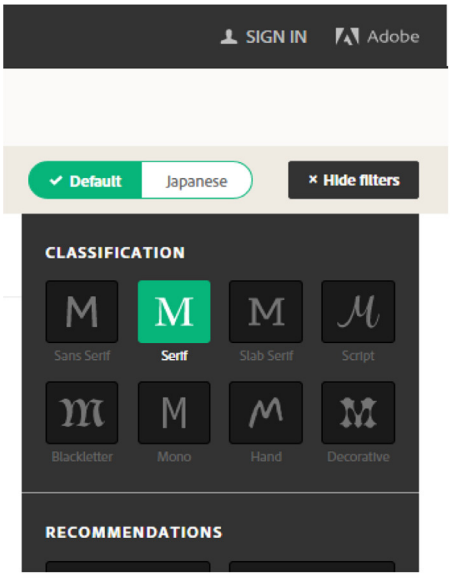
Fig. 3. Hangul Font-Service Sites.

A major domestic font-maker website, Yoon [9], provides hundreds of fonts that are identified only by name in the view menu. At Sandoll [10], another major site, we can see seven design classifications: Design, Gothic (Sans), Myungjo (Serif), Basic, Handwriting, Calligraphy, Old Calligraphy, and Fancy. Distinctions are sometimes unclear, such as that seen between Basic and Myungjo or between Basic and Gothic, and the concepts can overlap, as shown, e.g., when comparing Design and Fancy (Fig. 3).

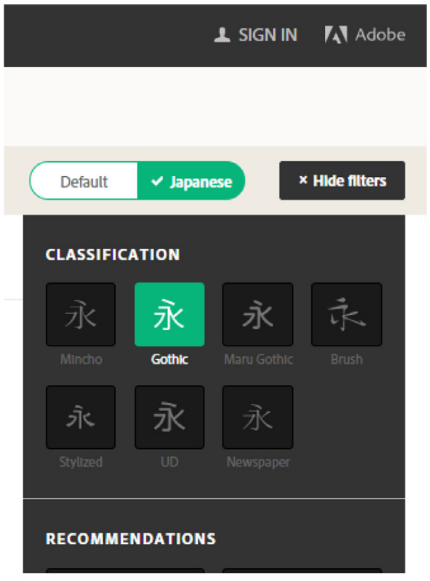
Even for font producers, classification systems differ and are inconsistent. This point confuses users, who may use several thousand fonts from multiple font providers.

2.2. Design-classification systems for different languages

The typographist Maximilien Vox (1894 1974) proposed the first font-classification system in the English world. This system was adopted as a standard schema by the Association Typographique Internationale (ATypI). This is called VOX-ATypI classification [11–13] and has been



(a) Roman – Serif



(b) Japanese - Gothic

Fig. 2. Adobe TypeKit Service.