A Study of Retrieving Funny Images Using Multistage Word Association

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Making catchy presentation slides is one of the important points of giving a presentation. Recently people often use funny images in presentation slides for this purpose. However, it is very complicated to find suitable funny images because it requires a lot of try-and-errors using various keywords. In this paper, we propose a ”Nazokake” based multistage word association tool. ”Nazokake” is a Japanese traditional word game, or Japanese traditional comedy. That supports generating keywords to retrieve suitable funny images. First, the system generate some middle keywords from a query word. Second, result words are generated from middle keywords, and calculate TF・IDF value of these words. TF・IDF value is used for scaling word generality. If TF・IDF value is high, that word is not general word. We want to generate special word, therefore, It is desirable that TF・IDF value is high. Then, computing similarity of between query word and result word. Finally, sorting the words in descending order and pick up high-order words, we get some result, associated keywords. For example, If we input a keyword ”加工 (processing)”, We obtain some middle keywords, like ”メッキ (plating)”, ”フレーム (frame)”, ”画像 (image)”. And we get result associated keywords, such as ”オーバーレイ (overlay)”, 亜鉛 (zinc), ”ヘア (hair)”. We conducted pilot studies and obtained possibilities that the proposed tool can reduce time to find suitable images comparing to manual image retrieval. Next, We develop a image search tool which using ”Nazokake” based multistage word association. The system generate some associated keywords. For searching result images, we use Bing Image Search. We carried out user studies to compare ”Nazokake” based image

search method with normal image search, as a baseline method. In order to compare each methods, We recorded video data of user motion, audio data of user speech, and PC's screen capture video in each user experiment to do protocol analysis. The user study process is as follows: First, the user choice a query word from a word-list that contain 65 Japanese words. Second, Search images with the query word in the system, and choice favorite 5 images in the result image lists. Image list is divided by 2 rows, left side is "Nazokake" image search result list, and right side is normal image search result list. From first experiment, the user choose 9 "Nazokake" images, that is 36% of all choose images. At first user's answer of questioner, "Nazokake" image search is better than normal image search on variety and fun of images in the result. From second experiment, the user choose 14 "Nazokake" images, that is 56% of all choose images. At second user's answer of questioner, as same as first user, "Nazokake" image search is better than normal image search on variety and fun of images in the result. From Speech data of two users, "Nazokake" image search is often contain some fun images, anything goes, and lack consistency. On the other side, normal image search is boring, but easy to select because the result is consistent. As a result, We confirmed that image search tool with "Nazokake" based multi-stage word association is effective to search funny images.