



Title	Japanese Puns Are Not Necessarily Jokes
Author(s)	Dybala, Pawel; Rzepka, Rafal; Araki, Kenji; Sayama, Kohichi
Citation	Artificial Intelligence of Humor, Papers from the 2012 AAAI Fall Symposium, Arlington, Virginia, USA, November 2-4, 2012, 7-13
Issue Date	2012-10-19
Doc URL	http://hdl.handle.net/2115/63625
Type	proceedings
File Information	5797.pdf



[Instructions for use](#)

Japanese Puns Are Not Necessarily Jokes

Pawel Dybala¹, Rafal Rzepka², Kenji Araki², Kohichi Sayama³

¹JSPS Research Fellow / Otaru University of Commerce, Midori 3-5-21, 047-8501 Otaru, Japan.
paweldybala@res.otaru-uc.ac.jp

²Graduate School of Information Science and Technology, Hokkaido University, Kita 14 Nishi 9, Kita-ku, 060-0814 Sapporo, Japan.
{kabura, araki}@media.eng.hokudai.ac.jp

³Otaru University of Commerce, Department of Information and Management Science, Midori 3-5-21, 047-8501 Otaru, Japan.
sayama@res.otaru-uc.ac.jp

Abstract

In English, “puns” are usually perceived as a subclass of “jokes”. In Japanese, however, this is not necessarily true. In this paper we investigate whether Japanese native speakers perceive *dajare* (puns) as *jooku* (jokes). We first summarize existing research in the field of computational humor, both in English and Japanese, focusing on the usage of these two terms. This shows that in works of Japanese native speakers, puns are not commonly treated as jokes. Next we present some dictionary definitions of *dajare* and *jooku*, which show that they may actually be used in a similar manner to English. In order to study this issue, we conducted a survey, in which we asked Japanese participants three questions: whether they like jokes (*jooku*), whether they like puns (*dajare*) and whether *dajare* are *jooku*. The results showed that there is no common agreement regarding *dajare* being a genre of jokes. We analyze the outcome of this experiment and discuss them from different points of view.

1. Introduction

Pun generation is a fairly popular topic in the field of computational humor. Being based on linguistic ambiguities, like homophony, puns are relatively easier to compute than other types of humor. Also in our research so far (summarized in Dybala 2011; Dybala et al. 2012) we focused on this topic. We proposed a pun generator for Japanese and combined it with a chatterbot and an emotiveness analysis system, thus constructing a conversational system, able to react with humor to users emotions.

In English, puns are often treated as a sub-genre of jokes. Thus, in most of existing research projects on pun computation, the notions of “puns” and “jokes” are used

interchangeably (see Section 2 for a summary). However, in our research on Japanese puns (called *dajare*) we realized that in this language puns are not necessarily treated as jokes, despite the fact that, according to dictionaries, theoretically they could be viewed as such. During evaluation experiments with Japanese native speaker participants we sometimes received comments like “it’s funny, but *dajare* are not jokes”. Thus, we realized that for some Japanese *dajare* (puns) are not necessarily a subclass of *jooku* (jokes).

Like puns in other languages, *dajare* use linguistic ambiguities, like homophony, as in the example:

カエルが帰る。
Kaeru ga kaeru.
The frog comes home.

Here the ambiguity comes from the homophones *kaeru* – a frog and *kaeru* – to come back. Thus, the mechanisms that work here are similar to English puns and therefore we could expect Japanese puns to be treated in the same manner as in Western cultures.

In this paper we investigate this issue. We first review some of existing research projects in pun processing in English and in Japanese (Section 2) to show how the terms “pun” and “joke” are used. Next, in Section 3, we analyze some dictionary definitions of Japanese puns and briefly describe this genre. In Section 4 we describe an experiment in which we asked 60 Japanese participants three questions: whether they like jokes, whether they like puns (*dajare*) and whether *dajare* are jokes (*jooku*). We present the results (Section 5), discuss them (Section 6) and conclude the paper (Section 7).

2. “Puns” and “Jokes” in Existing Research on Computational Humor

In this section we briefly summarize some of existing works in the field of computational humor both in English (2.1) and in Japanese (2.2). We focus on how the notions of “puns” and “jokes” are used.

2.1 In English

As mentioned above, in existing research on pun processing in English treating “puns” as “jokes” is rather common. So does Binsted in her works on punning riddles generator, one of the first and best known in this field of study (Binsted 1996). The author also used the word “joke” in the system’s name JAPE, which is an acronym of “Joke Analysis and Production Engine”. Thus, punning riddles are treated here as a subgenre of jokes.

JAPE’s algorithm was significantly improved and reimplemented by Ritchie et al. (2007), who created STANDUP: an interactive riddle builder for children with cerebral palsy. Following the notion used by Binsted, the authors consequently used the term “jokes” to as a hypernym for “puns”. Ritchie also treats puns as a subtype of jokes in his other works, e.g. (Ritchie 2005, Ritchie 2009; in the latter he uses the term “wordplay jokes”).

McKay (2002) in his works on WISCRAIC idiom based witticisms generator defines wits as a subclass of puns, which in turn are treated as a subclass of jokes. Thus, the term “joke” here is often used to refer to the wits (puns) generated by the system.

As showed on above examples, in the field of computational humor in English puns generally are treated as a subclass of jokes. To our best knowledge, no work so far used the term “puns” without referring to them as “jokes”.

2.2 In Japanese

While in English we can see the overall tendency of treating puns as jokes, this seem to work in a different way in Japanese. In this paper we focus on 2 Japanese words that can be used here: *dajare* (a pun) and *jooku* (a joke). Thus, if they were used in a similar manner as in English, *dajare* would be a subclass of *jooku*. However, a closer look to works on computational humor in Japanese brings us to a conclusion that *dajare* are not always treated as *jooku*. Below we give examples of works on Japanese computational humor performed by Japanese native (2.2.1) and non-native speakers (2.2.2). We take into consideration first authors of discussed papers.

2.2.1 In works of native speakers

In general, Japanese native speakers tend to avoid calling puns (*dajare*) jokes (*jooku*) in publications both in English and in Japanese. This is consistent with our experience in research on *dajare* generation (see above).

Tanabe, for instance, who proposed an algorithm of a *dajare* generating system (Tanabe 2005), uses the notions “puns” (in the title and English abstract of his work) and “*dajare*” (in the paper body in Japanese). The author does not use the words “joke” or “*jooku*” at all.

In their work on punning riddles generation in Japanese, Hamada and Onisawa (2008) consequently use the word “*nazonazo*” (Japanese for “punning riddles”) to refer to their output; however, they also mention some similar genres of humor, including *dajare*. There is no reference to jokes (*jooku*) anywhere in the paper.

Albeit the work by Shinohara and Kawahara (2010) is not directly related to computational humor, its findings seem usable also in this field. The paper, written in English, reports a corpus-based study of a particular pattern in *dajare*, which are referred to as “Japanese puns”. Also in this work no term “joke” is used.

2.2.2 In works of non-native speakers

Contrary to Japanese native speaker researchers, non-native speakers conducting research on computational humor in this language tend to use the terms “pun” and “joke” in the same manner they are used in English.

JAPE punning riddles generator (see 2.1) was later on converted to Japanese by Binsted and Takizawa (1997). The system, alike JAPE, also has the word “joke” in its name (BOKE: a Bilingual jOKE Engine). The authors also use the word “puns” in the same manner they did in publications about JAPE.

In their works on stand-up comedy generator for robots, Sjöbergh and Araki (2008a, 2008b) refer to the output of their system generally as “jokes”, as it can generate a variety of humorous outputs. One module of their system generates puns, which are also referred to as “wordplay jokes”. No Japanese equivalent is used in neither of these works.

Also in our previous works, in which we described our pun-telling conversational system for Japanese (Dybala 2011, Dybala 2012) we used the notions of “puns” and “jokes” simultaneously, referring to *dajare* as “Japanese puns”.

To summarize this section, it can be stated that while in English puns are commonly treated as a subclass of jokes by computational humor researchers, in Japanese only non-native speakers treat them as such. Native speakers, in turn, seem to rather avoid calling Japanese puns jokes. This is consistent with comments of native Japanese participants of our experiments, in which we evaluated puns generated by our system (see Dybala 2011).

3. Dictionary Definitions

In this section we analyze how the terms: “pun”, “joke”, “*dajare*” and “*jooku*” are defined in English and Japanese dictionaries.

As far as English terms are concerned, the Cambridge Advanced Learner's Dictionary (Gillard 2003) defines jokes and puns as follows:

joke: something, such as an amusing story or trick, that is said or done in order to make people laugh.

pun: an amusing use of word or phrase which has several meanings or which sounds like another word.

Thus, puns are not defined as a hyponym of jokes and, according to this dictionary, do not seem to be their subclass. However, as showed below, the term “puns” does seem to be commonly used in that meaning.

Now let us take into consideration definition of the Japanese terms “*dajare*” and “*jooku*”. The Wisdom English-Japanese Dictionary (Inoue and Nakano 2008) translates them as follows:

駄洒落 (*dajare*): a pun; a bad (a poor) joke.

ジョーク (*jooku*): a joke.

Thus, *dajare* are in fact defined as jokes, although of a rather poor quality. This is consistent with Japanese definitions of these two terms, as published in the Super Daijirin Dictionary (Matsumura 2012):

駄洒落: 下手な洒落。つまらない洒落。

Dajare: *heta na share. Tsumaranai share.*
a bad pun / joke. A poor *share*.

ジョーク: joke. 冗談。しゃれ。

Jooku: *joke. Joudan. Share.*

(*Joudan* is another word for *jooku*)

The word “*share*”, which appears in both of these definitions, is written in Japanese with these two characters: 洒落, which are also used in the word 駄洒落. The character 駄 (*da*) can be translated as “poor” or “bad”, which is consistent with the explanation that *dajare* are poor *share*. The term *share*, in turn, is defined as follows:

The Wisdom English-Japanese dictionary:

洒落 (*share*): a joke, a jest; a pun.

Super Daijirin Dictionary:

洒落: 1. その場に合った、気のきいた、人を笑わせる文句。2. たわむれ事。冗談事。

Share: 1. *sono ba ni atta, ki no kiita, hito o warawaseru monku.* 2. *Tawamuregoto. Joudangoto.*

1. A witty phrase well matched to circumstances, said to make people laugh. 2. A joke.

Therefore, it can be said that, since *dajare* are defined as poor *share*, and *share* are defined as jokes, *dajare* can be seen as a subclass of jokes. This is consistent with the English translation of *dajare* cited above (=joke). Similar definitions of these terms can be found also in other dictionaries (e.g. Koujien, 2008); we do not cite them as they are very similar to those given above).

To summarize this section, we can see that Japanese puns (or “poor puns”, as *dajare* are sometimes defined) could theoretically be called jokes (*jooku* or *joudan*). However, as mentioned above, in practice it does not always work this way. Therefore, we decided to investigate this issue and conducted a small scale survey in this matter.

4. The Survey

The aim of this study was to investigate how Japanese native speakers perceive the terms “*dajare*” (“puns”) and “*jooku*” (“jokes”). In order to do that, we constructed a questionnaire, which included three questions.

1. Do you like jokes (*jooku*)?
2. Do you like puns (*dajare*)?
3. Are puns (*dajare*) jokes (*jooku*)?

The questionnaire also included questions regarding personal information about participants: their sex, age, nationality and social status. The questionnaires were printed and given to participants who volunteered to take part in the survey.

The survey was conducted in Sapporo (Hokkaido prefecture, Japan). There were 60 participants, 26 males and 34 females, in the age of 17-73. All of them were Japanese native speakers. The details about the sample are shown in Tables 1 and 2.

Table 1: Survey participants – age and sex

Age group	Male	Female	Total
I. 17-25	11	8	19
II. 26-40	7	6	13
III. 41-55	6	13	19
IV. 56-73	2	7	9
Total	26	34	60

Table 2: Survey participants – age and social status

Social status	Male	Female	Total
University student	11	6	17
Company worker	13	7	20
Housewife	0	16	16
Other	2	5	7
Total	26	34	60

In the question regarding participants' social status we listed some most common options (as "company worker" or "university student") that could be circled. We also added the "other" option, with a free field to specify. Participants who chose this option described themselves as "unemployed" (3), "researcher" (1), "high school student" (1), "part-time worker" (1) and "university teacher" (1).

The main purpose of this survey was to investigate whether *dajare* (puns) are perceived as *jooku* (jokes) by Japanese native speakers. Thus, we especially focus on question 3: "Are puns (*dajare*) jokes (*jooku*)?". The null hypothesis was that there will be no significant difference between participants that answer "yes" and those who answered "no". The alternative hypothesis was that there will be significantly more participants that answered "no" (basing on our experience and contrary to dictionary definitions).

We also intended to analyze if there are any correlation between perception of these two terms and participants' sex, age and social status.

The results are summarized in Section 5.

5. Results

The data from the questionnaires described in Section 4 were summarized and analyzed in order to verify our initial claims. We first analyzed the overall results for all three questions.

Table 3: Results for questions: 1. "Do you like jokes (*jooku*)?", 2. "Do you like puns (*dajare*)?", 3. "Are puns (*dajare*) jokes (*jooku*)?"

Question	Yes	No	p value (z-test)
1.	55 (92%)	5 (8%)	< 0.001
2.	42 (70%)	18 (30%)	< 0.002
3.	24 (40%)	36 (60%)	> 0.1

As showed in Table 3, most participants (92%) claimed to like jokes (*jooku*) in general. Less, but still many of them (70%) stated that they like puns (*dajare*). Among them, only one participants claimed to like *dajare*, but not jokes. Finally, as for the question 3, which was of the highest importance in this study, 24 participants (40%) said that *dajare* are *jooku*, and 36 (60%) that they are not.

Statistical significance of these results was calculated using the z-test for proportions. The results for questions 1 and 2 were highly significant ($p < 0.001$ and $p < 0.002$ respectively). Contrary to that, the results for question 3 were not significant on 10% level ($p > 0.1$, z score = 1.5492). Thus, we cannot reject the null hypothesis that there is no common agreement whether *dajare* should be perceived as *jooku*.

We also investigated whether there are any correlations between the perception of these two terms and participants' sex, age and social status. As the main purpose of this study was to check how *dajare* and *jooku* are defined by native speakers, below we focus only on the results for question 3.

Table 4 presents the results for question 3 for male and female participants.

Table 4: Results for question 3: "Are puns (*dajare*) jokes (*jooku*)?" for male and female participants

Sex	Yes	No	p value (χ^2 test)
Male	12 (46%)	14 (54%)	> 0.3
Female	12 (35%)	22 (65%)	

The results showed in Table 4 were analyzed using the χ^2 test to check if there is any correlation between participants' sex and their perception of *dajare* and *jooku*. The analysis showed that the differences here were not statistically significant, and thus it cannot be said that no difference in this matter was observed between males and females.

Table 5 presents the results for question 3 for participants from different age groups.

Table 5: Results for question 3: "Are puns (*dajare*) jokes (*jooku*)?" for participants from different age groups

Age	Yes	No	p value (χ^2 test)
I. 17-25	10 (53%)	9 (47%)	< 0.01
II. 26-40	9 (69%)	4 (31%)	
III. 41-55	4 (21%)	15 (79%)	
IV. 56-73	1 (11%)	8 (89%)	

The results showed in Table 5 were analyzed using the χ^2 test. The analysis showed that there are significant correlations between age groups and participants answers to question 3 (p value < 0.01). Thus, we analyzed the results of every age group separately using the z-test for proportions. The differences for group I (53% vs. 47%) were clearly not significant. Also for group II (69% vs. 31%) the results turned out to be not significant (p value > 0.1). However, the results for group III (21% vs. 79%) and IV (11% vs. 89%) were found statistically significant (p value < 0.02). Thus, it can be said that participants in the age over 40 tended to claim that puns (*dajare*) are not jokes (*jooku*).

Table 6 presents the results for question 3 for participants from different social groups.

Table 6: Results for question 3: “Are puns (*dajare*) jokes (*jooku*)?” for participants from different social groups

Group	Yes	No	p value (χ^2 test)
University student	10 (59%)	7 (41%)	> 0.1
Company worker	8 (40%)	12 (60%)	
Housewife	3 (19%)	13 (81%)	
Other	3 (43%)	4 (57%)	

The results showed in Table 6 were analyzed using the χ^2 test. The analysis showed that there is no significant correlations between age groups and participants answers to question 3 (p value > 0.1). However, it should be noticed that a majority of housewives (81%) claimed that puns (*dajare*) are in fact not jokes (*jooku*).

We also conducted analysis for male and female separately, to investigate if there are any differences in *dajare* and *jooku* perception for different age groups and social groups.

The results are presented in Tables 7, 8, 9 and 10.

Table 7: Results for question 3: “Are puns (*dajare*) jokes (*jooku*)?” for participants from different age groups – male only.

Age	Yes	No	p value (χ^2 test)
I. 17-25	5 (45%)	6 (55%)	> 0.8
II. 26-40	4 (57%)	3 (43%)	
III. 41-55	2 (33%)	4 (67%)	
IV. 56-73	1 (50%)	1 (50%)	

The results showed in Table 7 were analyzed using the χ^2 test. The analysis showed that there is no significant correlations (p value > 0.8).

Table 8: Results for question 3: “Are puns (*dajare*) jokes (*jooku*)?” for participants from different social groups – male only

Group	Yes	No	p value (χ^2 test)
University student	6 (55%)	5 (45%)	> 0.7
Company worker	5 (38%)	8 (62%)	
Other	1 (50%)	1 (50%)	

The results showed in Table 8 were analyzed using the χ^2 test. The analysis showed that there is no significant correlation (p value > 0.7).

Table 9: Results for question 3: “Are puns (*dajare*) jokes (*jooku*)?” for participants from different age groups – female only.

Age	Yes	No	p value (χ^2 test)
I. 17-25	5 (62%)	3 (38%)	< 0.01
II. 26-40	5 (83%)	1 (17%)	
III. 41-55	2 (15%)	11 (85%)	
IV. 56-73	0 (0%)	7 (100%)	

The results showed in Table 9 were analyzed using the χ^2 test. The analysis showed that there are significant correlations between female participants’ age groups and their answers to question 3 (p value < 0.01). Thus, we analyzed the results of every age group separately using the z-test for proportions. The differences for group I were clearly not significant (p value > 0.5). Also the differences for group II were not very significant (p > 0.1). For group III, the observed differences were significant (p < 0.02). All 7 female participants from group IV claimed that puns (*dajare*) are not jokes (*jooku*). Thus, it can be stated that the tendency among female participants is consistent which what was observed for all participants (see above).

Table 10: Results for question 3: “Are puns (*dajare*) jokes (*jooku*)?” for participants from different social groups - female only.

Group	Yes	No	p value (χ^2 test)
University student	4	2	> 0.1
Company worker	3	4	
Housewife	3	13	
Other	2	3	

The results shown in Table were analyzed using the χ^2 test. The analysis showed that there is no significant correlation (p value > 0.1).

Summary

The results presented above show that there is no general agreement among Japanese native speakers whether puns (*dajare*) should be called jokes (*jooku*). No significant differences were observed between male and female participants of the survey. Also no correlation was found between participants’ social groups and their perception of puns and jokes. Significant correlations were found only for two age groups: 41-55 (group III) and 55-73 (group IV). This tendency was also observed for female participants only; however, for male participants no such correlation was found.

6. Discussion

As showed above, the results of the survey show that Japanese native speakers do not agree whether puns (*dajare*) should be called jokes (*jooku*). This does not seem to be influenced by sex nor social status, however, might be related to age, as the participants over 40 tended to claim that puns are not jokes.

The overall message to be derived from these results is that puns (*dajare*) can be, in fact, called jokes (*jooku*) in Japanese; however, this might raise some doubts among some native speakers. Thus, as far as research on Japanese computational humor is concerned, it might be a safer choice not to call puns jokes, in order to avoid misunderstandings (e.g. misguiding evaluation experiment participants).

These results might be unexpected for English speakers, who, as mentioned above, tend to treat puns as a subclass of jokes, both in English and Japanese. The fact that some Japanese native speakers seem to think differently may be caused by the specific nature of puns (*dajare*) and their place in language and culture. In Japan there is no established tradition of telling jokes in a manner similar to that known in Western cultures, i.e. as closed forms, told in order to make listeners laugh, often with prior announcement (“Hey, I know a good joke, you want to hear it?”). In Japan, jokes as closed forms are told in stand up comedies (*manzai*) or in *rakugo* (traditional humorous shows, performed on a stage by a sole storyteller), but not very often in daily life. Puns, on the other hand, are used quite often, but, contrary to Western jokes, in most cases they are told unexpectedly, without any prior notice, as quasi-natural parts of dialogue. Below we present an example of such pun-including conversation.

「いらん紙ないか？」

「ないよ。日本の紙はあるけど、イランの紙はない」

-*Iran kami naika?*

-*Nai yo. Nihon no kami wa aru kedo, iran no kami wa nai.*

-Do you have any paper you don't need?

-No, I don't. I have Japanese paper, but not Iranian.

(Based on homophony between the words “*iran*” – “don't need”, and “*Iran*” - “Iran”).

However, there are also punning one liners in Japanese, such as:

布団が吹っ飛んだ

Futon ga futtonda

Mattress flew away (Based on homophony between the words “*futon*” – “a mattress” and “*futtonda*” – “flew away”).

However, Japanese native speakers tend to claim that the natural environment for *dajare* is dialogue. This can be one possible explanation for the results of this survey: jokes (*jooku*) might be commonly associated with Western-like closed forms, while puns (*dajare*) might be widely defined as natural humor bearers used in conversations. Additionally, it should be added that the term *jooku* in Japanese is normally written with *Katakana* script, commonly used to write words of foreign origin. This may strengthen the impression that *jooku* are something of rather foreign origin, contrary to *dajare* (this term is written in *Kanji* characters, used for words that are natively Japanese).

Another possible explanation underlying the results of our survey might be related to the fact that (as described in Section 3) the word *dajare* can be defined not only as pun in general, but also as low-leveled one. The alleged poorness of *dajare* might, in turn, be caused by the fact that, unlike word plays present in Japanese poetry, they are told in daily life and thus are rather trivial than refined. However, such perception of *dajare* may as well cause doubts whether they are even manifestations of the phenomenon of humor. The word *jooku*, in turn, seems to be rather neutral, and thus might be more naturally connected to humor than *dajare*.

Also worth mentioning is the correlation found between the age of participants and their perception of *dajare* and *jooku*. While no difference was observed for age groups I and II (17-25 and 26-40), a significant correlation was found for groups III and IV (41-55 and 56-73). This might be caused by the fact that *dajare*, being a word of native origin (as mentioned above), may seem to elderly people too distant from the fairly new concept of *jooku* in Japanese. In other words, Japanese native speakers beyond certain age may be reluctant to define jokes as a hypernym of *dajare*, as these two are of different origin. This issue needs further investigation.

7. Conclusions and Future Work

In this paper we investigated how Japanese native speakers use the terms “puns” (*dajare*) and “jokes” (*jooku*). After brief review of existing research in the field of computational humor, we analyzed dictionary definitions of these two words. This showed that theoretically they can be used in a manner similar to English (puns as a subclass of jokes). However, the results of a survey conducted to investigate this issue show that there seem to be no common agreement among native speakers whether *dajare* are jokes (*jooku*) or not.

The results presented above, albeit interesting, raise some further doubts about how the humor- and joke-related terms are used in Japanese. A more thorough study on a

bigger sample should be performed, that would investigate how native speakers define such words as *share* (joke, pun – see Section 3), *joudan* (joke) or *jiguchi* (pun). It might also be interesting to include more participants from other social groups in the study.

Acknowledgments. This work was supported by KAKENHI (Project Number: 23-01348)

References

- Binsted, K. 1996. Machine humour: An implemented model of puns, Ph.D. Dissertation. UK: University of Edinburgh.
- Binsted, K., and Takizawa, O. 1997. Computer generation of puns in Japanese. Sony Computer Science Lab, Communications Research Lab.
- Dybala, P. 2011. Humor to Facilitate HCI: Implementing a Japanese Pun Generator into a Non-task Oriented Conversational System, Lambert Academic Publishing.
- Dybala, P., Ptaszynski, M., and Sayama, K. 2012. A Step Towards Joking AI: Multiagent Humor-Equipped Conversational System. Bosse, T. eds. Chapter in Agents and Ambient Intelligence, IOS Press. 289-326.
- Gillard, P. 2003. Cambridge Advanced Learner's Dictionary (Second edition). Cambridge: Cambridge University Press. (CALD)
- Hamada, M., and Onisawa, T. 2008. Creation of Riddles with Various Meanings of Homonyms” (Dou'on igigo no imi no tayousei wo kouzou ni motsu nazonazo no seisei). Journal of Japan Society for Fuzzy Theory and Intelligent Informatics, Vol. 20(5): 696-708.
- Inoue, N., and Akano, I. 2008. The Wisdom English-Japanese dictionary. Tokyo: Sanseido.
- Koujien, 6th ed., Tokyo: Iwanami, 2008.
- Matsumura, A., eds. 2006-2012. Super Daijirin 3.0, Tokyo: Sanseido.
- McKay, J. 2002. Generation of idiom-based witticisms to aid second language learning. In Proceedings of the April Fool's Day Workshop on Computational Humour, 77-87. Trento, Italy.
- Odashima, Y. 2000. Dajare manners (Dajare no ryuugi), Tokyo: Kodansha.
- Ritchie, G. 2005. Computational mechanisms for pun generation. in Proceedings of the 10th European Natural Language Generation Workshop, 125-132.
- Ritchie, G., Manurung, R., Pain, H., Waller, A., Black, R., O'Mara, D. 2007. A practical application of computational humour. In Proceedings of the 4th International Joint Conference on Computational Creativity, 91-98. London, UK.
- Ritchie, G. 2009. Can Computers Create Humor? In S. Colton, R. Lopez de Mantaras and O. Stock, eds. Special Issue on Computational Creativity. AI Magazine Vol. 30, No 3: 71-81.
- Shinohara, K., and Kawahara, S. 2010. Syllable intrusion in Japanese puns, dajare. In Proceedings of the 10th meeting of Japan Cognitive Linguistic Association.
- Sjöbergh, J., and Araki, K. 2008a. A Complete and Modestly Funny System for Generating and Performing Japanese Stand-Up

Comedy. In Proceedings of COLING'08, 111-114. Manchester, England.

Sjöbergh, J., and Araki, K. 2008b. Robots Make Things Funnier In Hattori, H. et al. eds.: New Frontiers in Artificial Intelligence: JSAI 2008 Conference and Workshops, Asahikawa, Japan: 306-313. LNAI 5447, Springer.

Tanabe, K. 2005. Pun Processing in a computer: A Primary Design for a Pun Generator (Dajare no konpyuuta ni yoru shori: dajare seisei shisutemu no kihon sekkei). Sanno University Bulletin, Vol. 26 No. 1: 65-74.