

Pun and Non-Pun Humor in Second-Language Learning

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ABSTRACT

We believe that the use of humor by conversational software agents would significantly improve second-language learning. Puns help students to learn about homophony, and to distinguish between words with similar sounds or spellings; idiom-based jokes provide memorable contexts for idioms, which are notoriously difficult to memorize; and scalar humor introduces the student to common comparisons in the target language, and helps them build networks of vocabulary, particularly between nouns and adjectives. In general, humor is likely to motivate the student to study more often, and humanizes the interface, so that the conversational agent is perceived as a worthwhile dialogue partner. Moreover, because humor frequently rests on cultural concepts such as social station, rudeness, stereotypes and so on, studying humor can lead to the kind of deeper understanding that is necessary for true fluency. Finally, practice in the humorous forms of the target culture might allow a student to actively use humor in the same way a native speaker would, increasing the chances of genuine communication taking place.

Here, we describe scalar humor in some depth, and discuss how computer-generated scalar humor could improve second language learning.

Keywords

Humor, second language learning, dialogue, human-computer interaction.

1. BACKGROUND

In our earlier work [Binsted 1995] we have proposed that the careful incorporation of humor into the human-computer interface could make computers seem more congenial; in particular, it could make the machine seem less alien, less intimidating and less patronizing. Humans use humor “to criticize without alienating, to defuse tension or anxiety, to introduce new ideas, to bond teams, ease relationships and elicit cooperation” [Barsoux 1993], all goals which are relevant to human-computer interaction. The potential for humor in the interface has been discussed at length (in, for example, [Stock 1996]), but little work has yet been done.

Some research [Morkes *et al* 2000] suggests that users find computers that are able to use humor more likeable and sympathetic. Also, contrary to popular belief, humor

does not seem to distract users from their work - time spent on assigned tasks was unaffected by the presence or absence of humor in the interaction. However, the quality of the humor does make a difference. Users who were presented with unsuccessful humor (i.e. well-formed but unfunny jokes) were less sociable with the computer, and also spent less time on their assigned tasks.

Finally, there is the popular perception of computers as inflexible and uncreative thinkers. Even science fiction artificial intelligences, such as Data in Star Trek, are typically portrayed as having no sense of humor, despite otherwise having superior cognitive skills. If we want to develop interface agents that are perceived to be genuinely intelligent and human-like in their behavior, they *must* be able to use humor fluently.

2. HUMOR IN SECOND LANGUAGE LEARNING

We believe that the use of humor by conversational software agents would significantly improve second-language learning. This effect is not restricted to some particular subtype of humor. For example, puns can help students to learn about homophony, and to distinguish words with similar sounds or spellings. For example, in order to understand this punning riddle:

What do you call a murderer with fiber? A cereal killer. [Binsted, 1996]

the student must not only understand the meanings of the central terms (e.g. “murderer”), but must also realize that “serial” and “cereal” are homonyms, and be able to tell them apart. For complete understanding, the student must also recognize the ambiguity in the word “fiber”, which can refer both to moral fiber (incongruous in the context of a murder), and to fiber of the nutritional variety (such as found in cereals). Moreover, since the above joke is computer-generated, jokes of a similar style could be generated by the system to suit the vocabulary level of a particular student.

Of course, it is unlikely that a second language student would enjoy this kind of humor, at least at first. A natural humor reaction seems to depend on the text falling within a certain range of comprehensibility – too easy, and the joke is facile; too difficult, and the text is more a puzzle than a joke. Second language learners are likely, at least at first, to find the texts too difficult to appreciate as

humor. Nonetheless, we believe that the promised humorous content will motivate the students to think carefully about the meanings of words, and the relations between them; moreover, we expect that the complex, yet concrete, network of relations will allow the student to memorize vocabulary more easily, and to avoid future errors. For example, in the course of understanding the above joke, the student might generate the image of a man stabbing a bowl of rice krispies. This clear, memorable image is likely to remind the student of the words and concepts used in the joke, how they interrelate, and how they might be confused.

These effects are even more pronounced when we look at idiom-based pun humor. For example, consider the one-liner:

The friendly gardener had a lot of thyme for the woman! [McKay, 2002]

McKay's program not only generates the humorous text itself, but also explains the essential connections that the student must understand in order to understand the joke. For example, for the above text, the program generated:

The word "time", which is part of the idiom "have time for someone" is a HOMONYM of the word "thyme".

A HOMONYM is a word that sounds like another word.

| LINK | *between thyme and gardener :*

| *thyme is a type of plant*

| *a gardener works with plants*

"friendly" is an adjective which is associated with the idiom "have,time,for,someone".

Although this explanation is very simple, it gives the student enough information to start digesting the humor. McKay's evaluation suggests that students find this kind of explanation very helpful, both in understanding the text itself, and in increasing their understanding of the target language. Although further evaluation needs to be done, we expect that these idiom-based jokes provide memorable contexts (e.g. the image of a friendly farmer offering herbs) for idioms, which are notoriously difficult to memorize.

More recently, we have begun to consider non-pun humor. Non-pun humor in general is probably not feasible for computer generation, in part because it would require a wide, deep, common-sense knowledge base, whereas puns can be generated from a relatively simple lexicon. However, we have found a subtype of non-pun humor which we believe to be both feasible for computer generation, and useful for second language learning. We have called this subtype *scalar humor*.

3. SCALAR HUMOR

We have identified a subtype of humor that is both

pragmatically ambiguous (thus requiring speakers to use contextual cues to identify it as humor), relatively restricted in the forms it can exhibit, and systematic but flexible in the sorts of conceptual mechanisms it allows to function.

This type of humor falls into several related classes of humorous utterance that make use of variants of the following form:

X is so Y that Z.

For example:

I was such an ugly kid that when I worked in a pet store, people kept asking how big I'd get.

I was such an ugly kid that my father carried around the picture of the kid who came with his wallet.

I was such an ugly kid that when I was born the doctor slapped my face.

In humor of this form, some topic X (like some person, thing, or situation) is described in the first clause as having a lot of some property, Y. This is then followed by a clause Z, which *seems* to provide evidence for the Y-ness of X – although it rarely, if ever, actually does (see Section 3.2, below). We have dubbed humor that makes use of the XYZ form *scalar* since it turns on the incongruity of a scale set up in the first clause and one indicated in the punchline. This is an extremely pervasive and frequent sort of humor. It is a staple of stand-up comedy, as in the joke forms seen below.

I just got back from New York and it was so cold that flashers in Central Park were just describing themselves.

I was so poor growing up ... if I wasn't a boy ...I'd have nothing to play with.

There is also a social practice, known as 'The Dozens', or 'Snaps', which is constructed almost entirely around scalar humor [Labov 1973]. This routinized social interaction is mostly restricted to young adult males in inner city environments, but is purportedly extremely commonplace in this context. In the Dozens, two participants engage in verbal sparring, using scalar humor in a maximally creative, insulting, and specific way. Examples like the ones shown below can be found on any of more than one hundred web sites dedicated to the various sorts of scalar humor used in the Dozens, most importantly, to jokes about *yo' mama* (*your mother*). For example:

Your breath smells so bad, people on the phone hang up.

Your brother is so ugly, when he sits in the sand the cat tries to bury him.

Your mother is so old, her Social Security number is in Roman numerals.

3.1. Ambiguity in scalar humor

As seen above, scalar humor is widespread and widely available. It also displays pragmatic ambiguity. For example, compare the non-humorous utterance:

It's so cold where I live, we find dogs huddling for warmth.

with the humorous:

It's so cold where I live, we find dogs frozen to fire hydrants.

These two types of utterance are distinguished in at least two ways – by prosody (the intonation and timing of the spoken sentence) and by the relation between the first and second clause. A discussion of prosody is beyond the scope of this paper, so here we will focus on the second type of differentiation. In the first, non-humorous text, the second clause evokes a scenario in which the topic (in this case, *where I live*) is depicted as having a great deal of the property (in this case *cold*), but that nonetheless falls within a plausible range of values for the topic. In the second, humorous text, the second clause depicts a scenario related to the first clause in some way, but does not conform to our expectations about how the two clauses should be related. More detail on this relation in scalar humor follows below.

3.2. Versions of scalar humor

Humorous utterances that use the form XYZ differ in terms of the relation between their two clauses, but all share one crucial element. In all cases, the character of the second clause rejects the expectation set up in the first clause, that it will depict the target as having a great deal of the given attribute, within a realistic range.

In *hyperbole*, the scene described by Z falls well beyond the normal scale of Y for X. The hearer expects Z to describe a scene falling within the normal range of Y values for X, and yet it does not.

Yo mama's so fat, when she was diagnosed with a flesh eating disease, the doctor gave her 5 years to live.

Yo mama's so fat, she gets runs in her jeans.

The first type of hyperbole, *mendacious hyperbole*, has the scene described by Z falling well beyond the normal scale of Y for X even if some false supposition were true.

Yo mama's so fat, a picture of her fell off the wall!

Yo mama's so fat, at the zoo, the elephants started throwing her peanuts.

In *transferring hyperbole*, the scene described by Z would fall within the normal scale of Y for some other X that tends to be much more Y.

Yo mama's so fat, her ass has its own congressman.

Yo mama's so fat, she's got smaller fat women orbiting around her.

Punning hyperbole has the scene described by Z falling well beyond the normal scale of Y for X and also incorporates a play on words, which may be based on homonymy, polysemy, or some idiom.

Yo mama's so fat, she went on a light diet... As soon as it's light she starts eating.

Yo momma's so fat she eats Wheat Thicks.

With *understatement* (a much less common type of relation than hyperbole), the scene described by Z falls far from the extreme end implied by the construction. Rather, Z describes a scene that demonstrates very little Y of X.

It was so cold last week in Hawaii that I had to put on shoes.

[Says the hick] Whoo-whee! They got some tall buildings in Atlanta, though. Some of them you could hardly count to one before your spit hit the ground!

When the relation between the two clauses is *indirect*, the scalar assumption is not directly flouted, but rather Z is indirectly related to Y. The indirect relation can be mediated by one or some set of: polysemy, idiomaticity, conceptual metaphor, or imagery.

In *indirect polysemy*, some word or words of Y may have multiple related meanings, one of which is not intended by XY and which is part of the scene described in Z.

It was so cold out that rap stars were actually chilling out.

Yo momma's so dumb, they had to burn down the school to get her out of second grade.

When there is an *idiom* involved, some particular idiom may be suggested by Y, and in Z is interpreted non-idiomatically (literally) or according to polysemy of some linguistic elements of the idiom.

Yo momma's so fat, she can't even jump to a conclusion.

Yo mama's so fat, when she hauls ass, she has to make two trips.

With *conceptual metaphor*, Z depicts a scene that is metaphorically very Y.

It was so cold, I saw a bunch of Eskimos using Hillary Clinton for heat.

When *imagery* structures the relation between Y and Z, the image described in Z is compatible with Y, but in Z it is cast as playing part in a different type of scene.

It was cold last night! I was so cold I was rubbing my hands faster than Dick Cheney on an Enron payday.

To summarize, these humorous utterances are all pragmatically ambiguous with a non-humorous construction, X is so Y that Z. In the humorous

utterances, the inference set up by the first clause of the construction is rejected in the second clause, by describing X as falling well beyond the appropriate scale of Y, describing X as falling well below the high end of the scale of Y, or through a Z that describes X as very Y, but only through some indirect conceptual relation.

3.3. Implementation of scalar humor

We have implemented a very simple model of a two narrow subtypes of the *mendacious hyperbole* type of scalar humor. The first subtype is of the form:

X is so Y that T takes action A towards X.

where X is an animate agent; Y is an attribute of X that, for X, falls outside of the normal range for things of X's type; T is an animate agent that is usually considered to be extremely Y; and A is an action that is usually taken towards T because of its Y-ness. So, for example:

Your brother is so tall, giraffes look up at him!

The second subtype is of the form:

X is so Y that G takes action A towards X.

where X is an animate agent; Y is an attribute of X that, for X, falls outside of the normal range for things of X's type; T (not mentioned in the text) is an object that is usually considered to be extremely Y; G is an animate agent that typically takes action A towards T because of its Y-ness. So, for example:

Your brother is so tall, Sir Edmund Hillary tried to climb him.

Although the relations required to generate this kind of joke are not typically found in a lexicon, we did find this kind of relation in OpenCyc, the open source version of Cyc [Lenat, 1995]. However, OpenCyc contains a very small subset of the knowledge that Cyc purportedly contains, and we had to add, by hand, most of the knowledge required to generate the examples above. We are currently evaluating the most recent release of OpenCyc, in the hopes that it will contain enough knowledge to generate this kind of humor in some quantity.

3.4. Scalar humor in second language learning

The second language student can benefit even more from exposure to scalar humor than from looking at pun-type humor. Not only are scalar humor examples generally more funny than the kind of pun that can be computer generated, but comprehension of the full range of scalar humor requires knowledge of: nouns and adjectives, and typical relations between them; many forms of figurative language; superlative grammatical forms; idioms; and a wide range of cultural knowledge. Moreover, particular scalar humor texts can be selected or generated to focus on elements appropriate for the student's current level.

We also expect that the tendentious nature and clear imagery of much scalar humor will make it (and the associated lesson) easier to remember, especially if it is tailored to the student's own circumstances; for example, if the student's brother is actually tall, scalar humor related to that fact (and the associated linguistic knowledge) might be relatively memorable.

4. CONCLUSION

Here we have described two types of pun humor (punning riddles, and idiom-based one-liners), and one type of non-pun humor (scalar humor). Our past work has demonstrated that both kinds of non-pun are feasible for computer generation, and early exploration suggests that scalar humor may also be feasible, with the appropriate resources. Because of the wide range of linguistic and cultural knowledge recruited in joke comprehension, a joke's rich and memorable imagery, and the potentially motivating nature of humor content, we expect that conversational agents capable of using humor will be extremely useful to students of a second language.

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