Generating your own riddles

These instructions allow the construction of novel punning riddles (simple question-answer jokes), step-by-step. They are based on the rules used in two computer programs which are capable of generating vast numbers of riddles: JAPE[1] and STANDUP[2]. The version here is simplified in various ways. In particular, only the simpler rules have been included, so you will not be able to create, with the rules here, the full range of jokes that these programs produce.

What is a punning riddle?

Some examples from the JAPE and STANDUP programs:

> *What do you get when you cross a breakfast food with a murderer?*
> *A cereal killer.*

> *What do you call a shout with a window?*
> *A computer scream.*

Such jokes consist of two textual parts, a Question and an Answer. The answer is often a short phrase, with the question describing it in some way. There is some sort of pun (play on words), whereby a word is replaced with a similar-sounding one.

What to do

There are three "stages" of rule which you work through in turn; see the later pages for lists of all the rules.

You start with Stage 1, choose some words that fit *one* of these rules, and this will give you 2 words to work on for the Question (these will feed into Stage 2), and 2 words for the Answer (these go straight to Stage 3, by-passing Stage 2).

After Stage 1, build up the Question by turning to the Stage 2 rules, and choosing a rule (any one will do). Starting from the two words you got from Stage 1 (Question part), find two more words as described by your chosen Stage 2 rule. The Stage 2 rule that you use will create one Output Expression, to be passed on to Stage 3.

Now turn to the Stage 3 rules. For the Answer, there is just one way to put your two words together, making them into a phrase. For working on the Question, there are a set of rules. Choose one of these, making sure that the expression you are carrying over from Stage 2 matches the heading of the Stage 3 rule. Fill in the values of the words (Z and W) that were in the expression. This will create a piece of text with further symbolic expressions in it. To work out what text these represent, turn to the rules 'FOR PHRASES INSIDE QUESTION' within Stage 3. Choose one of these rules by matching the symbolic expression with the heading of the rule. This will give you a choice of one or more ways to build the phrase. Choose one of these, filling in the values you have inside the symbolic expression.

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[1] Kim Binsted (1996) Machine humour: an implemented model of punning riddles. PhD Thesis, University of Edinburgh.

[2] Graeme Ritchie, Ruli Manurung, Helen Pain, Annalu Waller, Rolf Black, Dave O'Mara. (2007) A practical application of computational humour. In Amilcar Cardoso, Geraint A Wiggins (ed), *Proceedings of the Fourth International Joint Conference on Computational Creativity (Goldsmith's, London)*: pages 91-98.

If you have worked through all of that, you should have two complete texts, a Question and an Answer. See the Worked Example below.

Worked example

Suppose we choose, at Stage 1, rule (i). We then need to find (from our own knowledge of English), a noun and a noun-modifier (i.e. an adjective, or a noun that can go in front of another noun to describe it), which sound very similar. Let's use *bazaar* (noun) and *bizarre* (adjective). This means our pairs of words are *(bizarre, bazaar)* for the Question building, and *(bizarre, bazaar)* for the Answer building. We can write all this on the Worksheet thus:

STAGE 1:

Rule chosen: (i)
Words selected: A = bizarre, B = bazaar
Words/phrases for Question : bizarre, bazaar
Words/phrases for Answer : bizarre, bazaar

Now we turn to Stage 2 (where the Question will be fleshed out). There are 6 rules, and we can choose any one of these. They all assume that we have two words, X and Y; in our example, these are *bizarre* and *bazaar*. Let's choose rule (ii). This means we need to find Z which is an adjective meaning the same as *bizarre,* and a word *W* meaning (roughly) the same as *bazaar.* How about Z = *strange, W = mall*? This results in an output expression *ASYNSYN(strange, mall).* The next part of our Worksheet now looks like this:

STAGE 2:

Rule chosen: (ii)
Input words (from Stage 1): $X =$ bizarre $\qquad$ $Y =$ bazaar
New words selected: $Z =$ strange $\qquad$ $W =$ mall
Output expression: ASYNSYN(strange, mall)

Next we look at Stage 3. For the Question, we have just one expression to process, *ASYNSYN(strange, mall).* Our Question expression *ASYNSYN(strange, mall)* matches only one of the Question rules, (i), so we have to use that one, resulting in the draft question text:

'what do you call *ASYNSYN(strange,mall)*?'

To expand this, we use the Stage 3 rules for phrases inside questions; only rule (v) matches, and this gives us a choice between *'a strange mall'* or *'a mall that is strange'*. Let's choose the latter. Putting this where the *ASYNSYN* expression was gives us a Question text:

' what do you call a mall that is strange?'

There is only one Stage 3 Answer rule*,* (vii), so we have to use that to process the pair of words that we got (for the Answer) at Stage 1. This results in the Answer text:

'a bizarre bazaar'.

Hence, the final part of the Worksheet looks as follows:

STAGE 3 :

(Question)
Rule chosen: (i)
Text with values inserted: 'what do you call *ASYNSYN(strange,mall)*?'
Text when phrase rules have been used: 'what do you call a mall that is strange?'

(Answer):

Rule chosen: (vii)
Words to use: bizarre, bazaar
Text with values inserted: 'a bizarre bazaar'

Our riddle is now complete (albeit not very good):

    'what do you call a mall that is strange?' **'**a bizarre bazaar'

This worked example is probably the simplest possible. More complicated examples are possible by different choices of rules.

STAGE 1 RULES ("Schemas")

Notation:

"A+B" means the expression A followed by the expression B (concatenation)

A "noun-modifier" is an adjective (like *tall*), or a noun that can go in front of another noun to describe it (like *cereal* in *cereal killer*).

A "compound noun" is two nouns in a phrase acting like a single noun, e.g. *door handle.*

An "established phrase" is a two-word phrase that is very well known, e.g. *red herring.*

(i)
Find: noun-modifier A, noun B
Such that: A and B sound extremely similar
Words/phrases for Question: A,B
Words/phrases for Answer: A,B

(ii)
Find: three words A, B, C (e.g. A = fir, B = tree, C = fur)
Such that: A+B is a compound noun/established phrase, and C sounds like A
Words/phrases for question: C, A+B
Words/phrases for answer: C,B

(iii)
Find: four words A, B, C, D (e.g. A = grizzly, B = bear, C = grisly, D = beer)
Such that: A+B is a compound noun/established phrase, C sounds like A, D sounds like B, C is a noun-modifier, D is a noun
Words/phrases for question: C,D
Words/phrases for answer: C,D

(iv)
Find: three words A, B, C (e.g. A = red, B = herring, C = bread)
Such that: A+B is a compound noun/established phrase, C rhymes with A, C is a noun-modifier.
Words/phrases for question: C, A+B
Words/phrases for answer: C,B

(v)
Find: three words A, B, C (e.g. A = dog, B = collar, C = colour)
Such that: A+B is a compound noun/established phrase, C sounds like B, C is a noun.
Words/phrases for question: C, A+B
Words/phrases for answer: A,C

(vi)
Find: three words A, B, C (e.g. A = dog, B = collar, C = colour)
Such that: A+B is a compound noun/established phrase, C sounds like B, C is a noun.
Words/phrases for question: A+B,C
Words/phrases for answer: A,C

STAGE 2 RULES ("Description rules")

(These are used to devise suitable phrases to appear in the Question)

In all these Stage 2 rules, assume that X and Y are the two words -- in that order – which you got from Stage 1 (for the Question).

(i)
Find: noun Z, word W
Such that: X and Z mean the same, Y and W mean the same
Output from this rule: NSYNSYN(Z,W)

(ii)
Find: adjective Z, word W
Such that: X and Z mean the same, Y and W mean the same
Output from this rule: ASYNSYN(Z,W)

(iii)
Find: word Z, word W
Such that: Z names a part of X, Y and W mean the same
Output from this rule: MERSYN(Z,W)

(iv)
Find: noun Z, word W
Such that: X and Z mean the same, Y is a subclass or instance of W
Output from this rule: NHYPSYN(Z,W)

(v)
Find: adjective Z, word W
Such that: X and Z mean the same, Y is a subclass or instance of W
Output from this rule: AHYPSYN(Z,W)

(vi)
Find: word Z, word W
Such that: Z names a part of X, Y is a subclass or instance of W
Output from this rule: MERHYP(Z,W)

Illustrations of relations used in these rules:
- two words that mean the same: 'car', 'automobile'; 'lake', 'loch'; 'glass', 'tumbler'
- a word names a part of another: 'wheel', 'car'; 'handle', 'racket'; 'nib', 'pen'.
- a word is a subclass of another: 'car', 'vehicle'; 'spoon', 'cutlery'; 'dog', 'mammal'.
- a word is an instance of another: 'George W. Bush', 'president'; 'Eiffel Tower', 'monument'.

The Output you get from your chosen rule here becomes the input to Stage 3, where the Question will be made into a full sentence.

STAGE 3 RULES ("Templates")

Where a rule specifies 'a/an', choose 'a' or 'an' appropriately depending on whether the following word starts with a consonant sound or not.

FOR QUESTION TEXT:

(These three rules act on the expression which was the output from Stage 2.)

(i)
  for any expression of the form L(Z,W) (where 'L' is NSYNSYN, MERHYP, etc.):
  'what do you call L(Z,W)?'

(ii)
  for an expression of the form NSYNSYN(Z,W) *or* NHYPSYN(Z,W) *or* MERHYP(Z,W):
  'what do you get when you cross a/an Z with a/an W?'

(iii)
  for an expression of the form AHYPSYN(Z,W):
  'what kind of W is Z?'

FOR PHRASES INSIDE QUESTION:

(These three rules are used after the QUESTION TEXT rules are applied.)

(iv) NSYNSYN(X,Y) or NSYNHYP(X,Y) :

'a/an X Y'
or
'a cross between a/an X and a/an Y'

(v) ASYNSYN(X,Y) or ASYNHYP(X,Y) :

'a/an X Y'
or
'a/an X that is Y'

(vi) MERSYN(X,Y) or MERHYP(Y,X):

'a/an X with a/an Y'
or
'a/an X that has a/anY'

FOR ANSWER TEXT, USING X and Y:

(This rule acts on the two words which came from Stage 1, the Answer part.)

(vii)
  'a/an X Y.'