Teaching metalinguistic awareness and reading comprehension with riddles

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Understanding that words and sentences can have more than one meaning improves comprehension by allowing readers to think flexibly about the appropriate meaning.

As a 6-year-old, I was obsessed with knock-knock jokes. I laughed uproariously whenever I heard one, no matter how inane.

Knock knock.
Who's there?
Cargo.
Cargo who?
Cargo BEEP BEEP!

Not only did I find these jokes funny, I wanted to write my own. I pestered my poor parents with nonsensical knock-knock jokes. Every piece of environmental print was fodder for my stand-up, but I never plotted the answers in advance. Wanting to encourage my burgeoning literacy skills, my parents played along. The result was often something like this:

Knock knock.
Who's there?
Stop!
Stop who?
Ummmmm.... Stop at the stop signs!

Until, one day, we passed a tennis center and everything suddenly clicked. I looked at the word tennis on the side of that building, and for the first time I saw the two words within the word.

Knock knock.
[weary] Who's there?
Tennis!
Tennis who?
Ten is my favorite number!

It was a moment of such sudden cognitive clarity that I remember it vividly to this day. It didn't matter to me that the joke wasn't funny. What was funny was that language can be manipulated—and that I was finally in the language-manipulating club.

Multiple Meanings in Words and Sentences

Children are enormously interested in word play. The playground is a great place to find examples of this interest (Cazden, 1976): From jump-rope chants and silly songs to Pig Latin, kids everywhere delight in re-working language. They do this for two reasons: (1) It is fun, and (2) it is how they make discoveries about language. These discoveries lead to the metalinguistic knowledge necessary for reading.

Metalinguistic awareness has been defined as "the ability to objectify language and dissect it as an arbitrary linguistic code independent of meaning" (Roth, Speece, Cooper, & de la Paz, 1996, p. 258). It is now generally accepted that phonemic awareness is a type of metalinguistic awareness that is important in learning to read (see, e.g., National Institute of Child Health and Human Development, 2000). But new evidence shows that other types of metalinguistic awareness could be important for reading.
comprehension in much the same way that phonemic awareness is important for learning to decode (Cairns, Waltzman, & Schlisselberg, 2004; Shakabai, 2007; Yuill, 1998; Zipke, Ehri, & Cairns, 2008).

Understanding that words and sentences can have more than one meaning improves comprehension by allowing readers to think flexibly about what the appropriate meaning may be. In addition, comprehension monitoring benefits from training in recognizing and reexamining the meaning of ambiguous sentences since students are taught to consider meaning and to reread if necessary. To evaluate and regulate comprehension of text, it is necessary to know that the words in a text can add up to more than one possible meaning and that context and alternative explanations need to be considered. This ability to reflect upon and manipulate language is crucial for reading.

Cairns (1999) pointed out that the majority of the 1,000 most common words in English are multiply ambiguous. This refers to homonyms such as can, which sometimes means the ability to do something and sometimes refers to a metal receptacle. In addition to this type of lexical ambiguity in which a word has more than one meaning, multiple meanings can be created by structural ambiguities within syntax. A sentence such as “The child talked about the problem with the teacher” is structurally ambiguous because it is equally possible that the child talked with the teacher or that the child has a problem with the teacher.

Cairns and her colleagues (2004) conducted a longitudinal study in which they followed a group of children from preschool through grade 3, regularly testing their ambiguity-detection skill and reading comprehension. They found that first and second graders’ ability to detect lexical ambiguities (e.g., understanding that there are two meanings embedded in a sentence such as “The man’s nails were very sharp”) was a strong predictor of their reading scores in the subsequent grade. The ability to detect structural ambiguities (e.g., recognizing two meanings in a sentence such as “The chicken was ready to eat”) was found to emerge in second grade and to predict third-grade reading ability.

Sometimes ambiguous language is used purposely for effect. “Nothing comes between me and my Calvins,” used in a famous 1980s advertising campaign for Calvin Klein Jeans, seems like a straightforward slogan suggesting devotion to the brand. It can also, however, be read to mean that Calvin Klein jeans are so comfortable, and their owners so sexy, that underwear is eschewed.

Advertising slogans are unique in that they strive to create a positive overall impression for their product with limited space; they use ambiguity to communicate more in the fewest words possible. This is not the case with most ambiguous constructions. When a chef reports that “the chicken is ready to eat,” he presumably means that the meal has been cooked. Coming from a farmer, this same sentence could mean that the chicken is hungry and needs to be fed. The two meanings are incompatible, and so it is necessary to use strategies such as activating background knowledge and considering context to decipher which meaning is intended.

Sometimes ambiguity is humorously unintended. Examples are often found in newspaper headlines, such as “Kids Make Nutritious Snacks” (see www.fun-with-words.com/ambiguous_headlines.html for more). The word make is ambiguous here. Presumably what is intended is that the kids cooked the snack, but the headline can also be read with the unintended meaning that the children were the snack. An example of a headline with a structural ambiguity is “Two Sisters Reunited After Eighteen Years at the Checkout Counter.” This headline begs the question, Did the long-lost sisters reunite at the checkout counter, or did they reunite after having spent 18 years there?

These examples illustrate that ambiguity—intended or unintended—is all around us. Knowing when there are two incompatible meanings to a word, phrase, or sentence and being able to employ strategies to determine which meaning is preferred are necessary skills for successful reading comprehension. These skills can be taught explicitly through fun classroom minilessons.

Research on the Teaching of Ambiguous Language

Yuill (1998) was the first researcher to create an intervention to teach this type of metalinguistic awareness and then to look at its impact on reading comprehension. Her work targeted children with adequate decoding skills who have trouble comprehending what they read. Eighteen 7-year-olds with comprehension difficulties were matched with 18 competent comprehenders on their decoding ability,
age, and vocabulary scores. Participants were then randomly assigned to treatment or control groups. The treatment groups received seven treatment sessions in which they learned about homonyms, made up jokes using word compounds, played communication games, and read ambiguous stories. The control group read silly stories and played phonemic awareness games. Yuill found that scores on standardized reading tests among the students in the treatment group improved significantly more than the scores of the children in the control group.

To expand on Yuill’s work, I conducted two follow-up studies (Zipke, 2007; Zipke et al., 2008). First, I looked at the correlation between the metalinguistic awareness and reading comprehension of children who were established readers (Zipke, 2007). One hundred sixth and seventh graders were administered a series of assessments. As expected, an analysis of the results revealed that the ability to recognize sentences with two meanings and the ability to solve riddles with lexical or syntactic ambiguity correlated significantly with reading comprehension and vocabulary development in this population.

To draw definitive causal conclusions about the effect of metalinguistic awareness training on reading comprehension, an experimental study employing a control group was then planned (Zipke et al., 2008). The goal in creating this intervention program was to target the developing metalinguistic knowledge of younger children while capitalizing on their natural love of word play and riddles. All of the materials used in this intervention were books and tools commonly found in classrooms.

Forty-six third graders from low socioeconomic status families and various cultural backgrounds were chosen for the study. Half of the students were randomly assigned to receive the experimental training. Students assigned to the experimental group received four individually administered training sessions of about 30 minutes each that focused on words and sentences with multiple meanings. Instruction began at the word level and grew gradually to the reading of authentic texts. With the use of active learning methods and materials commonly found in every classroom, new concepts were presented and demonstrated, then handed over to the participant for guided practice. These lessons included practice identifying and defining homonyms, identifying and defining different types of ambiguous sentences, reading and writing riddles with lexical and structural riddles, and reading and writing original stories that parallel the books from Peggy Parish’s Amelia Bedelia series. Students assigned to the control group met with the experimenter once per week to read aloud from and discuss structural elements of Arnold Lobel’s *Mouse Soup*, a storybook at a reading level equivalent to that of the Amelia Bedelia books, read by the participants in the metalinguistic training condition.

The students who received metalinguistic training successfully learned to identify and define homonyms and ambiguous sentences. In addition, this group improved significantly more from pretest to posttest than control students did on a comprehension-monitoring assessment. Most telling was the result of the training on students’ scores on the Passage Comprehension subtest from the Woodcock Reading Mastery Tests—Revised (Woodcock, 1987, 1998). Both groups performed better on the posttest than on the pretest in completing the cloze comprehension items. However, the improvement from pretest to posttest was greater for students who received ambiguity-detection training than for control students. These findings, in conjunction with Yuill’s (1998) and Cairns et al.’s (2004) work, support the hypothesis that ambiguity training improves students’ reading comprehension ability.

The implications for reading comprehension instruction are important. Just two hours of instruction in identifying homonyms, understanding and writing riddles, and reading ambiguous texts increased students’ metalinguistic awareness, their comprehension monitoring, and their reading comprehension. Moreover, the students who participated in my study, as well as in focus groups I have conducted, enjoyed the instruction and responded enthusiastically.

Reading and writing riddles proved to be the most fun. It is also a teaching technique I believe to be full of potential: Many teachers have told me that they are intrigued by the educational power of riddles and would like to use them in the classroom, but they are not sure how to do so. Here are the procedures I use for writing riddles with primary-grade students along with my observations on what can be expected from students with widely varying reading abilities.

**Teaching With Riddles**

Riddles are the perfect medium for learning how to manipulate language. Shade (1991) pointed out that
the source of humor in riddles and jokes includes understanding multiple meanings, metaphors, and idioms; detecting ambiguity; and understanding perspective shifts. In other words, to understand and generate verbal humor, a student must exercise metalinguistic skill.

Riddles offer especially engaging instructional content for teaching language manipulation for many reasons: Most children are familiar and comfortable with riddles. They have heard riddles before, whether or not they understood the ambiguity in them. In addition, riddles are especially suited for young readers because they are whole texts. As short as they are, they are discrete units with meaning (Kazemek, 1999). Finally, riddles are fun! Motivation is a critical element in how successful a lesson will be. Teaching with riddles ensures students will be laughing and engaged.

Despite these benefits and their utility in teaching metalinguistic awareness, verbal humor is not often used in the school setting. This may be because teachers are unsure of their educational content. Wilson and Kutiper (1993) quoted a school librarian who said that the joke and riddle books in her library were among the highest circulated but that teachers perceived that children checked them out primarily because they were fun and a quick read. While this may well be the case, Wilson and Kutiper pointed out many benefits to reading humorous texts: Humor enhances the learning environment, gives children an incentive to read, and promotes critical thinking skills as well as vocabulary and language development.

To help children learn about riddles, I first introduce students to the concept: I explain that “a riddle is a question that turns into a joke. It starts with a puzzling question and ends with an answer that surprises you and usually makes you laugh. The answer to the riddle is called the punch line. The question and answer make a riddle when the same words have two different meanings.” I purposely do not mention humor in this definition because our affective reaction to a riddle is so personal and variable. It is possible, after all, to recognize a riddle and understand its punch line without necessarily finding the riddle funny. My hope is that all of the children will find some of the riddles funny, but I do not want them to determine whether a question and answer is a riddle based on how humorous they find it.

I ask the children if they know any riddles and give examples that contain ambiguities based on a single homonym (i.e., lexical ambiguity). For example,

Why are fish so smart?
Because they swim in schools!

In this riddle, school is ambiguous because it can mean either the place kids go to learn or a group of fish. (See Table 1 for more examples of lexical and structural riddles.)

Then I give examples of riddles in which deciphering the nonpreferred meaning also depends on rearranging the syntax of the question (i.e., structural ambiguity). For example:

How do you make a hot dog stand?
You take away its chair!

Most children laugh on first hearing each of my riddles, but it is sometimes unclear whether they do so because they know laughing is the expected behavior or if they really understood the riddle and found it funny. To make sure they all understand, I repeat each riddle slowly and then model my own thinking in deciphering the riddle. For example, when explaining the riddle about the hot dog stand, I might tell the children that when I first heard the question, I formed a picture in my mind of the window where I like to buy hot dogs at Yankee Stadium in New York City because I refer to that as a hot dog stand. But when I heard that the answer to the riddle was “You take away his chair,” I realized that my mental picture did not make any sense. I went back and thought about the words again and realized that stand has two meanings. The alternate meaning contained in this riddle is the idea of a hot dog standing on two legs.

At this point, I draw a picture of a hot dog with arms and legs sitting in a chair to make clear my explanation. Together, the children and I decide that even though this is silly, it does make sense. We then make what we call a “3W chart,” recording who did what to whom—in grammatical terms, the subject, verb, and direct object of the question—in both of the possible meanings of the riddle. (See Figure 1 for a sample 3W chart.)

After reading and discussing the meanings of about a dozen riddles, I explain to the students that we are going to write our own riddles, and I ask them to volunteer a topic. If the children have trouble
generating a topic, I ask what they know the most about. If the children still hesitate, I offer the following topics as choices: school, animals, or baseball. Loosely following the procedures laid out in Bernstein (1979) for writing lexical riddles, we generate a list of words and phrases pertaining to that topic. For example, Figure 2 shows the concept list for one child who chose baseball as the topic.

The next step is to examine the list to see if any of the words are homonyms. I act as scribe and write
down every meaning offered with an arrow connecting it to the original term (see Figure 3). I scaffold this step closely to make sure that some of the homonyms that lend themselves best to riddles end up with at least two meanings on our graphic organizer. For example, *ball* is a word for which most children do know the less familiar meaning of “a dance” (due to their familiarity with Cinderella); however, few are able to produce this second meaning without prompting.

Once we have a list of terms with the homonyms noted and definitions attached, I tell the students we are going to write a riddle for each homonym from the list. The idea is to write a question that seems like it will be about baseball but which really turns out to be about the other meaning of the word, or vice versa:

**Why do spiders like baseball?**

They’re good at catching flies!

The children are then prompted to choose a homonym from the word list. Question writing is scaffolded with questions about the context in which a word is used. For example, I might ask the students what one does with a dinner plate (eats dinner off of it) and if that is the same thing one does with baseball’s home plate (yuck!). Then I propose we write a question about someone eating off of baseball’s home plate.

**Why do umpires make good dinner guests?**

Because they’re always cleaning the plate!

Almost all children are capable of writing riddles containing some form of an ambiguity. The mark of a successful riddle is that it leads the listener down the garden path to an incorrect conclusion, which is then
Although it lacks subtlety, mostly because of the repeated terms in both the question and answer, this riddle does contain an ambiguous phrase—sheep dogs, after all, are not sheep.

Another girl with lower than average vocabulary and comprehension scores wrote this riddle:

Why did the photographer say “cheese”?
Because he was hungry!

While cheese is not normally thought of as a homonym, in this context the photographer is not calling for someone to bring him food, and therefore cheese has a second meaning. In fact, this riddle is arguably more successful than the sheep dog riddle, because the answer is both unexpected and reliant on shared experiences (saying “cheese” before a photo as opposed to eating cheese).

The majority of the children I work with produce riddles somewhere in between the sophistication level of the previous examples. They write questions that are about one meaning of the word and answer with the other, such as the following:

Where is Derek Jeter’s home?
On the baseball field!

(This riddle plays on the dual meaning of the word home as a place to live and the final plate to touch in baseball.)

Why were the baseball players on strike?
They couldn’t hit the ball!

(Here, strike means either missing the pitch or refusing to work.)

Riddles in the Classroom

Riddles are a fun way to stimulate metalinguistic awareness and positively influence reading comprehension. Even though students do not all share the same sense of humor, most children will appreciate riddles on one topic or another.

To begin introducing riddles into your classroom curriculum, stock your bookshelves with different kinds of riddle books, from the compilations mentioned in Table 2 to riddle books based on characters your students particularly enjoy. For example, Walt Disney Rhymes and Riddles, Gags and Giggles features Mickey, Minnie, and Winnie the Pooh telling
Table 2
Riddle Books and Books About Ambiguous Language

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<tr>
<th>Author</th>
<th>Title</th>
<th>Publisher</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Alda, A.</td>
<td>Did you say pears?</td>
<td>Toronto, ON: Tundra</td>
<td>Perfect for younger readers, this book of photographs of everyday objects and situations illustrates on each facing page the way we use words to mean more than one thing. For example, a photograph of a family waving good-bye is contrasted with a large-scale photograph of ocean waves meeting the shore.</td>
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<tr>
<td>Bernstein, J.E.</td>
<td>Fiddle with a riddle: Write your own riddles</td>
<td>New York: Dutton</td>
<td>In the Introduction, Bernstein reports that this book came about through careful study of the genre and work with lots of children. In addition to examples of riddles, Bernstein gives step-by-step instructions for turning a joke into a question-and-answer type riddle; for creating riddles that parallel ones you already know; and for writing spelling-trick riddles, double-meaning riddles, expression riddles, famous-name riddles, and metaphor riddles, as well as how to have a riddle treasure hunt. With the exception of spelling-trick riddles (such as “What letters smell? P-U!”), all of the types revolve around homonyms, idioms, or sentences with structural ambiguities.</td>
</tr>
<tr>
<td>Dahl, M.</td>
<td>The everything kids’ joke book</td>
<td>Avon, MA: Adams Media</td>
<td>Part of the popular Everything series, this is a humor compilation. It includes mostly riddles, though there are also some funny anecdotes, jokes, and activities (like a crossword puzzle made of rhyming words). The index is partially arranged by type of item, but some of the titles make it difficult to predict what you will find. Directions at the end instruct children on how to be a stand-up comedian. Tips include beginning with your funniest joke, not laughing at your own jokes, and practicing in front of a mirror.</td>
</tr>
<tr>
<td>Gwynne, F.</td>
<td>The king who rained</td>
<td>New York: Aladdin</td>
<td>Fred Gwynne, the actor who played Herman Munster, was also a prolific children’s author. Each of these books revolves around a young girl trying to make sense of adult language by imagining the unintended meaning of each homonym or homophone. In her mind, she sees sterling silver forks in the middle of the road, a baby mole with claws on her father’s nose, an enormous winter coat on the house, and more. Some of the language is dated, but the colorful and imaginative drawings make the concepts come to life.</td>
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<tr>
<td>Gwynne, F.</td>
<td>The sixteen hand horse</td>
<td>New York: Aladdin</td>
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<tr>
<td>Gwynne, F.</td>
<td>A chocolate moose for dinner</td>
<td>New York: Aladdin</td>
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<td>Gwynne, F.</td>
<td>A little pigeon toad</td>
<td>New York: Aladdin</td>
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<td>Gwynne, F.</td>
<td>A little pigeon toad</td>
<td>New York: Aladdin</td>
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<tr>
<td>Parish, H.</td>
<td>Amelia Bedelia (series)</td>
<td>New York: Harper Collins</td>
<td>Amelia Bedelia is the eponymous title character—a maid prone to making the mistake of taking instructions literally. For example, when “pitching a tent,” she throws it into the bushes; to “trim the steak” she uses lace and glue. However, the day (and her job) is nearly always saved by her fantastic baking abilities. There are about a dozen titles in the original series written by Peggy Parish. After her death, her nephew Herman took up the pen and continues to contribute to the series. The titles written by Herman Parish are less dated (some call the originals in the series sexist) but Amelia is arguably not as personable.</td>
</tr>
<tr>
<td>Rosenblum, J.</td>
<td>Biggest riddle book in the world</td>
<td>New York: Sterling</td>
<td>Rosenblum is the author of many children’s humor compilations. These two are strictly riddles of all different kinds. The indexes are organized by topic, including popular children’s themes like Strange but True, Sick!, Animal Crack-ups, and School Daze.</td>
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<tr>
<td>Rosenblum, J.</td>
<td>The zaniest riddle book</td>
<td>New York: Sterling</td>
<td></td>
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<tr>
<td>Terban, M., &amp; Maestro, G.</td>
<td>Eight ate: A feast of homonym riddles</td>
<td>New York: Clarion</td>
<td>Technically the terms in this riddle book are actually homophones (words that sound the same but are spelled differently). Each riddle shows a black-and-white line drawing that combines both meanings of the words. For example, the first page shows a child in play armor riding a wooden horse beneath a dark window with the moon shining in. The question at the top of the page asks, “What do you say in the evening to a soldier in shining armor?” with the punch line, “Night-night, Knight!” at the bottom.</td>
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Table 2 (continued)
Riddle Books and Books About Ambiguous Language

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<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Year</th>
<th>Description</th>
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<tbody>
<tr>
<td>Thaler, M.</td>
<td>Funny side up! How to create your own riddles and riddle books. New York: Scholastic.</td>
<td>1985</td>
<td>Mike Thaler calls himself “America’s Riddle King” on his website (<a href="http://www.mikethaler.com">www.mikethaler.com</a>). This book offers step-by-step instructions in which Thaler focuses on creating riddles by substituting phonemes or creating rhymes more often than by manipulating words or syntax. For example, to write pig riddles, you start with the word ham, drop the H, look up words in the dictionary beginning with am, add the H again, and write questions about pigs. The result might be: <strong>What do you call it when a pig loses his memory?</strong> Hamnesia.</td>
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jokes. Some of the children in your class will be naturally drawn to the books. Encourage them to share and retell riddles they find especially amusing.

Reading aloud a riddle of the day gives everyone a welcome laugh. Remember that even if the children are laughing, it is important to explain the ambiguity behind the riddle. People laugh for many reasons, including social constraints, and while it is important that the children enjoy the riddles, if you are endeavoring to teach metalinguistic awareness, it is also important that the children understand how the language was manipulated in the riddle. Thinking aloud as you solve riddles is one tool for making the ambiguity clear. A chart like the 3W chart in Figure 1 is another helpful tool for explaining a riddle because it provides a visual depiction of the contrasting meanings.

Once your students understand the form and structure of lexical and structural riddles, you can begin introducing riddle-writing lessons that focus on metalinguistic skills. Group lessons should always begin with a brainstorming session for topics and then for words to describe that topic. In this way, everyone participates in the generation of the riddles and everyone feels connected to the subject matter. The questions and punch lines can be written individually. When the children master lexical riddles, you can move on to riddles that challenge their grasp of syntax, such as:

- **What did the clerk say when the woman asked to try on the dress in the window?**
- **Don’t you think it would be better to use the dressing room?**

Finally, don’t forget to make connections while reading authentic texts. Point out the ambiguous language you come across while reading aloud. Encourage the children to read and decipher titles that turn on multimeaning words such as the Amelia Bedelia series, Arlene Alda’s *Did You Say Pears?*, and *Eight Ate: A Feast of Homonym Riddles* by Marvin Terban and Giulio Maestro (see Table 2 for more suggestions).

Learning to identify ambiguous language and consider all of the possible meanings improves students’ reading comprehension ability. Brief training in these skills is enough to increase students’ sensitivity to the vast possibilities of our language. This sensitivity in turn helps students recognize the need to monitor their comprehension and ultimately to better comprehend what they read. Best of all, riddles and ambiguous texts that rely on humor are fun. They create an invaluable enthusiasm for literacy learning that is all too often missing from the elementary curriculum.

Whether you follow the procedures outlined here or create your own method for increasing students’ metalinguistic awareness, you will be contributing to students’ developing understanding of how language works—to the benefit of their reading comprehension.

References
Teaching Metalinguistic Awareness and Reading Comprehension With Riddles


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