Conflicting Desires do not make interpreting Want harder

Kaitlyn P. Harrigan, Valentine Hacquard, Jeffrey Lidz

1. Introduction

Despite mounting evidence that infants are able to understand false belief before age two (Onishi & Baillargeon 2005, Southgate 2007, Kovács et al. 2010, Senju et al. 2011), three and four year olds still show difficulties interpreting the verb think when it is used to report a false belief. Whether this discrepancy is a result of methodological differences or reflective of facts about the acquisition of the verb think remains unsettled. In this paper, we probe the source of this difficulty by looking at children’s interpretation of another verb that refers to a mental state: want. Just as think can be used to report a false belief, want can be used to report an unfulfilled desire. In both cases, understanding the mental state report requires keeping track of a representation of that mental state which does not line up either with reality or with one’s own mental state. Therefore, looking at how children interpret the verb want in situations of unfulfilled desires that are structurally parallel to false belief situations can shed light on whether the difficulty with think is due to the general processing demands of evaluating a mental state that conflicts with reality or one’s own mental state, or are specific to think and the concept that it expresses.

Previous research argues that children understand want sooner than think. To test competence with think, studies typically use a “false belief” scenario—a situation where a character has a belief that conflicts with what the child participant knows to be true in the reality set up in the story. In order to evaluate a think sentence in a false belief scenario, the child must access the
character’s belief in the story, which requires differentiating it from her own knowledge of reality, as well as her own beliefs (which typically line up with reality). Previous tests of want, however, do not typically introduce such processing difficulties. It is therefore unclear whether the observed asymmetry between the acquisition of think and want reflects a real difference in acquisition trajectory, or whether it is in part due to the differences in processing demands between tasks testing the two verbs.

Specifically, a false belief scenario typically sets up two conflicts: (i) a conflict between the reported belief and reality; (ii) a conflict between the reported belief and the child’s own beliefs. First, a typical false belief scenario requires maintaining in memory two conflicting representations of the same state of affairs. Consider the sentence in (1), (adapted from Perner et al. 2003), in a scenario where Andy is watching television, but his mother believes that he is going to bed. In this case, Andy’s mom’s belief about Andy’s activity conflicts with his actual activity (TV watching):

(1) Mom thinks that Andy is going to bed.

Consider now the sentence in (2), which would typically be used in the same scenario where Andy is currently watching TV, to test children’s understanding of want:

(2) Mom wants Andy to go to bed.

Because of its syntactic and semantic properties, want (unlike think) is typically ‘future-oriented’ (Stowell, 2004), when its complement contains an eventive predicate like ‘go to bed’. That is, a
sentence like (2) describes a current desire about a future event. A desire about the future places no requirements on the current state of the world. Because of this, mom’s desire in (2) doesn’t strictly conflict with reality: it can still be fulfilled, even if Andy is currently watching TV.

Second, in typical studies testing think, a participant listening to a false belief story automatically generates beliefs. Thus, a conflict with “reality” is automatically a conflict with the child’s own beliefs as well. In typical stories about unfulfilled desires, there is no conflict with the child’s own desires, because we do not generate desires automatically the way we do with beliefs.

This paper investigates whether three year olds’ comprehension of sentences with the verb want is adult-like in contexts that involve conflicts of similar complexity as the false belief situations used to test think. We present two experiments testing children’s understanding of want, which attempt to make a fairer comparison with previous tests of think, by setting up desire situations which conflict with reality and with the participant’s own desires. We show that even with such tests, children are able to understand want at a younger age than they have been shown to master think. This suggests that (i) three year olds have a robust adult-like understanding of want; (ii) their difficulty with think cannot be solely due to difficulties processing a report of a mental state that conflicts either with reality or with the child’s own mental state.

2. Previous Research

Previous studies indicate that children understand want sooner than think. However, we will see upon closer inspection of the literature, that these studies do not always set up the same kinds of conflicts when testing the two verbs. First, a future-orientation interpretation of want is often
possible. This makes these situations an imperfect comparison to false belief situations testing *think*, which lacks future-oriented readings.

A classic study by Perner et al. (2003) looked at German-speaking children, and compared their understanding of sentences with *want* and *think*. In this study, children (2;5-4;5) saw six stories, each of which were accompanied by a drawing. For example, in one story, Mom and Dad were in one room and their son Andy was watching television in his bedroom. In the *want* condition, Mom asked Dad to see what Andy was doing. Dad asked Mom what Andy should do, and Mom answered, “Andy should go to bed.” Then the child was asked the *want* test question, shown in (3).

(3)  *What does Mom want Andy to do?*

[Was will die Mutter, dass Andreas tut?]

(Literally: *What wants the Mom that Andy does?*)

In the *think* condition, Dad asked Mom what Andy was doing and she answered, “Andy is going to bed.” Then the child was asked the *think* test question, shown in (4).

(4)  *What does Mom think that Andy is doing?*

[Was glaubt die Mutter, dass Andreas tut?]

(Literally: *What thinks the Mom that Andy does?*)
They found that children were much better at answering the questions with *want* than with *think*, and concluded that it is easier for children to remember discrepant desires than discrepant beliefs.

Note that English and German differ in the syntactic properties of the verbs *think* and *want*. In English, *think* takes a tensed complement, while *want* takes an untensed complement. By default, the untensed complement of *want* receives a future-orientation when the verb is eventive (as in (2)). The temporal interpretation of the complement of *think* depends on the tense in the complement: with a present tense, as in (1), the belief is present-oriented (a future-orientation would require a future tense morpheme, as in ‘*Mom thinks that Andy WILL go to bed*’). In German, both *think* and *want* take tensed complements. However, with *want* (but not with *think*), it is still possible to get a future-orientation with a present tense in the complement (in fact it is the preferred interpretation). Sentence (3) can be interpreted in two ways. It can get the interpretation in (5), which does set up a conflict between the desire and reality, but it also allows the interpretation in (6), which is future-oriented and thus avoids a conflict with reality.

(5)  What does Mom want Andy to be doing (right now)?

(6)  What does Mom want Andy to do (later)?

If children interpret (3) as meaning (6), Mom’s desire can still be satisfied if Andy’s future actions match her current desire, thus there is no conflict between her desire and reality. In the *think* case, no future-oriented reading is possible. If Andy is not doing *at the moment* what Mom thinks he is doing *at the moment*, she has a false belief and there is a conflict between her beliefs
and reality. The future orientation of want thus renders claims about the relative age of acquisition of think and want unpersuasive.

Rakoczy et al. (2007) also probed the belief/desire asymmetry. They asked whether children are better at talking about desires earlier than beliefs because they have an “objective” concept of desirability, and so cannot represent different people having non-compatible preferences in a given situation. To test this, they showed children (3;0-3;6) stories in which two characters “quarreled” about which of two either compatible or incompatible outcomes they preferred. In the compatible desires stories, two characters are each in boats. One character wants his boat to go to one location, the other wants her boat to go to another location. The boats then go to one of the two locations. The incompatible desires stories are the same, except that both characters are in a boat together, thus it is impossible for each character’s desire to be satisfied simultaneously. After the story, the children were asked the test questions shown in (7) and (8).

(7)  
Susi wanted the boat to go where?

(8)  
And Tom wanted the boat to go where?

Children performed significantly better on these questions in incompatible desires tasks than on false belief tasks. Because children in this study were younger than the age at which they perform well on tasks testing think, the authors concluded that children can represent incompatible desires before they can represent false beliefs.

While these results are suggestive, the future orientation of (7) and (8) could still possibly prevent a conflict between reality and the desire, and hence not provide a stringent test of children’s ability to represent incompatible desires. The question in (7) describes a past desire
about an outcome future to this past desire time. Although the boat did go to one of the two locations at a time future to this desire time (namely, at the end of the story), the future is open, and it is possible that the boat could still subsequently go to a second location, and the desire be satisfied in the near future. To rule out this possibility, we would need to make explicit that the desire is about a *concurrent* state of affairs (see experiment 1 below).

A pilot study reported in de Villiers (2005) attempts to better control for the possibility of future-oriented readings with *want*. This study compared children’s interpretation of *think* sentences with a sentential complement to their interpretation of *want* sentences with a gerund complement in English. Because *think* and *want* take different types of complements in English, test sentences could not be an exact match syntactically. But, the gerund complement with *want* does eliminate the possibility for a future-oriented reading in the desire sentence, making this a closer comparison to the previous tests of *think*. In this study, children saw pictures and heard stories where someone had an unfulfilled desire or a false belief, and had to assess sentences such as in (9) and (10).

(9)  *Mom wants Bella playing on the computer.*

(10)  *Mom thinks Bella is playing on the computer.*

De Villiers found that children are able to interpret the sentences with *want* at a younger age than the sentences with *think*. Although the gerund does not allow a future orientation, the sentences with *want* here do not have sentential complements, which makes it a less ideal comparison to *think*. 
Even if these studies are taken to show that children can represent desires that are incompatible with reality, none of these studies set up a conflict with the child’s own desire. Thus, children’s difficulties with think in false belief situations could also be due to the conflict between the reported mental state and the mental state of the child. A few other studies have attempted to probe conflicts between a reported desire and the desire of the child. Taking these studies together, however, leaves the issue unresolved.

Moore et al. (1995) looked at three year olds’ interpretation of conflicting desires in a task in which they played game against a puppet, “Fat Cat.” Both the child and Fat Cat had to solve their own jigsaw puzzle for which they needed parts from a blue or red box. In each round a card was drawn from a stack, turned around and shown to be either blue or red. Both players could then take a piece from the corresponding box. At first, both players needed pieces from the same box. However, there came a point where their needs diverged, and thus their desires for which color the card should be became incompatible. At this point children were asked three control questions and two test questions, shown in (11) and (12).

(11) Which color card does Fat Cat want now?
(12) Which color card did you want last time?

Only 7 of 20 children passed both test questions on the conflicting-desire task, leading Moore et al to conclude that children have just as much trouble on a conflicting desires task like this as they do with the traditional false belief task.

Another study by Rakoczy et al. (2007) looked at incompatible desires, using a similar game format, and tested both conflicting “third person desires”, where two puppets against together,
and conflicting “first person desires”, where the child played against a puppet. In this task, children (3;0-3;6) worked together with a puppet to make a sticker book, but only one sticker could go inside. This was determined by a “chance machine,” out of which a marble would come out to determine one of two sticker possibilities: one was an exciting sticker, and one was a boring sticker. The child always preferred the more exciting sticker, and the puppet expressed interest in the other sticker. The children were asked the test questions shown in (13)-(14).

(13) You want the marble to roll where?
(14) Rudi wants the marble to roll where?

Children performed better on questions (13) and (14) than on a false belief task, although accuracy was only around 55% overall. They found no differences between first and third person conditions. Although children did not perform at ceiling here, they still displayed better performance than they do on typical false belief tasks. Consequently, the authors conclude that representing conflicting desires is easier than representing false beliefs.

Both the Moore et al. and the second Rakoczy et al. study look at children’s ability to interpret sentences with want where there is a conflict with the child’s own desires. However, their results are somewhat contradictory. Moore et al. claim that their results show that conflicting desires are just as hard as false beliefs; Rakoczy et al. claim that conflicting desires are easier than false beliefs.

Furthermore, both studies raise methodological concerns. In both tasks, there were only one or two critical trials. Additionally, the games were fairly complex for preschoolers, and the authors did not report training on the task or having a criterion determining whether children
understood the rules of the game. This potentially underestimates children’s ability to interpret sentences with *want* where there is a conflict with their own desires. If some participants were confused about how the game worked, the numbers may be deflated relative to what children are actually able to do.

To sum up, although many studies suggest that children are able to interpret *want* before *think*, there are still methodological differences that could account for this asymmetry, notably in the processing demands of the tasks used to test the two verbs. Indeed, there is good evidence that processing demands affect children’s ability to perform on false belief tasks. Adding more elements that the child has to keep track of often lowers performance (Friedman & Leslie 2005). Additionally, children with higher executive function scores show better performance on false belief tasks, suggesting that the ability to keep track of multiple things at once and inhibit initial responses is involved in succeeding at these tasks (Apperly 2012).

Previous tasks testing children’s understanding of *think* present higher processing demands for two reasons. The first is in the temporal orientation of the attitude verb. As noted above, *want* sentences often get a future-oriented reading, and thus do not necessarily report a desire that *conflicts* with reality. *Think*, on the other hand, takes a finite complement, and when this complement is in present tense, a false belief sets up a conflict with reality. Experiment 1 controls for the temporal orientation of the complement of *want*, allowing us to test children’s understanding of *want* when there is a conflict between the reported desire and reality.

The second difference is the potential conflict between the reported mental state and the child’s own mental state. When a character has a false belief, it conflicts not only with reality in the story, but it also automatically conflicts with the child’s own beliefs. This is not necessarily the case with desires, as children listening to stories about other people do not necessarily have
desires about the outcomes of the stories. This conflict with the participants’ own mental states has not been properly controlled for in tasks examining \textit{want}. If this conflict with the child’s belief is what is making \textit{think} hard for children, we expect that maintaining the child’s own desire as well as someone else’s conflicting desire should be much more demanding than a non-conflicting desire. In experiment 2, children play a game in which they generate their own desires, allowing us to test \textit{want} sentences under conditions in which those desires conflict with the reported desires. This allows us to better equate the processing demands of \textit{think} sentences in false belief situtations with those of \textit{want} sentences in conflicting desire situations.

3. Experiment 1: Conflict with Reality

Experiment 1 tests \textit{want} in sentences that force a present-orientation, and thus describe desires that potentially conflict with reality.

3.1. Subjects

Participants were 44 children aged 3;0 to 4;0 (mean = 3;8). 16 additional children were excluded from the task, either due to \textit{yes} or \textit{no} biased responses on the task, or parental interference. Children in all three studies were recruited from the College Park, Maryland area, and were reported by their parents to be monolingual speakers of English. Participants were recruited via telephone or email from the University of Maryland Infant Studies Database.

3.2. Design and Materials
Experiment 1 was a *Truth Value Judgment Task* (TVJT), which requires children to correct sentences uttered by a “silly” puppet (Crain & Thornton 1998; Crain & McKee 1985). TVJT tasks gauge whether children at a given age pair certain linguistic stimuli to a given situation in an adult-like way, or whether their interpretation of the stimuli differs in some way from adult judgments. In this task, children listened to stories with pictures. They were told that a puppet who was “very silly and sometimes gets things wrong” was listening to the stories as well, and asked to tell the puppet whether he was right or wrong after every utterance. Each child saw eight stories. After each story the puppet uttered two sentences: a filler sentence and a test sentence. The fillers were intended to ensure that the child was paying attention and had a basic understanding about what happened in the story. Test sentences had a sentential complement which forced a present orientation by using a progressive (‘be ___ING’), and the temporal modifier ‘right now’ (see (15)).

(15)  *Mom wants Megan to be sitting in the grocery cart right now.*

There were a total of 8 stories, each with two different versions. Between subjects we manipulated whether the stories contained a desire that conflicted with reality (CONFLICT condition) or not (NO CONFLICT condition). Each of the stories described a situation in which a child starts out doing a given activity, and then an adult asks the child to either continue doing the same activity (STAY condition) or switch to a new activity (SWITCH condition). This manipulation was within subjects. Half of the conflict stories were STAY stories, and the other half were SWITCH stories. For the participants in the NO CONFLICT condition, the stories that were
STAY stories in the CONFLICT condition were SWITCH stories, and the stories that were SWITCH stories in the CONFLICT condition were SWITCH stories. This ensured that each story was equally plausible as a conflict or no conflict situation, as well as a switch or stay scenario. Additionally, it ensured that in both the CONFLICT and NO CONFLICT conditions, the character did not always start and end doing the same activity. We also manipulated the truth-value of the test sentences within subjects. Table 1 illustrates the within and between-subjects factors in Experiment 1.

### Table 1: Within and Between Subjects Factors in Experiment 1

<table>
<thead>
<tr>
<th>CONFLICT/NO CONFLICT (between subjects)</th>
<th>SWITCH/STAY (within subjects)</th>
<th>Truth Value (within subjects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONFLICT</td>
<td>SWITCH</td>
<td>True</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
</tr>
<tr>
<td>CONFLICT</td>
<td>STAY</td>
<td>True</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>SWITCH</td>
<td>True</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>STAY</td>
<td>True</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
</tr>
</tbody>
</table>

#### 3.2.1. Sample Story

The stories consisted of four pictures each. Each picture represented about one sentence of a story. A sample of the text of one story is laid out in Figure 1.
**Figure 1: Experiment 1 Sample Story**

<table>
<thead>
<tr>
<th>Phase</th>
<th>Stay/Conflict</th>
<th>Switch/Conflict</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction Phase</strong></td>
<td>Megan is at the grocery store with her mom. She’s sitting in the cart while her mom shops.</td>
<td></td>
</tr>
<tr>
<td><strong>Stay/Switch Phase</strong></td>
<td>Stay: Megan’s mom says, “Megan, I have to run and get something in the next aisle, stay right there in the cart until I get back. And Megan says, “No problem, mom!”</td>
<td>Switch: Megan’s mom says, “Megan, I have to run and get something in the next aisle, can you climb out of the cart and go get some cereal? And Megan says, “No problem, mom!”</td>
</tr>
<tr>
<td><strong>Conflict/No Conflict Phase</strong></td>
<td>Stay/Conflict: Mom leaves, and Megan says to herself, “I know my mom said I should stay in the cart, but I’d like to get out and go get some cereal, so I will!”</td>
<td>Switch/No Conflict: Mom leaves, and Megan says to herself, “I’d like to stay right here in the cart, but my mom said to get out of the cart and go get some cereal, so I will!”</td>
</tr>
<tr>
<td></td>
<td>Stay/No Conflict: Mom leaves, and Megan says to herself, “I’d like to get out of the cart and go get some cereal, but my mom said to stay in the cart, so I will!”</td>
<td>Switch/Conflict: Mom leaves, and Megan says to herself, “I know my mom said to get out of the cart and go get some cereal, but I’d like to stay right here in the cart, so I will!”</td>
</tr>
<tr>
<td>Outcome Phase</td>
<td>STAY/CONFLICT: So she climbs out of the cart to go get some cereal.</td>
<td>SWITCH/NO CONFLICT: So she climbs out of the cart to go get some cereal.</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------------------------------------------------------</td>
<td>------------------------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>STAY/NO CONFLICT: So she stays right there in the cart.</td>
<td>SWITCH/CONFLICT: So she stays right there in the cart.</td>
</tr>
<tr>
<td>Test Sentence</td>
<td>STAY/CONFLICT</td>
<td>SWITCH/NO CONFLICT</td>
</tr>
<tr>
<td>TRUE</td>
<td>Mom wants Megan to be sitting in the cart right now!</td>
<td>Mom wants Megan to be getting cereal right now!</td>
</tr>
<tr>
<td>FALSE</td>
<td>Mom wants Megan to be getting cereal right now!</td>
<td>Mom wants Megan to be sitting in the cart right now!</td>
</tr>
<tr>
<td></td>
<td>STAY/NO CONFLICT</td>
<td>SWITCH/CONFLICT</td>
</tr>
<tr>
<td>TRUE</td>
<td>Mom wants Megan to be sitting in the cart right now!</td>
<td>Mom wants Megan to be getting cereal right now!</td>
</tr>
<tr>
<td>FALSE</td>
<td>Mom wants Megan to be getting cereal right now!</td>
<td>Mom wants Megan to be sitting in the cart right now!</td>
</tr>
</tbody>
</table>

**3.2.2. Procedure**

Each child was tested in a quiet room with two experimenters. One experimenter told the child the stories and showed her the pictures, while a second experimenter controlled the puppet and uttered the filler and test sentences. The second experimenter also coded the child’s responses. Permission was obtained from parents to video record each subject for an additional round of coding off-line.
The experiment began with the child being introduced to a silly puppet, “Froggy.” The experimenters were somewhat flexible with the script, adjusting to each child’s level of attention, but followed the following script fairly closely:

“We're going to be looking at some pictures and hearing some stories that go along with them. And our friend Froggy is going to listen to the stories with us, ok? And after we hear a story, Froggy's gonna try to tell us what happened in the story. But sometimes, he's not a very good listener. And so sometimes when he tells us, he might get it wrong, ok? And you get to tell us whether Froggy was right or wrong. Does that sound like a good plan? OK, so listen carefully, because he says silly stuff sometimes!”

The child then practiced interacting with Froggy. First Froggy named a few items, and the child practiced telling him yes and no. The child was corrected during this practice phase if they did not correctly tell Froggy yes and no. Then the child was told two very simple stories, and practiced responding to sentences Froggy said about the stories. Froggy was correct once and incorrect once. Again, the child was corrected if she did not respond correctly to Froggy’s sentences.

During each test trial, experimenter 1 read the story and showed the child the pictures. After each story, experimenter 1 turned to Froggy and asked “what happened in that story, Froggy?” Then Froggy uttered the filler sentence, after which the experimenter turned to the child and asked “did Froggy get it right?” Then the child either responded yes or no. After the filler, Froggy uttered the test sentence, and the child was again asked whether or not he was right and
given the chance to respond *yes* or *no*. Experimenter 1 gave feedback to Froggy that was in accordance with how the child had responded—“good job, Froggy!” when the child said that Froggy was correct, and—“oh, silly Froggy! Try again next time!” when the child said that Froggy was incorrect. The entire experiment took around 8-10 minutes per child.

### 3.3. Results

#### 3.3.1. Coding

Children’s responses were coded online by the second experimenter. Four out of the sixty videos were coded by a second experimenter offline, because coding did not happen online. Responses were coded as *yes*, or *no*. One response (out of 1,080 total responses) was unintelligible. An additional 25% (11 videos) were coded offline by an additional coder. We found 99.4 percentage of agreement between coders (Cohen’s Kappa = .989).

#### 3.3.2. Filler Accuracy

The fillers were designed to ensure that children were listening to the story. They did not rely on understanding *want*. Children who answered either all *yes* or all *no* to 15 out of 16 total items were excluded from analysis. Twelve children were excluded due to *yes*-biased responses (20%). Three children were excluded due to *no*-biased responses (5%). One additional child was rejected due to parental interference. The age range that we were testing for this study is quite
young for the TVJT paradigm, which likely contributed to the high number of children with yes- or no-biases.

3.3.3. Truth-Value Judgments

The results for each condition are shown in Table 2.

<table>
<thead>
<tr>
<th>CONFLICT/NO CONFLICT (between subjects)</th>
<th>SWITCH/STAY (within subjects)</th>
<th>Truth Value (within subjects)</th>
<th>% Yes Responses children 3;0-4;0</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONFLICT</td>
<td>SWITCH</td>
<td>True</td>
<td>93.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
<td>13.6%</td>
</tr>
<tr>
<td>CONFLICT</td>
<td>STAY</td>
<td>True</td>
<td>79.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
<td>17.8%</td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>SWITCH</td>
<td>True</td>
<td>79.5%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
<td>11.4%</td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>STAY</td>
<td>True</td>
<td>93.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>False</td>
<td>15.9%</td>
</tr>
</tbody>
</table>

A 2x2x2 ANOVA with percent yes responses as the dependent measure revealed a significant main effect of Target response ($F(1,166) = 301.9$, $p < .0001$), but no significant effects of CONFLICT ($F(1,166) = 0.006$, $p = 0.94$) or SWITCH ($F(1,166) = 0.209$, $p = 0.65$). There were no significant interactions. Children were significantly more likely to respond yes to the yes-target items, and no to the no-target items, regardless of whether the item was a CONFLICT or a NO
CONFLICT item, or whether it was a SWITCH or STAY item. Results from Experiment 1 indicate that three years old understand want correctly, even when it is present-oriented and describes a desire that conflicts with reality.

3.4. Experiment 1 Discussion

This study shows that three year olds are correct in their interpretation of want, even when there is a conflict with reality, and there is no chance of interpreting the test sentence as describing a desire about a future time. This is much younger than children have been shown to be reliably adult-like in interpreting think. This suggests that children’s difficulty with think is not due to an inability to process a mental state which conflicts with reality.

4. Experiment 2

Previous results looking at three-year-olds’ ability to understand reports of desires that conflict with their own are inconsistent, and raise several methodological concerns. Experiment 2 remedies these concerns. We set up a task where the child plays a game with a puppet, in which their desires sometimes conflict, and then the child is asked about those conflicting desires. This task requires children to maintain in memory both their own desire and the puppet’s desire, and is therefore a much more comparable task to the previous tests of think, which require children to maintain in memory both a character’s (false) belief as well as their own belief.

4.1. Subjects
Participants were 40 children aged 3;0 to 4;0 (mean = 3;8). 23 additional children were excluded from the task. 16 did not pass the practice, three due to yes-biased responses, two due to no-biased responses, and two who did not finish the task.

4.2. Design and Materials

Experiment 2 was set up like a game. The child played with a puppet, *Froggy*, while another puppet, *Booboo*, was “learning” and said things about the game. The child’s job was to tell Booboo whether he was right or wrong. The experimenter flipped colored cards, and depending on the color of the card, the outcome was either positive for Froggy, the child, both of them, or neither of them (the positive outcome being that someone gets to stamp). This set-up induced desires in the child, which sometimes conflicted with the puppet’s. Booboo then uttered test sentences. The child was told that *Booboo* is “not very good at colors and sometimes gets things mixed up”, and was asked to tell Booboo whether he was right or wrong after every utterance. Each child participated in four, eight or twelve practice trials and sixteen test trials. The purpose of the practice trials was to teach the child how the game is played, and to have a measure to exclude children who did not understand how the game worked. The practice trials involved Booboo uttering a sentence that the child had to correct, just like the test trials, but the sentences were about the structure of the game, not a desire. An example of a practice question is shown in (16).

(16)  *Oh, I see how the game works! When it’s green, Froggy gets to stamp!*
After the child corrected Booboo, the experimenter flipped the card, and asked the child to tell everyone who got to stamp based on the color of the card. This ensured that participants understood the rules of the game and were comfortable playing before the test trials started. Each child had at least four and at most twelve practice trials. We continued with the practice until the child got four in a row correct, and then we moved on to the test trials. If the child did twelve practice items and did not learn how the game worked, they did not move on to the test trials and were excluded from analysis.

Each test trial consisted of two test sentences (examples in (17) and (18)), one about Froggy’s desire and one about the child’s desire.

(17)  *Froggy wants the card to be green!*

(18)  *You want the card to be green!*

After Booboo uttered the test sentences and the child said whether he was right or wrong, the experimenter flipped the next card on the pile. The experimenter then asked the child the filler question, which was about the outcome based on color (example in (19)), and then the appropriate player(s) stamped their paper.

(19)  *Oh! We got green! Who gets to stamp when we get a green card?*
The fillers were intended to ensure that the child was paying attention and understood how the game worked. Children were encouraged to try again if they got the fillers incorrect. This happened very rarely during the game.

This study was a 2x2x2 design, and all manipulations were within subjects. We manipulated whether we were asking about a desire with a conflict (CONFLICT condition) or not (NO CONFLICT condition). Additionally, we manipulated whether we were asking about a positive outcome from the child’s perspective (POSITIVE condition) or not (NEGATIVE condition). We also manipulated whose desire we were asking about, the child’s (CHILD DESIRE condition) or Froggy’s (FROGGY DESIRE condition). We counterbalanced order between subjects. Table 3 illustrates the within-subjects factors in experiment 2.

**Table 3: Within-subjects factors in Experiment 2**

<table>
<thead>
<tr>
<th>CONFLICT/NO CONFLICT</th>
<th>POSITIVE/NEGATIVE</th>
<th>SENTENCE (Froggy v. Child desire)</th>
<th>Truth Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONFLICT</td>
<td>POSITIVE (child stamps)</td>
<td>“FROGGY WANTS”</td>
<td>False</td>
</tr>
<tr>
<td>CONFLICT</td>
<td>POSITIVE (child stamps)</td>
<td>“YOU WANT”</td>
<td>True</td>
</tr>
<tr>
<td>CONFLICT</td>
<td>NEGATIVE (Froggy stamps)</td>
<td>“FROGGY WANTS”</td>
<td>True</td>
</tr>
<tr>
<td>CONFLICT</td>
<td>NEGATIVE (Froggy stamps)</td>
<td>“YOU WANT”</td>
<td>False</td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>POSITIVE (Child &amp; Froggy stamp)</td>
<td>“FROGGY WANTS”</td>
<td>True?</td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>POSITIVE (Child &amp; Froggy stamp)</td>
<td>“YOU WANT”</td>
<td>True?</td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>NEGATIVE (No one stamps)</td>
<td>“FROGGY WANTS”</td>
<td>False</td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>NEGATIVE (No one stamps)</td>
<td>“YOU WANT”</td>
<td>False</td>
</tr>
</tbody>
</table>
Color and outcome were counterbalanced within subjects, so that every color and every outcome occurred an equal amount of times during the game. We also rotated which colors were paired with which outcomes throughout the game, to ensure that a color bias would not affect the results. We rotated a total of four times during the game, after every four sets of test questions. Within each of the four blocks, each color and each outcome occurred one time. A schematic of a trial is shown in Table 4.

**Table 4: Sample of Trial in Experiment 2**

<table>
<thead>
<tr>
<th><strong>Booboo:</strong> Froggy wants the card to be blue!</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>E1:</strong> Did Booboo get it right?</td>
</tr>
<tr>
<td><strong>Child:</strong> yes/no</td>
</tr>
<tr>
<td><strong>E1:</strong> Good job/try again, Booboo!</td>
</tr>
<tr>
<td><strong>Booboo:</strong> You want the card to be green!</td>
</tr>
<tr>
<td><strong>E1:</strong> Did Booboo get it right?</td>
</tr>
<tr>
<td><strong>Child:</strong> yes/no</td>
</tr>
<tr>
<td><strong>E1:</strong> Good job/try again, Booboo! OK, let’s flip! [E1 flips card] Oh! we got green! What happens when we get a green card?</td>
</tr>
<tr>
<td><strong>Child:</strong> ____ gets to stamp!</td>
</tr>
<tr>
<td><strong>E1:</strong> Good job! Let’s stamp! … ok, Booboo, tell us something about the game …</td>
</tr>
</tbody>
</table>

### 4.2.1. Procedure

The procedure for Experiment 2 was the same as for Experiment 1. Experiment 2 began with the child being introduced to “Froggy,” with whom they would be playing the game. The
experimenters were somewhat flexible with the script, adjusting to each child’s level of attention, but the experimenters followed the following script fairly closely:

“We’re going to play a game with Froggy today where we get to flip cards! And every time that we flip a card, someone gets to put a stamp on their paper. Froggy loves stamps... do you like stamps? OK, so every card that we flip has a color, and we can look at the board (point) to see who gets to stamp when we flip that color. OK, so when we flip a green card, you and Froggy both get to stamp. When we flip a tan card just Froggy gets to stamp. When we flip a blue card just you get to stamp. And when we flip a pink card no one gets to stamp.”

Then the child was introduced to the silly puppet, Booboo:

“OK, one more thing! Froggy’s friend Booboo the baboon wants to learn how to play the game, so he’s going to watch us play. But he’s not very good at colors, so sometimes he gets things mixed up! Sometimes he’s going to try to tell us something about how the game works, but he might get it wrong, and your job is going to be to help him out and tell him whether he’s right or wrong so he can learn how to play the game. How does that sound?”

The child then practiced interacting with Booboo. First Booboo practiced naming colors, half of which he got right and half of which he got wrong, and the child practiced telling him yes and no. The child was corrected during this color practice phase if they did not correctly tell Booboo
yes and no. Then we moved on to the practice phase, where the child saw between four and twelve practice trials. Again, during this phase the child was corrected when they made an error.

After sufficient practice, we moved on to the test phase. During each test trial, Booboo uttered each test sentence, and experimenter 1 asked the child if Booboo was right. Then the child gave her response. Experimenter 1 gave feedback to Booboo that was in accordance with how the child had responded, as in the previous experiment. After both test sentences, experimenter 1 flipped the next card on the pile and asked the child the filler question. After the child responded, the appropriate player(s) stamped their paper, and we moved on to the next test trial. The entire experiment took around 20 minutes per child.

4.3. Results

4.3.1. Coding

Children’s responses were coded online by the second experimenter. Four out of the 60 videos were coded by a second experimenter offline, because coding did not happen online. Responses were coded as yes, or no. An additional 25% (15 videos) were coded offline by an additional coder. We found 97.9 percent agreement (Cohen’s Kappa = .952.)

4.3.2. Practice and Filler Accuracy

This experiment included an extensive training and practice section. There were four practice items. Children had to get all four in a row right to be included. We went through all the items
either once (four items), twice (eight items) or three times (12 items). This means that children had a minimum of four practice items, and a maximum of 12. 16 out of the total of 63 children tested (25%) did not pass the practice after three rounds and were thus excluded from the rest of the experiment and analysis. Of the 40 included subjects, 20 of them went through the practice items once, 11 went through the practice items twice, and 2 went through the practice items three times. For the additional six children, the practice session was not recorded due to experimenter error.

The fillers were designed as a control to ensure that children were paying attention during the game as well as to keep them engaged. Once children were included after the practice phase, they rarely had any difficulty correctly saying who got to stamp after each card flip, and asking the child after each card flip was an extremely natural question during the game. If they incorrectly answered the filler, they were directed to try again. Some children passed the practice phase, but then responded either yes or no to all (or all but one) of the test items. These children were excluded from analysis. Three children had yes-biases (3%), and two children had no-biases (3%).

4.3.3. Truth-Value Judgments

The results for each condition are shown in Table 5.

<p>| Table 5: Percent accuracy by condition for Experiment 2 |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Conflict/No Conflict (within subjects) | Outcome (within subjects) | Sentence (Froggy v. Child desire) | Target | % Yes |</p>
<table>
<thead>
<tr>
<th>CONFLICT</th>
<th>POSITIVE</th>
<th>“FROGGY WANTS”</th>
<th>No</th>
<th>13%</th>
</tr>
</thead>
<tbody>
<tr>
<td>(child stamps)</td>
<td>“YOU WANT”</td>
<td>Yes</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>CONFLICT</td>
<td>NEGATIVE</td>
<td>“FROGGY WANTS”</td>
<td>Yes</td>
<td>74%</td>
</tr>
<tr>
<td>(Froggy stamps)</td>
<td>“YOU WANT”</td>
<td>No</td>
<td>15%</td>
<td></td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>POSITIVE</td>
<td>“FROGGY WANTS”</td>
<td>Yes?</td>
<td>40%</td>
</tr>
<tr>
<td>(Child &amp; Froggy stamp)</td>
<td>“YOU WANT”</td>
<td>Yes?</td>
<td>41%</td>
<td></td>
</tr>
<tr>
<td>NO CONFLICT</td>
<td>NEGATIVE</td>
<td>“FROGGY WANTS”</td>
<td>No</td>
<td>9%</td>
</tr>
<tr>
<td>(No one stamps)</td>
<td>“YOU WANT”</td>
<td>No</td>
<td>6%</td>
<td></td>
</tr>
</tbody>
</table>

We ran a 2x2x2 ANOVA with percent yes responses as the dependent measure. The analysis revealed an interaction between Sentence type and Outcome (F(1,38) = 127.5, p <.0001), but no interaction between Sentence type and Conflict (F(1,38) = 2.61, p = 0.11). Children responded significantly differently based on whose desire was reported and whether that outcome was positive or negative. They were not significantly influenced in answering questions about their own or Froggy’s desires by whether a conflict was present. Results for all conditions are shown in Figure 2.

**Figure 2: Results of Experiment 2**
Children had no trouble in the conflict cases, whether they were being asked about either positive or negative outcomes. In the NEGATIVE NO CONFLICT condition, children had no trouble saying that neither they nor Froggy wanted an outcome where no one got to stamp. In the POSITIVE NO CONFLICT condition, where both the child and Froggy got to stamp, some children played the game in a more competitive way, responding that neither they nor Froggy wanted the outcome where both players got to stamp, while other participants responded that both they and Froggy wanted this outcome. The histogram in Figure 3 shows that children were normally choosing either a strategy of responding *yes* to this condition all the time, or *no* to this condition all the time. This indicates that they were not confused by this condition, but that different children simply differed in how competitive they chose to be with Froggy. This however does not affect whether a conflict with someone else’s desires impacts performance on interpreting *want*. 
Our results indicate that three year olds are adult-like in interpreting want even when they are asked to assess a character’s desire that conflicts with their own, as long as they are given adequate training and opportunity to understand the rules of the “game” used to test this ability.

4.4. Discussion of Experiment 2

In studies testing think in false belief situations, the reported false belief is in direct conflict with the participant’s belief. Previous tests of want either did not require the child to evaluate desires that directly conflicted with their own, or the methodology was problematic and results were inconclusive. Experiment 2 improved on previous methodology, and looked at three year olds’ ability to interpret sentences with want in situations where the reported desires conflicted with their own, and showed that three year olds responded in adult-like fashion. This suggests that children’s difficulty with think is not solely due to processing demands evaluating a mental state that conflicts with one’s own.
One potential problem with this study is the possibility that the “desire” that we induced in the child in the game is not a real one. During the game, the child has to keep track of which color is paired with which outcome at that point in the game. The pairings are only consistent for four trials before switching again. The rotation of colors and outcomes was an important manipulation to ensure that the results were not affected by color biases, but it’s possible that keeping track of this requires a lot of effort for the child, and that this effort is interfering with their interpretation of the desire sentences. In this context, they may have been so focused on the online computation of the color/outcome pairs that they do not form a true desire. We ran a small sample (n=8) on a slight modification of Experiment 2, designed to induce a more deeply rooted desire in children. In this manipulation, the child picked the color/outcome, and the color/outcome pairings did not change during the course of the game. This allowed the child to have a deeper-rooted desire, because after several rounds they no longer had to calculate online which outcome a particular color led to on a given trial. All other aspects of the task and analysis were identical to Experiment 2. In a 2x2x2 ANOVA with percent yes responses as the dependent measure, we found an interaction between SENTENCE TYPE and OUTCOME (F(1,6) = 45.67, p = .0005); but no interaction between SENTENCE TYPE and CONFLICT (F(1,6) = 1.78, p = 0.23). This indicates that success in Experiment 2 is not influenced by the child’s true desires being masked by computation on each trial.

5. General Discussion

The results from our experiments show that three year olds understand want sentences, even when they report a desire that conflicts with reality, or when they report a desire that conflicts
with their own. This suggests that by age three, children have an adult-like understanding of this verb. This is an age where children have notorious difficulty understanding think sentences when they report a false belief, that is, a belief that conflicts both with reality, and with their own beliefs. Our results suggest that the source of children’s difficulty with think cannot be explained solely as difficulty processing a report of a mental state which conflicts with reality or with their own mental state. The asymmetry in acquisition between these two verbs is thus not due to experimental artifacts arising from the different ways in which these verbs have been tested. In this section, we briefly review several hypotheses that have been proposed to explain this asymmetry.

One possibility is that this asymmetry reflects an asymmetry in the development of the concepts that these verbs express (cf. Perner et al, 2003; Tardif & Wellman 2000). According to this CONCEPTUAL ASYMMETRY, the desire concept appears earlier than the belief concept, which awaits the development of a full Theory of Mind, around age 4, as evidenced by children’s consistent failure at explicit false belief tasks before then (Wellman et al. 2001). However, several studies with young infants suggest that children understand belief very early, at least when tested through implicit measures (Onishi & Baillargeon 2005, Southgate 2007, Kovács et al. 2010, Senju et al. 2011, Woodward 1998, 1999, 2003). While these results cast doubt on the conceptual hypothesis, some researchers (see for instance Perner and Ruffman 2005) have argued that infants “pass” these implicit tasks using behavioral heuristics, and that these tasks do not actually tap into the concepts of belief.

Another possible explanation for the observed asymmetry is a linguistic difference between these two subclasses of verbs. De Villiers (2005), for instance, argues for a SYNTACTIC ASYMMETRY in the acquisition of the syntax of tensed vs. untensed complements, and that
without knowledge of the former, children cannot represent a false belief. The infant studies suggesting that children have a belief concept very early however also casts doubt on the claim that without a specific type of syntax, children do not have the belief concept. Additionally, in languages like German, where want can also take a tensed sentential complement, want is still acquired before think, which makes it doubtful that this specific piece of syntactic knowledge can entirely explain the asymmetry (cf. Perner et al. 2003).

Another possibility is that children’s relative difficulty with think and ease with want is due to a Pragmatic Asymmetry in the kinds of pragmatic enrichments that these verbs trigger (Lewis et al., 2012, Lewis 2013). A verb like think reports a judgment of truth, which speakers can routinely endorse. A verb like want, on the other hand, reports a preference, which doesn’t easily lend itself to endorsement of truth enrichments. In the following dialogue, for instance, speaker 2 uses a think sentence to ‘proffer’ the content of the complement clause (Simons 2007). While the sentence meaning of (20b) is a mere belief report, the speaker meaning is a proffering that Bob is in Boston.

(20)  a. Speaker 1: Where is Bob?

b. Speaker 2: Mary thinks he’s in Boston.

Speakers do not typically use want to proffer the content of its complement. In answer to the same question, Speaker 2’s answer in (21b) sounds strange, as a proffering about Bob’s location:

(21)  a. Speaker 1: Where is Bob?

b. Speaker 2: #Mary wants him to be in Boston.
Lewis et al. argue that children tend to assume endorsement enrichments when interpreting *think*, even in cases where adults do not, because they have trouble figuring out when beliefs are relevant. By manipulating the relevance of belief in context, they show that children’s performance on *think* sentences improves significantly. Hence, according to the PRAGMATIC HYPOTHESIS, children’s difficulty with *think* is not semantic or conceptual, but pragmatic. The relative ease with *want* is due to the fact that speakers do not typically use *want* sentences to proffer the content of the complement, and children thus tend to respond to the *desire* claim, rather than to the complement, as they tend to do with *think*.

There are thus several hypotheses for why children perform better in tasks testing their comprehension of *want* compared to *think*. Future research will focus on narrowing down the possible explanations for the *think-want* asymmetry that is observed in child language acquisition. We hope to have shown that whatever the source of the asymmetry, young children have a robust, adult-like comprehension of *want*, even when it is used to report desires that conflict with reality, or with the child’s own desire.

**References**


Appendix

Experiment 1 Materials

Practice Items:

**Practice 1:**

*Story: Stacey is at home, making a sandwich for her mom.*

*Test Sentence: Stacey is making a sandwich.*

**Practice 2:**

*Story: It is so hot outside, Alan is swimming at the pool.*

*Test sentence: Alan is playing on the playground.*

**Story 1: Bedtime**

*Conflict/Switch:*
Amy is in her room playing with toys. Amy’s mom comes in and says “Amy, come downstairs, we have company!” Amy says “OK, mom!” Amy’s mom leaves, and Amy says to herself, “I know my mom asked me to go downstairs, but I’m having too much fun playing, I’m going to stay here!” And she keeps playing with toys in her room.

No Conflict/Stay

Amy is in her room playing with toys. Amy’s mom comes in and says “Amy, come downstairs, we have company!” Amy says “OK, mom!” Amy’s mom leaves, and Amy says to herself, “I’d like to keep playing with my toys, but my mom asked me to come downstairs, so I’d better do it!” And she starts to go downstairs.

False filler: Amy’s dad came up to her room to talk to her.

Test sentence: Amy’s mom wants her to be going downstairs right now.

Story 2: Picking up from School

Conflict/Switch

Jimmy is at school reading with his friend. Dad comes to pick Jimmy up from school. Dad says, “It’s time to go home! I’m going to go get your brother from his classroom, go outside and play and wait for me.” And Jimmy says “OK, I will.” Dad leaves, and Jimmy says to himself “I know my dad said to go outside and play and wait, but I’m having too much fun reading!” And he stays with his friend.

No Conflict/Stay

Jimmy is at school reading with his friend. Dad comes to pick Jimmy up from school. Dad says, “It’s time to go home! I’m going to go get your brother from his classroom, go outside and play
and wait for me.” And Jimmy says “OK, I will.” Dad leaves, and Jimmy says to himself “I’m having so much fun with my friend, I’d like to keep reading, but my dad said I have to go outside and wait, so I’d better do that” And Jimmy goes outside to play and wait.

True filler: Jimmy’s dad came to pick him up from school.
False filler: Jimmy’s mom came to pick him up from school.
Test sentence: Jimmy’s dad wants him to be outside playing right now.

Story 3: At the doctor’s office

Conflict/Switch
Jeffrey is in the waiting room at the doctor’s office. While he waits for the nurse to come in, he plays with a stethoscope that he sees in the waiting room. The nurse comes in. She says, “Hi, Jeffrey, I’m going to come and take your temperature, but I have to go get my thermometer. Please put down that stethoscope and play with these blocks until I come back” and Jeffrey says “OK!” While the nurse is gone, Jeffrey says to himself, “I know the nurse said I should play with the blocks instead, but I’m having too much fun playing with the stethoscope!” And he keeps playing with the stethoscope.

No Conflict/Stay
Jeffrey is in the waiting room at the doctor’s office. While he waits for the nurse to come in, he plays with a stethoscope that he sees in the waiting room. The nurse comes in. She says, “Hi, Jeffrey, I’m going to come and take your temperature, but I have to go get my thermometer. Please put down that stethoscope and play with these blocks until I come back” and Jeffrey says “OK!” While the nurse is gone, Jeffrey says to himself, “I’d like to keep playing with this
stethoscope, but the nurse said I should play with these blocks instead, so I’d better do that.” And he starts to play with the blocks.

True filler: The nurse came into the waiting room to talk to Jeffrey.
False filler: The doctor came into the waiting room to talk to Jeffrey.
Test sentence: The nurse wants Jeffrey to be playing with the stethoscope right now.

Story 4: In the kitchen

Conflict/Switch
Maggie is helping her sister bake cookies in the kitchen. Maggie is stirring a pot on the stove. Maggie’s sister realizes she has to run to the store to get chocolate chips because they are out. She says, “Maggie, that’s enough stirring, could you go upstairs and play while I run to the store?” and Maggie says “OK!” When her sister leaves, Maggie says to herself “I know my sister told me to go upstairs and play, but I really like stirring this pot!” And she keeps stirring the pot anyway.

No Conflict/Stay
Maggie is helping her sister bake cookies in the kitchen. Maggie is stirring a pot on the stove. Maggie’s sister realizes she has to run to the store to get chocolate chips because they are out. She says, “Maggie, that’s enough stirring, could you go upstairs and play while I run to the store?” and Maggie says “OK!” When her sister leaves, Maggie says to herself “I really like stirring this pot, but my sister said I should go upstairs and play, so I’m going to!” And she goes upstairs to play.

True filler: Maggie is baking cookies with her sister.
False filler: Maggie is baking cookies with her brother.

Test sentence: Maggie’s sister wants her to be stirring the pot right now.

Story 5: At School

**Conflict/Stay**

Alex is at school, playing dress-up. His teacher calls out to the class, “OK, everyone! I have to run next door, stay at the play stations you’re in until I get back!” Alex says “OK!” Alex says to himself, “I know my teacher said I have to stay in the dress-up corner, but I’d like to go color, so I will!” And he goes over to color.

**No Conflict/Switch**

Alex is at school, playing dress-up. His teacher calls out to the class, “OK, everyone! I have to run next door, stay at the play stations you’re in until I get back!” Alex says “OK!” Alex says to himself, “I’d like to go color, but my teacher said I have to stay here in the dress-up corner, so I will!” And he stays in the dress-up corner.

True filler: Alex is playing at school.

False filler: Alex is playing at home.

Test sentence: The teacher wants Alex to be playing dress-up right now.

Story 6: At the office

**Conflict/Stay**

Jeremy’s teacher sent him to the office to pick something up for her from the principal. Jeremy is waiting for the principal and looking at a book. The secretary comes over to Jeremy. She says,
“the principal is talking to someone right now, sit here and keep looking at that book until he’s ready for you.” And Jeremy says “OK!” When the secretary turns away, Jeremy says to himself “I know the secretary said that I should keep looking at this book, but I’d like to see what’s happening in the principal’s office.” And he goes over and peeks into the principal’s office.

No Conflict/Switch

Jeremy’s teacher sent him to the office to pick something up for her from the principal. Jeremy is waiting for the principal and looking at a book. The secretary comes over to Jeremy. She says, “the principal is talking to someone right now, sit here and keep looking at that book until he’s ready for you.” And Jeremy says “OK!” When the secretary turns away, Jeremy says to himself “I’d really like to peek in the principal’s office right now, but the secretary said I should keep looking at this book, so I will.” And he keeps looking at the book.

True filler: Jeremy is waiting in the principal’s office.

False filler: Jeremy is waiting in the doctor’s office.

Test sentence: The secretary wants Jeremy to be looking at a book right now.

Story 7: Grocery shopping

Conflict/Stay

Megan is at the grocery store with her mom, and she is sitting in the cart while her mom shops. Megan’s mom says, “Megan, I have to run and get something in the next aisle, stay right there in the cart until I get back,” and Megan says “No problem, mom!” Megan says to herself, “I know my mom said to stay in the cart, but I’d like to get out and go get some cereal, so I will.” And she climbs out of the cart to go get some cereal.
No Conflict/Switch
Megan is at the grocery store with her mom, and she is sitting in the cart while her mom shops. Megan’s mom says, “Megan, I have to run and get something in the next aisle, stay right there in the cart until I get back,” and Megan says “No problem, mom!” Megan says to herself, “I’d like to get out of the cart and go get some cereal, but my mom said to stay in the cart, so I will.” And she stays in the cart.

True filler: Megan is at the grocery store with her mom.
False filler: Megan is at the grocery store with her dad.
Test sentence: Megan’s mom wants her to be getting cereal right now.

Story 8: After dinner

Conflict/Stay
After dinner, Doug is playing a computer game while his parents clean up from dinner. His dad comes in and says, “Doug, it’s going to be time for bed soon, just play your game for awhile while we clean up from dinner.” and Doug says “OK, dad!” Doug says to himself, “I know my dad said I should keep playing my game, but I would really like to go outside and play, so I will.” And he goes outside to play.

No Conflict/Switch
After dinner, Doug is playing a computer game while his parents clean up from dinner. His dad comes in and says, “Doug, it’s going to be time for bed soon, just play your game for awhile while we clean up from dinner.” and Doug says “OK, dad!” Doug says to himself, “I’d really like to go outside and play right now, but my dad said I should keep playing my computer game because it’s almost time for bed.” And he keeps playing his computer game.
True filler: Doug just finished eating dinner.

False filler: Doug just finished eating breakfast.

Test sentence: Doug’s dad wants him to be outside playing right now.