False False Belief Belief

Our view of the illegitimacy of concepts provides an approach to the thorny domain that goes under the grand title of “theory of mind.” (nn6) What is the child’s theory of another person’s mind? The strong view is that children under around four years “have no theory of another person’s mind.” Therefore they cannot attribute the concept of False Belief to anyone. The following scenario, often replicated, reveals the basic phenomenon:

Two children in a story are shown a crayon box (pictures of crayons on the outside)
One child leaves the room. Afterwards the box is opened up before the other child. It has candy in it.

The other child returns and we ask the subject:

“What does he think is in the box?”

and the child replies, up until about 3 1/2, that the other child will think:
“there are candies in the box.”

Thus the child, unable to avoid his own knowledge, has difficulty in attributing a “false belief” to the child who lacks his extra information when asked a question about it by a third person. Exactly what does such an assertion mean? We need to be very careful about saying that the child “has no concept of false belief.” Failure to compute a concept is not the same as failure to have a concept.

Could this be simultaneously a cognitive and a linguistic problem? It could be just that if some cognitive representation is identical to the linguistic one. Jill deVilliers has done a variety of experiments that explore this possibility. (nn7)

To address the question clearly, we need to see where False Belief is entailed in the mind. And we need to look closely at the question the child is answering. Our modular hypothesis is that False Belief might be represented differently in different mental domains and that translation among them is far from automatic. Where might one claim that there is implicit False Belief? Let us start at the most elementary level:

1. **Biologically-entailed False Belief.**
Most animals dart away when another animal is near. A chameleon will not move because, since its color shifts to match its environment, it is programmed to assume that another organism will not see it. That is equal to saying that the other organism has the False Belief that the chameleon does not exist.

2. Visual False Belief

a. A thief wearing bright clothes might duck quickly when he saw a person who might see him.

b. A soldier with camouflage might also duck if an enemy appeared, but he might not duck or might not duck quickly because he has absorbed into his physical action the idea that he is not really visible, or as visible, and therefore that the other person could maintain the False Belief that he is not there.

c. An athlete who feints in one direction, but moves in another, does so to mislead, in effect, to build a False Belief in his opponent about where he is going.

d. Parents report that children under three years will do things they are not supposed to do when the parent is not looking. In effect, they act under the assumption the parent has the False Belief that they are not doing what they are doing.
3. **Verbal False Belief**

a. Imaginary: False Assumption

If a child says “I’ll be the Mommy and you be the Daddy” they are proposing to a playmate that the playmate act as if a False Belief, of which they are aware, is true. They pretend they are something that they are not. These are often expressed with modals and subjunctives. How exactly does a girl understand “could you be the boy?”

b. Subordination:

*John thinks that the world is flat.* This is a true statement that contains a False statement and it underlies many of the False Belief experiments

c. Compounding:

The jesting title of this section, *False False Belief Belief*, entails a representation of False Belief that is different from the subordination case. In essence, it subordinates one false belief to another without attributing the belief to any particular person.

4. **Situational: False Belief**
Using the props of several modules, we are able to understand situations (“contexts”) in ways that feel “easier” than sentences. Somehow verbal, visual, and emotional representations help each other.

a. If one sees someone walk away from a dog, one might infer the proposition “he is afraid of the dog.” Might not someone, even a child, see such a thing and say “don’t worry, he’s friendly,” with an assertion that corrects an inferred false belief?

b. If a child saves a baby about to fall over a railing because the baby does not see that the rail is wobbly, the child implicitly assumes that the baby does not realize that it is in danger. In effect, the child has attributed a false belief to the baby, that the rail is sturdy, which is false.

c. **Humor**: Our humor, even with children, often entails playfulness with False Belief.

One person at a party announces she is going home. Twenty minutes later she is still there and a second person says, to common laughter, “Oh, this is your home?” What is entailed here? The joking person knows that the person he is talking to knows that he does not really
think it is her home. It is funny because the person who did not leave
knows that the person jesting knows that she knows that he is not
serious about suggesting that the party is her home. So we have
implicitly a situation that entails this mental complexity, although the
sentence we used to explain it feels more complicated than the
situation. “Funny that ….knows…..knows …knows …is not
serious.” This is a five-verb paraphrase of the cognitive situation.
The situational understanding--whatever cognitive map it entails--is
easier to understand than the sentence with three instances of *know* in it.

How do we represent situations so that they hold more information more
easily than sentences do? That is a very deep question, but presumably we
have ways of representing “context” that include language as well as ways of
representing language so that it includes context. We can understand visual,
verbal, and tactile information in a situation that is quite different from how
we understand sentences by themselves. A different matrix for representation
of context must be present—but it is far beyond our current knowledge.

Those who study False Belief distinguish, for instance, *pretend* from
*believe* but no one really gives a rigorous definition of the difference. Some
notion of False Belief, call it provisional False Belief, is entailed in *pretend*. 
Though logically more complex, it is more available for the child just like 3-D vision is more available than 2-D vision.

Those six kinds of attribution of False Belief are a legitimate academic abstraction, but they refer to no single biological reality. The child has notions of False Belief but they are not separable from the visual, social, and verbal modules in which they are represented.

Even “conscious false belief” comes in degrees when you see a hint of doubt in a child’s eyes—a vague sense that what some adult says is not quite right. It is not clear that consciousness itself is a sharp concept since there are so many forms of partial consciousness.

The upshot of all this is that there is no False Belief Concept which, like a floodlight, turns on and lights up all corners of the brain. The same is true for other academic abstractions that go under the title “concept.” Are there subtle links between these kinds of representation so that one initiates the other? This is possible, but not necessary. It is difficult to answer until we see how each notion of False Belief is tethered to each module.

**Building False Beliefs: Constructivist Concepts**

Even within grammar the grammatical context can enable or disable the projection of False Belief. We can construct similar concepts with subordinate clauses and compounds.
A true statement can contain a false one in a sentence like:

John thinks that the world is flat.

The statement about John is true but it contains a belief of his that is false. This can in turn be embedded further:

b. Bill thought that John’s professed belief that the world was flat was insincere.

This might be captured with an alternate compositional syntax through compound nouns:

(it was a) false false belief

We can keep on going. Now consider this:

c. We thought that Bill’s expressed view that John’s belief was phony was a way to tease him a little.
Well, this gets hard to comprehend, but we can do it and it is clearly formed from the rules of English. Now we have generated something like:

false false belief belief (=a false belief about a false belief)

Note that we do not have a single word for this complex concept. We have a compound which itself is comprehended by composing its parts. And of course the child or adult never applies the concept false false belief belief. Rather they construct sentences just like we did. Those complex sentences seem to have an important property:

The structure of the sentence carries the structure of the thought it expresses.

A sentence inside a sentence is like a concept inside a concept. Such things are not something we capture in a single word or compound noun. Rather we use whole sentences to express concepts that have other concepts inside of them, and may have a third concept inside of that.

These things are not too far afield from real life. We can think of more topical cases:
Gore stated that the Bush campaign’s assertion that manual recounts are illegitimate was just a political ploy.

That statement, however, was seen as equally insincere and unprincipled by most commentators. While the evanescent quality of such constructs might lead one to say that it is just another example of “false belief,” it is important to realize that the syntax has, via its properties of embedding (recursion) facilitated a new concept born of combining other concepts. This is not just false belief, but false belief twice embedded, a different concept. Words which capture such knowledge are possible, but they seem less easy to learn or invent than sentences with such meanings.

Now, turning this reasoning around, we can conclude that the child does not "use or have a concept of false belief” either. He constructs sentences which attribute an untrue concept to another person. It would be much harder to teach the child the expression “false belief” than to have them understand sentences like:

Mom thinks you ate the dessert.

Likewise it seems easier for a child to say “that’s wrong” or “that’s not true” than to learn the word *contradiction*. No one doubts that children can master false-
belief via embedding before the term "false belief" itself. Why does this seem self-evident? The opaque context is a representation which we can label “false belief,” but no bell goes off saying "that's a false belief.”

**Syntactic False Belief**

First we should acknowledge the existence of a mystery: when does a child understand that a sentence is a proposition, susceptible of being true or false? Is it present when the child says “he big”? For adults all declarative sentences are propositions. For children, perhaps declaratives are just observations without any implied parallel possibility that it is a statement that could be true or false. (One of our earlier explorations, 5.12, begins to probe this question.) If an adult makes a false statement--say a joke—the child might think he had not understood or heard right. This is a logical possibility that some people assume is correct, but it is actually very hard to evaluate.

Jill de Villiers has championed the role of syntax in such representations. Moreover, she did an experiment which cracks open one dimension of the syntax, suggesting a specific role for syntactic complexity. She reports both naturalistic data in which two-year-old children can say things like:

“she thinks it is mine”
and experimental devices that elicit them from children a year or two older. (nn8)
The child clearly understands that something is propositional when it is embedded, and as a proposition it may be true or false.

At the same two-year-old stage, children will misunderstand sentences like:

where does she think it is?

which is parallel to a more exact contrast:

whose does she think it is?

Is the assertion “she thinks it is mine” really different from the question “whose does she think it is?” Sometimes things that look close together are really far apart.

Although we are entering territory where highly technical representations of grammar are involved, we can get the flavor of what is going on with a few simple distinctions. (nn9) The argument turns on the difference between an inference, a kind of situational guess, and grammatical subordination where one sentence is logically a part of another.

Suppose I say:
John told a lie. The statue of liberty was turned upside down.

Now if I ask you: did the statue of liberty get turned upside down? You would probably say "no, that was a lie that John told." However, I actually gave you two independent sentences and you inferred that one was "subordinate" to the other. You did what I call an inference, but it is really a sort of a guess:

Guess: the lie = the statue of liberty fell over

We make this kind of mental, non-grammatical connection all the time. If one were to say:

A guy is nailing wood on our house. Carpenters are nice people.

You would infer that I was talking about the guy nailing the wood, although I said two separate sentences that did not need to be connected. Or take a recent example from the field of semantics by Orin Percus (nn10):

Can he cook? Well, he’s French, isn’t he?
The inference (or more strongly, implication) is that being French means that you can cook. We did the same thing with *lie* and *fallen over building*.

Now try this:

Mary told a lie. John told a lie. The statue of liberty was turned upside down.

Now, what do these sentences assert? I have asked this question of many people and they always answer with confusion and uncertainty. Mostly they conclude that both people told the same lie. Now if I said the sentence: "Mary lied that John lied that the statue of liberty was turned over,” you could understand it because it is repeated subordination—another instance of recursion.

Why is "John told a lie. Mary told a lie" hard? While it is easy to make a guess, it is very hard to put a guess inside a guess without the overt device of subordination. In other words, the mental equivalent of subordination--used to get non-verbal false belief---cannot be expressed unless we really use a system of representation, namely, language. If you think you can do it twice, then try three times (John told the truth. Mary told a lie. Fred made a guess…). It gets tough as a sequence of inferences, but the *New York Times*, every day has sentences with five or six embeddings relating to each other.
To put it differently, you cannot easily, if at all, with no mode of representation, create an inferential structure like: \([\text{guess \ [\text{guess \ [ \text{guess \ ]}]\]}}\), where you are guessing about guessing about guessing. As I write it, you might have a glimmer of what such a thought would be, but it is hard to hold it in mind without writing it down. It is just like the old observation that it is hard to count the stripes on an imaginary zebra. The image is not stable enough to allow another math module to work on it. As soon as you draw one on paper—an external mode of representation—it is easy to put another module to work.

What guides the verbal expression is some mental goal, which itself must be expressed in a vague mental language that is given precision by the process of verbal expression. Grammar can help thought the way that zeroes help numerical representation. A numerical analogy would be this: we perceive a large mass of individuals, and determine that it is therefore countable, and we would like that precision. So then we count and arrive at a specific number. Before we began we had: a large mass, the recognition of individuals, the possibility of countability, and the desire for precision. We do not have the number until we do the count, but counting does not add a concept. This is exactly like saying "I can understand 1, 10, maybe 100" (=say the number of fingers times the number of fingers), but we need real, written zeroes very soon to represent the process any further. We cannot manipulate a 100 trillion in
our minds, and state what half of it plus one would be. We can do it easily if we write down the zeroes.

The same information can be represented with Roman numerals or an abacus, but its availability for further manipulation is not the same. Roman Numerals can also represent high numbers: MMMCCC = 3300. In fact MMM represents 3000 with one less digit. Nevertheless, multiplication is hard with Roman numerals. An abacus is another way to represent numbers which may perhaps allow multiplication easily, but not other operations. Chinese restaurants used to reveal swift-fingered owners preferring the abacus to a nearby cash register. Slide rules have other advantages and disadvantages which the older mathematicians had coded into a set of rapid jerks that sometimes were faster than calculators. We code knowledge in many, many ways---for instance I have the whole alphabet coded into my finger moves as I type now, though I have no overt mental image of that alphabet.

Language is like a mental blackboard. It enables us to do operations inside operations, just like a blackboard allows us to add as many zeroes as we like. Now let us return to the acquisition evidence.

What mode does the child have first? Considerable research (nn11) has suggested that children first attach clauses as if they were new sentences, just like a string of relative clauses (which two-year-olds spin out).
This is the toy that I got for my birthday that my dad bought that my sister wants too.

Note we could actually do it with \textit{ands}:

This is the toy that I got for my birthday \textit{and} that my father bought \textit{and} that my sister has.

If the child at first represented “she thinks it’s Mary’s” as:

She has a thought. It is Mary’s.

then it would be connected by mental inference, but not by syntactic subordination.

A question however requires us to make a connection to something subordinate. It would be ungrammatical to say:

*What is it? Now John wants

but if we put it into a subordinate clause, then it is all right:
What is it that now John wants?

Exactly these forms, as we argued in Chapter 7, arise together with recursive clauses which allow questions:

What did John say that Bill believes that Fred wants ___?

So for the child there may be a difference between the statement with a false belief (“she thinks it is mine”) and the question with a False Belief (“whose does she think it is?”)

Nonetheless adults allow the False Belief in the question form but the children seem not to. What is the difference? We are now really on the edge of current research, so new work might still shift perspectives quite dramatically.

Are young children incapable of recursion with subordination? This is an important question that is still the object of research. However, one can imagine a five-year-old in a conversation like this with four sentences, two embedded and one ellipsis in 13 words:

“Mom said you said that I ate the ice cream, but I didn’t.”
If so, maybe it is not recursion alone, but the interaction of recursion linked to something else. Once again, it is the fact that False Belief is embedded in language in a very particular way that makes its use in comprehension of questions more difficult.

**Point of View**

Lurking in this discussion is the question of how a child computes another Point of View, which has been a focal point of dissertation work by Bart Hollebrandse. (nn12) The suggestion that the child actually has no “theory of another person’s mind” --looked at rigorously at face value---would lead us to expect that a child cannot compute another Point Of View anywhere. However even the simplest of sentences like “Come here” requires us to see the word “here” from another Point of View. Otherwise we might imagine a child saying “I am here” from his point of view.

Pointer words (“deictics”) engage Point-of-View in a way that children can handle, even if it is complex. Chris Tanz found that nursery school children can switch several pronouns at once: (nn13)

Ask her what color she thinks my eyes are  =>

“What color do you think his eyes are?”
So, just like False Belief, it is not simply the concept Point of View that we must
tangle with, but how it is represented in particular mental systems.

**Exploration 16.1: Point of View**

Such questions can easily be constructed around the dinner table:

- Ask her if **she** thinks **you** would like to eat **my** vegetables?
- Do **you** think **I** would like to eat **his** vegetables?

Some children treat the word *ask* as if it were *tell* and just say things like “no.”
So one needs to be sure they understand the difference between *ask* and *tell*. See
first if you get different answers to questions like:

- Ask me something.
- Tell me something.

Then start with simple questions:

- Ask me what color my eyes are.
- => “what color are your eyes?”

then:
“Ask me what color I think your eyes are.

“What color do you think my eyes are?”

And so forth.

*Caption: Point of view*

Now let us return to the mystery of why children do not grasp questions.

Here we will just give an oversimplified conjecture. If I say:

John thinks that the world is flat.

I am linking the clause *the world is flat* to *John*. But if someone asks a question, then pragmatically it is the questioner whose Point of View I am pulled toward. One can feel this effect emotionally when you consider a question like:

Who is your best friend, me or Johnny?

It is clear that the questioner has a point-of-view attitude that is very pertinent to how the listener answers. So when a question about *the sentence subject’s Point of View* arises, it is potentially in conflict with the *questioner’s Point of View*. It would be as if we filled in the situation with:

(I ask) whose toy *(you think)* she thinks it is
This is an oversimplification, but it captures the rough idea that the child is computing Point of View on top of recursive subordination.

**The Art of Abstraction (nn14)**

Hidden further within this controversy is a question about what thinking itself is. Most of good thinking involves a kind of systematic forgetting. The concept of “abstraction” means the loss of particulars.

A 2004 *Newsweek* report (nn15) on memory cited a study of rats whose “intelligence” was inversely proportional to their memory. The better they were at remembering things, the worse they were at “figuring things out.” Famous mnemonists are reportedly the same: (nn16) incredible amounts of retained detail and little ability to rise above it. What is the connection?

The authors pointed out that what we do when we think is to subtract as rapidly as we can all of the particular anchors in a situation and leave ourselves as close to a “general” or “generic” observation as we can. That is why remembering meaning and forgetting actual sentences is crucial to comprehension. The field of parsing is largely about building a model of how, moment by moment, we delete knowledge. Our minds separate out people, from events, from particular things. You and I went to the movies last week, but what
did we see? Yes, I saw “Crouching Tiger,” was it with you? People, locations, events get separated from one another automatically, and put in different sets (evening dates, movies). We have been traveling a lot—we had curry last week, but was it in NY or SF? In a meeting one can hear: “someone suggested, I forget who, that we open the store an hour earlier.” It is what we often want: to consider a proposition independent of its author. This “loss” of particulars is part of the process of forming abstractions like “I eat out about five times a month.” The general idea knocks out the particular facts.

In fact we often criticize people for moving from one event to a generalization. “John misses meetings” when in fact he missed only one. Children do it too. “I don’t like Johnny because he takes my toys,” and the parent points out “he did that just once but every other time you had fun playing together.” Students legitimately are annoyed if from a class of 25 the teacher remembers insightful remarks, but forgets who made them, who believes what, and thus fails to give students the individual recognition they may deserve.

All of the false belief situations involve remembering not only the proposition, but the Point of View (who) and the specifics (the place, the person, the toy). It could be that the child who drops the POV or drops particular places from memory is just too quickly invoking abstraction.

The presence of particulars is usually linked to definite articles. Consider this contrast: (nn17)
a. John thinks that bananas are blue

We know instantly that it is false. But watch what happens when we add a
definite article:

b. John thinks that the bananas are blue

The second statement invokes a totally different search. It has a presupposition
(nn18) that a particular set of bananas exists and we have to figure out where they
are or what is meant. The second could be true in many ways: a play could
involve blue bananas, a child could paint bananas blue, or a story could be about
animate bananas that are unhappy. When our beliefs have to be evaluated both
by locating a range of particulars and then grasping a proposition about them, two
quite different tasks are entangled.

A third capacity is invoked when we have to maintain a different Point of
View and link the referential/propositional composite to another person. It is this
three-way computation, not any of the individual ingredients, that may well
challenge a young child. False belief tasks involve both the capacity to generate a
“false proposition” and the intricate task of connecting to a very specific world
situation and the Point of View of various situational participants.
The explorations we have already discussed will capture Point of view (here explorations in chapter 5) and reference (the- explorations, and there explorations that look at what is presupposed, also in chapter 5). We can more directly look at Falsehood and presupposition.

**EXPLORATION 16.2: ARE BANANAS BLUE?**

Simply ask a child:

Are bananas blue?

This tests whether the child can recognize that a proposition can be false.

But a different situation arises when we misrepresent common knowledge and say:

Are the bananas blue?

Now a natural response is “What bananas?” accepting the presupposition of existence and pointing out that the common ground does not exist. We found that we could elicit this response (though not always) when we asked:

Do you like the elephant on my head?

to which five- and six-year-olds easily say “What elephant?” although sometimes children would just say “no.”

*Caption: False belief and generics*
**Extension:** Now let us complicate matters a little. Suppose we have a row of black bananas:

black banana     black banana    black banana

And ask the child:

Are bananas black?

Then we are asking the generic question right in the face of incompatible particulars. If they understand the generic force of the question, they will answer “no”. But if we ask,

Are the bananas black?

presumably they will allow the *the* to seek the particular and immediately answer “yes.” (nn19)

So what does this add up to? The typical view is that children move from specific to abstract, but we have argued that abstraction comes easy and learning to be specific is the hard work. It is not going up the ladder of abstraction, it is
coming down the ladder of abstraction that is hard, demands attention, easily goes awry and the child (or we) fall off. That is why politicians aim at sound bites, easily “understood” by everyone, because “the facts” are so hard to keep straight.

There is a kind of memory that goes the other way: what has been called Flashbulb memories, where every detail is locked into an event. If our hypothesis is right, then it will be more difficult to include flashbulb memories in generalizations. That is, if you were eating curry the moment Kennedy was shot, and someone asked you how often you ate curry as a rule in that year, you might recollect all the other times—separate from Kennedy’s assassination—more easily just because they are not deeply embedded in a flashbulb experience and therefore were harder to extract from minutiae.

What entitles us to use the word “art” in the title of this section?

Once again, we aim to make our familiar claim: each of us develops a separate art of abstraction; we see personal, emotional, social, or mechanical generalizations in ways slightly different from others. For example, even in a fairly technical field, some people seem to have an intuitive grasp of how to tackle computer problems that is very different from others, and far from pure “logical deduction.”

We relate to each other differently not only because of our own personalities but because of how we put together abstractions about others. Whether we deal with juvenile delinquents or faculty members, we put together an implicit vision of positive and negative traits that allows each of us to relate to
others differently. How do you bring out what you sense as the latent good will of a juvenile delinquent while being wary of his temper, or the latent generosity of a faculty member who is shy? So our individual formulae, individual “art,” is at work again even where we think that a systematic sort of “common ground” is present.

We conclude that knowing just when to drop particulars is an art with many social aspects. In every discussion, we seek acceptable abstractions by keeping an awareness of individual points of view, or by trying to abstract away from them. Everyday even nursery school situations show the difference. One person likes shallow water, another likes deep water. A third might suggest “oh, there’s a spot where there is a little of each” and a fourth might say “let’s play in the sand instead” while forgetting which person likes what, but simply seeking a more abstract way out of a contradiction. How the young child develops this art is far from transparent. Whether a deep maturational event or a single psychological principle is involved remains open, but it is always important to see the full intricacy of the endpoint in psychological growth in our effort to envision the early stages.

Multiple Methods for Thinking

A biologist, Karen Searcy, suggested a nice metaphor to me: the body has dozens of clocks in it. Clocks regulate all sorts of biological processes—keeping
track of sleepiness, hunger, remembering to water plants. Interestingly they often
make their slow way to consciousness as a single “concept” though much
remains unconscious. If we say suddenly, “gee I have not had cous-cous for a
long time” what is the mechanism that enables us to make that temporal
judgement, how was the memory stored so we know? A judgement like “yes, I
know that face, but I haven’t seen that guy for 20 years”. What temporal
indicator allows us to extract such a judgment. Why can we use the same term
“faster” to describe one race car moving a few milliseconds ahead of another and
for a claim that the Austro-hungarian empire declined “faster” than the Roman
empire? The common term covers quite different mental mechanisms.

Those innate unconscious notions are not less sophisticated—nor less
defining of humanity—than conscious ones. A child may be perplexed about
ambiguous words like “soon”: does it mean “a few minutes”—we’ll eat soon---
or a few months ------coming soon to your theatre. Still very human awareness of
time is present when a child rushes to grab his grandma with an intensity that
reflects his awareness of the fact that he has not seen her in six months---even if
the word “soon” is still a puzzle for him. Even an infant must already have
multiple representations of time.

Once again, a single core concept can have multiple representations in our
mind/body. False Belief experiments have been done with no language, just a
picture of say a girl changing the location of an object out of view of a boy who
had put it in one place—now it is in another. Then one can ask: “where will the boy look?” and some children persist in assuming the boy knows its current location even though he never saw it moved. It is primarily—not exclusively---those who do not demonstrate full knowledge of recursive subordination who make this mistake.

Why, in a non-verbal pantomime situation, can children who have recursive structures in language do better? When children have set their recursive mechanism for subordination in their language (that at the beginning of the English subordinate clause, not at the end as in some grammars: John thinks that Bill is here/*John thinks Bill is here that), why they can handle non-linguistic false belief contexts better? “Better” is perhaps the crucial word, since some children who do not show knowledge of complementation, still do get it. It is like our mathematics analogy: MMMVL successfully represents 3600 but is it not as ideal for doing mathematical operations, though surely the Romans must have also been able to multiple in order to build big buildings. Multiplication is easy when you have numbers and zeroes, but less straightforward with Roman Numerals. Children have many forms of thinking available and it seems natural to expect that other methods of inference—less ideal, like Roman Numerals—can still capture False belief, but perhaps with more work, so the child may more easily move to an abstraction not bound to an individual perspective. Which mental metaphor do we unconsciously reach for? It is like reaching for zeroes,
roman numerals, an abacus, or a slide rule. Like children who seem to reason better around sports than in academic subjects, we may not always grab the right one. If we have not developed one of the grammatical options, (say subordination or compounding) then those options are not available at all. With a generative form of complementation, the structure is readily available as a mental structure, it is easily invoked. If situational support is strong, other methods to arrive at various kinds of False Belief are possible--it is simply not a single mental entity.

Let us pursue another language analogy. A second language speaker (who had not figured out compounds) said “do you have something to open cans with” and was asked, by a clerk “you mean a can-opener”. The clerk had a handier way to say it, and therefore could not figure out at first why the speaker had not used the handy mechanism. And, just like subordination, it becomes even handier (can-opener-maker) when you want to describe a machine that makes things which can open cans.

Once again, the grammarlike model, plausibly derived from grammar, is that recursive subordination (or recursive compounds) could be essential to recursive false belief:

Bill denied that Fred believed John thought that the world was flat
Therefore grammar really can help represent thought---it is like a blackboard that helps us keep track of a lot of zeroes. The blackboard is essential to the thought but the blackboard is not the thought itself.

**False Belief and Conversation**

To make sure that a child’s dignity does not slip away from our psychological imagery, it is wise to remind ourselves of how much humanity simple acts entail. We have already claimed that just saying “hi” implies a complex relation among human beings, even though it is not easily delineated with available scientific notions.

Where do we first get hints that children can handle false belief--long before they can really ruminate upon it or perform mental operations based on the presupposition that false belief is present in someone else?

Ordinary conversation engages the most subtle relations among minds. (nn20) Conversations are full of hints and shadows but few of us doubt the reality of the mind of people we talk to, though it is difficult to “prove” it. Suppose one supposes that a child responds just to the sentence—as if it were disembodied--hanging out there like laundry on a line. Is that really possible? It is immediately obvious that if you say something to a two-year-old that he does not like, he will be mad at you, not just at the sentence you said. He must therefore associate the
sentence with you in some representation. And if the sentence is in some measure questionable, then the seeds of attributing false belief to someone are present.

Consider this conversation with the most studied child, Adam, at age 2.4 years:

(nn21)

*MOT: that's your brush.
*MOT: that's not a hammer.
*CHI: hammer?
*MOT: that's not a hammer.
*MOT: what makes you think that's a hammer?
*CHI: look like hammer.
*MOT: oh # it looks like a hammer?

Doubt comes first in the single word “hammer?” Then he responds to “what makes you think that it’s a hammer” by clearly thrusting doubt on the proposition: “it looks like a hammer” which is a natural response to the statement “that’s a hammer” but exactly to the question “what makes you think that’s a hammer?” Some kind of falsehood is involved here—a false supposition, or false guess, a false hope--and it is the stuff of daily life. Adam was most probably not using subordinate clauses yet, but there seems to be a
comprehension of something very close to a subordinate clause with a sentence whose truth is in question that is in turn linked to another person. If he is not using subordination, it would probably not be a handy mental construct in a comprehension experiment, but still whenever we reply to someone, we must have an image of the mind to which we respond. We easily generate intonation patterns full of incredulity and disbelief: (nn22)

John: tomatoes carry nuclear waste
Mary: tomatoes carry nuclear waste!

And we can attribute attitudes that depart from certainty to that mind. One might wager that an ingredient of uncertainty is a part of most conversations. Here’s Adam (nn23) under three years:

*MOTHER: go ask Cromer if he would like a cup of coffee.
*CHILD: le(t) me # have # cup of coffee?
MOTHER: Cromer

This is pretty clearly an incredulity question that attributes an implausible assumption (a child drinks coffee) to the Mother, but modifies it by adding a question. Conversations imply attitudes so complex they are very difficult to
unpack. When a child angrily corrects a parent who says “you forgot your spoon” by saying “un-uh” or just “no,” (and shows the spoon) they are with one word both attributing to and correcting a false belief in the parent.

The hint of False Belief could be first represented in the intonation of incredulity, though again, I suspect (being no expert in it) that intonation does not have a recursive mechanism that allows an identical intonation to be embedded inside itself so that one alters the truth value of the other. Intuitively, it is much more work to do an inference leading to consciousness for tones of voice. We do it, but it feels like work. Adult conversations sometimes contain stuff like “something in your tone makes me think you really want to go to a different restaurant.” (nn24). I have never heard of a child commenting on an adult’s tone of voice, yet variations in tones of voice are constantly directed at--and surely understood by children. Once again we have arrived at a situation where knowledge is present, but the knowledge is in a form that hinders a further operation of raising it to consciousness through which one can fashion a reply.

To risk tiresome repetition, what is involved in conscious rumination, giving rise to errors detected in False Belief experiments, may be less sophisticated than what our mind carries out implicitly and unconsciously. The experimental tests of False Belief really have a higher order operation in mind: a further judgement made on top of a False Belief representation, the assumption of
another Point of View in order to answer a question. It is like putting False Belief on a blackboard, or using zeroes, to create a fixed object from which to make a further judgement. The invention of the term False Belief is just such a further operation on such situations which we also expect to be beyond the easy ability of a nursery school child.

These speculative remarks are just that—quite speculative. We remain a long way from having secure representations for cognitive activities. Without them, we must remain cautious about every assertion with respect to how thinking works. We know what thoughts look like once expressed, but the crucial representations that precede expression—where thinking is really happening—remain elusive. What is the representation that allows us to choose the words that go into our sentences? We readily take the look on someone’s face as an avenue to their true thoughts. What is the thought behind the look on someone’s face, which we may interpret, but of which the person may be unaware. If we see ambivalence in someone’s eyes, how can we state the state of mind behind it? Is it two incompatible representations both feeding into one face? The mind behind an odd look on a person’s face could be as complex as the one that discusses sophisticated scientific theories. We really do not know. These speculations may be wrong—they are surely incomplete— but they show that we need an expansive model—not a minimized model—of all kinds of thinking in order to see what children are doing in a way that does not diminish them unfairly. Older people
too may lose particulars too rapidly but retain plenty of human wisdom about
other people and therefore other minds. Ironically, it is the same habit of easy
abstraction which allows psychologists as well to overstate children’s mental
limitations (via the attribution of egocentricity as is now commonly seen as unfair
to children). To be a bit harsh about this, the weakness that some researchers
wish to attach to children may better describe their own. In fact, in my casual
observations, it has been precisely those parents who have difficulty in seeing
several points of view in a discussion who easily say or insist that their children
are “egocentric.”

The same danger exists in the study of False Belief. How can we be
careful not to abstract too quickly, to make sure that a claim about one module of
mind is not instantly applied to the whole person? We all make simple
abstractions about the nature of thinking because we cannot keep its full
complexity in mind.

Once again, we arrive at the view that we must be vigilant about not
underrating human beings, children in particular, in our effort to find simplifying
insights. Our whole discussion of how language and thought connect is built
upon the idea that children may fail to compute a representation properly without
failing to have concepts. Principles can be expressed differently in different
mental domains, with very little translation (like, again, stereoscopy in vision and
hearing). The distinction between conceptual problem and computational
problem is important for not only how we treat children but how we think about them. If grammar were like vision, we would see a problem as if it were a problem in focusing, not a problem in thinking. Without a better understanding of grammar, we must constantly combat an inevitable inclination to overstatements about children’s minds which, as we probe in the next chapter, is really a challenge to their dignity. The modular perspective is the key to this ethical challenge I think, but modularity presents its own ethical challenges, as we argue below.