How can a 2-year old child decide about the underlying order in his mother’s syntax?

General Problem:

How do you find out about the shifting parallels between theta structure and phrase structure if you are

- a linguist (answer: be clever)
- a 2-year old child (answer: ??)
Grammatical variations

Question:
Why would a generative grammarian assign to a sentence an ‘underlying’ order that cannot be perceived directly?

Answer:
To express the parallels and blocking between grammatical variations

1) ± auxiliary  4) ± passive
2) ± subordinate  5) ± indefinite subject
3) ± wh-question  6) ± negation

These factors may be applied independent of each other. The 6 factors yield $2^6 = 64$ variations. The 64 derivations give $64 \times 63 = 4032$ language rules.
Suppose there were an abstract pattern, on which each factor could work without complicating the possibilities of the other factors, then:

- 6 rules would suffice. That is almost 700 times more simple
- The contribution of each factor would be more transparent as such. That means a huge simplification for learning a language

Is there such an abstract underlying pattern? Yes. The steps from the abstract towards the concrete pattern are the movement rules.
Example:
‘The derivations make a weird impression. They had a point.’

[what point] did the derivations $t_I$ have $t_{wh}$?

in root clauses, insert $do$

move $<+wh>$
pied-pipe rest of argument

The meaning of a question relates to a corresponding statement.
That holds for the other variants as well.
Underlying and derived structure

Theta structure (local phrase rules)
(some categorial pattern due to a linear merge of items)

Transformational rules (less local, sentence types)
(re-arrangement/move)

Derived structure (local phrase rules)
Questions
1. Since it is phrasal structure for and after, why not phrasal rules only?
2. Why is the complex derivation relevant for acquisition?
3. How does a child find out about it in a learning procedure?

Answers
1. Some distributional phenomena are different in nature.
2. The underlying form is relevant for the semantic interpretation (this course).
3. Inborn or instilled?
Underlying and derived structure

Questions

1. Can we predict what simplifications children will apply to the structures they hear in order to improve their learnability? (Not yet)

2. Can we be sure that children understand their sentences the same way we do? (Not yet)

3. Do we really know and can we show how all languages are roughly as difficult and are acquired in more or less the same time? (Not yet)

4. Do we know whether and how the various language types fit conditions of learnability? (Not yet)

5. Is it possible to find out about the above issues?  
   *Quite possible*
We followed this line of reasoning

**starting frame**
Assume some type of plausible, established grammatical analysis

**research cloud**
How for Pete’s sake could it be learned?

This makes acquistion research a derived and dependent enterprise.
Let’s reverse this

**starting frame**
Which order and speed are revealed in the child’s acquisition steps?

**research cloud**
Which grammatical theory explains that type of learnability?
First Patterns

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<th>(22% ?)</th>
<th>Aux V&lt;sub&gt;fin&lt;/sub&gt;</th>
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English VO structure: 100%
Dutch OV structures: 78%
The simplification procedure

Simplification

✓ Leave out subject/topic as a point of orientation
  it is pre-supposed anyway
✓ Leave out all functional categories, e.g. Aux
  it is uninterpretable noise (cf. the unstressed syllables 1st week)

(Note that the simplification is applicable without awareness of the value that aux or grammatical subject may have in discourse)

The remnant

English 100% VO order    Dutch 78% OV order

Proposal

If a lexical item appears with a fixed frame for 2/3 of its occurrences, the frame is added as a lexical property of this item
The simplification procedure

A first principle for underlying order $\rightarrow$ Theta structure represents pre-movement structure

This principle is known from the theory of grammar
Baker (1988): UTAH Uniform Theta Assignment Hypothesis
Williams (1994): TRAC Theta related Argument Configuration

UTAH/TRAC now follows from the acquisition procedure:
1. Simplify the input
2. Add the remnant frames to the lexicon

A weighty UG principle now follows from the acquisition procedure.
The simplification procedure

Conceptually, we have a strange hand-stand

✓ Why does the learner eventually perceive the underlying structure?
  (The learner consults a lexicon where predicative heads are associated with fixed theta frames)

✓ Why are UTAH (Baker) and TRAC (Williams) UG principles?
  (They are meant for all language and refer to major grammatical distinctions)

✓ Why does the UG principle UTAH not need to be inborn?
  (It follows from a-specific simplifications and input frequencies)

✓ Are the simplification principles an inborn talent?
  (Unclear)