This paper focuses on one single phenomenon, namely the acquisition of idiomatic reading in subordinate clauses in Bernese Swiss German. We argue that the learning procedure in this case involves cross-modular triggering. The cross-modular character of acquiring the idiomatic reading in subordinate clauses is rooted in the fact that, inter alia, the child has to specify several features, namely [+Variable], [+Focus], and [+CP Complement]. This presupposes access to information from syntactic, semantic and phonological modules which is gained step-by-step. The child is forced to resort to interim default representations until several decisions have been made.

The format of these default representations is determined by what we call: Minimal Default Grammar. It requires intermediate solutions to be reflections of the most economical form (either in terms of derivation of representation). The central claim is that, as long as subordination is incompletely specified, the child utilizes a more economical form: default adjunction. This choice blocks idioms in subordinate clauses because adjuncts are inherently compositional. They are therefore compatible only with referential, non-idiomatic readings.

The paper is organized as follows. We begin with a general discussion of the continuity issue and the form of interim grammars. Then we provide a backdrop of the formal features and the trigger system for idioms in complement clauses which presupposes access to the formal features [+Variable], [+Focus], and [+CP Complement], among others. We will argue that [+Variable] is in fact a subfeature of [+Focus] and that both are prerequisites of the feature [+CP Complements] in German. This implies that, as long as [+Variable]/[+Focus] are not acquired, the child fails to set [+CP Complement] and resorts to generalized adjunction as an interim solution. The third section summarizes the predictions made by our analysis of the triggering system: As long as the grammar of

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1Thanks to Jill deVilliers for comments.
2See Lebeaux (1990) for extensive discussion and formalization of the notion that adjunction is a primitive operation in use by children. See deVilliers et al (1990) for extension to the domain of wh-movement.
subordination is subject to generalized adjunction, the idiomatic reading in subordinate clauses remain unaccessible to the child. These predictions are then explored in an experiment on idioms in Bernese Swiss German. Our results show that there is indeed a tight correlation between the development of [Variable][Focus], the acquisition of the feature [CP Complement], and the emergence of the idiomatic reading in subordinate clauses.
1. Preliminaries: Continuity, Default Setting, and Intermediate Grammars

One of the main issues in learning-theoretical oriented accounts of language acquisition is the question of continuity: does the child's language deviate from the particular heard language in some essential sense or is it consistent with the target language from the outset? The term "consistent" here, of course, is what requires a precise description. There are several possibilities for the description of intermediate states which deserve a more technical description. We will outline them briefly and then consider them in greater depth where they are relevant.

One possibility is that Universal Grammar defines a set of Default Settings which
a. are consistent with an economic representation, and
b. which are a logical subset of all possible grammars.

Therefore, in effect, they consitute a grammar to which further features, defined by particular grammar triggers, will be added, but nothing subtracted. Such a grammar would quite possibly remain within the capacities of a child throughout life, although it would constitute a kind of second grammar when the target grammar is acquired (s. Roeper (1996)). We can make a claim about the character of that grammar:

1. The Minimal Default Grammar Hypothesis
   All non-target (intermediate) forms would be reflections of a Minimal Default Grammar:
   The set of defaults is made available by Universal Grammar. All defaults will represent a more economical form in terms of "economy of derivation or economy of representation"

This predicts that there will be no deviations from a target grammar that are representationally "more complex" than the target grammar. Therefore, although technically incompatible with the target grammar, they would be recognizable because they always involve the absence of some structure or some operation.

A classic instance of this would be the use of structures where a lexical item is missing which is normally required in the target grammar. For
instance, the use of a structure without the required wh-word (or the main clause antecedent). For instance, children say:

2. I am strong to do that

which is not possible in English because "strong", in contrast with the adjective "eager", takes no infinitival complement. The meaning of (2) is equal to (3):

3. I am strong enough to do that

which involves the overt comparative "enough" that does take an infinitival complement. Thus in this case one might want to assume that (2) involves a minimal representation with an empty position for the main clause antecedent that is equal to "enough".

The opposite hypothesis would be that the child supplies a novel lexical item for a position that is generally empty in the target grammar while seeking a meaning identical to what an adult would say. Suppose the child realizes that the agent of two verbs is identical and concludes that the word "same" would be appropriate. Then we might find:

4. same = PRO
   (unattested: "I want same to do that" = I want to do that)

This possibility seems so implausible that it does not occur to us as a logical option. However the presence of resumptive pronouns as in (5) are an example where a child may prefer a lexical item--though not a novel one--to an empty category (Finer (1992)):

5. a. he is a little kid that he smokes
   b. twenty numbers that we counted them

The presence of resumptive pronouns in the grammar of children, however, can be represented as more economical if co-indexing is represented as simpler than movement. Then resumptive pronouns fit the Minimal Default Grammar proposal as well (see Pérez-Leroux (1993) for discussion). We will return to this issue in more detail below.
As another alternative to the Minimal Default Grammar Hypothesis one might want to imagine the option of a default setting which assumes that the child can project no grammar whatsoever without making language particular decisions. In such a model the child would simply be silent until information arrives that allowed the setting of a parameter. Chomsky (1981) has described this as a grammar "in limbo". Such a grammar again may begin with an invisible default grammar but the default grammar would never appear explicitly. A typical candidate for such a grammar would be the Head Parameter which chooses Object-Verb or Verb-Object structure. There is no neutral form of expression that would indicate non-decision between OV and VO (unless perhaps the child used a copy relation and said OVO (e.g. milk drink milk). This is a logical but we believe less explanatory possibility than the Minimal Default Grammar proposal. We mention these implausible alternatives in order to articulate the fact that in the realm of conceivable forms projectable by the child, many alternatives do not occur. Therefore early utterances, though seemingly minimal, represent strongly constrained options.

A third possibility is that the child adopts one particular grammar, but then resets the grammar to a different particular grammar when new evidence arises. This proposal reflects a number of well-known claims that children pass through grammars quite alien to their own (e.g. English has pro-drop properties of Italian (Hyams (1986)). It is this possibility which is excluded under the strong proposal of Weissenborn ((1995) followed by Penner and Weissenborn (1996)) called Local Wellformedness, that false steps do not occur.

Which of these three hypotheses is supported by the data? A close examination of the acquisition data provides examples of both kinds: early behavior consistent with both target grammars and clear deviations. On the one hand, there is abundant evidence that, in certain domains, the
child's grammar is fully congruent with the target system from early on. Typically, very few errors are attested in following domains (examples drawn largely from the work of Weissenborn):

a. The rule of verb placement is established early independently of the full acquisition of the subject agreement paradigm (Weissenborn 1990, Verrips & Weissenborn 1992).

b. The distribution of French clitics adheres to clause-structural constraints from early on (Haverkort & Weissenborn 1991).

c. The rule of object placement (OV) is established in the pre-linguistic stage independently of case assignment (Penner et al. 1994, 1996), Schönenberger et al. (1996); s. also Stern and Stern (1928) and Roeper (1973)).

d. Extreme low rate of word order errors in early French (6%) (Weissenborn 1993).

e. Extreme early and stable acquisition of verb placement and negation in German and French (error rate 2%) (Weissenborn 1993).

f. The distribution of empty subjects in early grammar is severely restricted by target-consistent constraints (i.e. the child sets the target value of the pro drop parameter prior to the multiple-word stage) (Weissenborn 1992).

g. A fully-fledged DP structure is acquired prior to 2;0 independently of case marking and the agreement paradigm (Penner & Weissenborn 1996).

h. Clause-internal scrambling is operative from early on (Penner, Tracy, Weissenborn (in press)).

On the other hand, early grammars display some obvious deviations from the target grammar:

a. Overextended subject drop, (Hyams 1986)).

b. Default case systems, (Vainikka (1994)).

c. Partial-movement phenomena (deVilliers et al (1990)).

d. Quantifier misconstrual (Philip (1995)).

The first question to ask is under what conditions language-particular decisions are immediate: the trigger evidence is unavoidable. Under the Unique Trigger Hypothesis articulated in Roeper and Weissenborn (1990) and Roeper and de Villiers (1992), a given parameter can be set very early, if the relevant trigger can be identified in a single triggering
domain. As an example, let us consider the case of the Head Parameter. As alluded to above, it has been known since early work on German that German children discover the verb-final nature of German prior to the two-word stage (or even in the pre-linguistic period). The task of setting the Head Parameter in German is by no means trivial, since the information that the children receive is heavily mixed:  

7. a. Brot essen (OV - infinitive)
   bread eat
b. er isst Brot (VO - root, V2)
   he eats bread
c. .... dass er Brot isst (OV - non-root, verb-final)
   .... that he bread eats

How can the child resolve this apparent contradiction? One might want to suggest that in such cases the child is guided by unambiguous triggers as in (8):

8. "If one form is marked with [Tense], then it is derived"

However Verrips and Weissenborn (1992) have argued that children know the deep structure and the movement rule before they use any overt tense form (which leaves the possibility that comprehension of tense is present and effective). If [Tense] is not criterial, then what could the child use? Suppose one adopted this principle from Kayne (1994):

9. "All movement rules are to the left"

It now follows automatically, that given two forms, the leftward one must be derived and therefore the rightward one is the deep structure. This view is perhaps correct and may represent the best hypothesis about the trigger that is available to date. However, once again, it does not work perfectly. Consider the English example in (10):

10. a. eat pancakes

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4 Hale and Keyser (19...) would suggest that this order is the canonical order. However then one must account for the fact that in acquisition one finds a German/English contrast.
b. pancake-eating

Here, if we assume that the verb moves, we would conclude that (10b) is basic and (10a) is derived (with the additional assumption that initially children do not notice the -ing affix). Common analyses of compound formation, however, argue that it is the noun that moves to the left and therefore (10a) is basic and (10b) is derived. This means, again, that the German data is obscure if we are not sure if it is the noun or the verb that moves. Penner et al. (1996) and Schönenberger et al. (1996) argue that the earliness of the Head Parameter is due to its mono-modular character of the triggering procedure and to the fact that, although inherently complex, the triggering domain is unambiguous. Two triggering procedures can be assumed in this case:

11. a. Prosodic Bootstrapping: Nespor et al. (1996) propose that the child succeeds in setting the directionality parameter by virtue of the Rhythmic Activation Principle which says that if the child hears a weak-strong pattern within the phonological phrase s/he will set the parameter on [right recursive], while the opposite pattern will give rise to left recursive structures.

b. Syntactic Bootstrapping (the non-root orientation): Following Roeper and Weissenborn (1990) and Penner (1992, 1994) one might want to assume that it is by virtue of focussing on the subordinate clause (as well as embedded infinitives) as the triggering domain that the child succeeds in settling the problem of the contradictory input data in (7).

What causes delays or deviations from the target grammar? We would like to argue that whenever the learning procedure of a given parameter involves cross-modular triggering, the child may not be capable of setting

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5 Now again we can argue that forms which involve category-changing are not relevant to the Head Parameter. Since "pancake-eating" is either a noun or an adjective, then it would be ineligible. But now the child must identify in advance that "pancake-eating" is a noun or an adjective. We believe that this reasoning is still incomplete. In each instance when a trigger is hypothesized, it is only unambiguous if one assumes the child has knowledge of other features. However it is often the case that we cannot assume that the child has identified those features in advance. This discussion refers to the problem of "epistemological priority" discussed in Chomsky (1965). See Roeper (1996) for discussion.
the parameter immediately. Let us consider an example of where evidence can be confusing:

12. a. everybody helps themselves.
   b. *every boy helps themselves
   c. every boy helps himself

The challenge for an acquisition system is to guarantee that a child who hears (12a), an extremely common utterance in nursery schools, does not extend it to (12b), which is ungrammatical, but allows only (12c). What is crucial to this distinction? The lexical item "everybody" is a singular form but it has (sometimes) lost the distributive force of the "every" inside the compound. Therefore it can be treated as a plural. However, if no compound is present as in (12b), "every boy", then the sentence must be treated distributively. If the child failed to recognize (12a) as a compound then the extension from "everybody" to "every boy" would be as natural as the extension of "every boy" to "every girl", a kind of productivity which is crucial to the very notion of a grammar.

How can we prevent this overextension? The answer is not entirely clear. But it is clear that the child cannot assume that every instance of "every" must be treated non-quantificationally as in "everybody", because it will then generate (12b). If (12b) is generated, one might imagine that (12c) will eliminate it, under a view of "uniqueness" that the quantifier must be distributional if there is evidence for it being distributional. However this argument fails since the sentence in (13), which is the quantificational use of "everybody", exists side-by-side with (12a) and does not eliminate (12a) for adults:

13. everybody helps himself

We have arrived at a classic negative evidence problem. Nothing would prove that (12b) is wrong if the child uttered it. Therefore we want to build the system to prevent this overgeneralization. This is the learnability logic which lies behind the doctrine that the system should be built to avoid false steps. How can it be done? The answer is far from clear. It is however clear that the trigger system must be cross-modular. Let us carry
Chapter 7: The Acquisition of Subordination

our illustration forward. In effect, we must argue that the relevant trigger says:

14. Trigger condition A:
   "If it is a possible quantifier, and it is not in a compound, then it should produce a distributive reading"

Further:

15. Trigger condition B:
   "It is not in a compound, if no compound intonation is present"

Note that this negative requirement in effect forces part of the intonation system to have been acquired. In this sense, the trigger is cross-modular in the sense that the child has to combine infromations from prosodic, syntactic and semantic sources. If the child has not recognized the difference between compound and non-compound intonation, then s/he cannot distinguish between "every boy" and "everybody". Without this distinction the overgeneralization is unstoppable. In this respect, the child would have to wait until part of the phonology is determined, before it could decide on the application of a general rule of semantics, namely the quantifier-variable relation.

This kind of cross-modular trigger is sufficiently complex that it may well require specific kinds of exposure to examples to set subparts of a complex trigger. The appearance of those crucial examples just at the point where a child is sensitive to them may in turn require that they need time to be established. For instance, the intonational trigger may also involve phonetic contingencies that have to be fixed. Moreover, one would expect substantial individual variation in when various triggers are fixed. Chomsky (1969) argued that some children learned the object movement property of "easy" at five years and others do not acquire it until nine years. Although the particular claim may not prove correct (children may tough-movement earlier), the time differences may not be atypical.

In sum, we assume that parameters can be set immediately if the relevant trigger can be detected within one single module. A delay in
parameter setting is natural if the learning procedure involves cross-modular triggering. In this sense, the question of whether children possess all of the ability stipulated by Universal Grammar from early on (in the sense of Crain (1990)) becomes less central. The core question linked to the Strong Continuity Hypothesis is not whether or not children are able to execute basic operations such as subordination, Move-alpha, or LF-movement from early on, but rather what the child does if the trigger ingredients are not immediately available to fix language particular knowledge unerringly. This question concerns not only which interim solutions are licit, but also how parameters must be ordered in their acquisition in order to prevent potential mistriggering of the sort our examples about compounds illustrate.

There are primarily two options here for the child. One is to remain silent and not use constructions which resist analysis. In fact, children hear hundreds of passives every day and do not use them for months and years. The other is to utilize a default representation which is automatically replaced when a new analysis, which involves more structure, arises. In his (1995) paper Weissenborn proposes that interim grammars are subject to the so-called Local Well-Formedness Constraint. This principle says that each representation of the child's utterances is locally well-formed, i.e. it is included within a higher projection in the sense of Grimshaw's 1991 theory of extended projections. In the present paper we would like to pursue this kind of research from a slightly different view. We will argue that when the acquisition task involves cross-modular triggering the learning procedure is likely to be stepwise. Intermediate stages would be reflections of a Minimal Default Grammar in the sense that they involve a subset of the defaults made available by Universal Grammar. All the default solutions made use of by the child will be defined in terms of "economy of derivation or economy of representation". The definition of "Default" means that when another analysis is triggered, then it is immediately preferred:

16. Default:
   a. A representation defined by Minimal Default Grammar

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6. S. de Villiers and Roeper (1992) and Clark ( ) for ordered parameter setting in terms of mathematical learnability.
b. A default representation is eliminated by any language particular representation

Given these theoretical considerations, we will examine the acquisition of idiomatic reading in subordinate clauses in Bernese Swiss German. We will argue that the learning procedure involves cross-modular triggering and is therefore forced to resort to interim representations. The cross-modular character of acquiring the idiomatic reading in subordinate clauses is rooted in the fact that, inter alia, the child has to specify the features [+Variable], [+CP Complement] (embedding under sisterhood], and [+Focus] which combine prosodic, syntactic, and semantic information. This feature cluster is specified stepwise until the end of the fifth year of age, and the child is forced to resort to interim default solutions until all the relevant decisions have been made. As long as the feature cluster linked to subordination is underspecified, the child entertains a more economical form of the subordinate clause, namely overextending the adjunction option as default. This default choice is eliminated as soon as the language specific representation is acquired. On the assumption that adjuncts are inherently compositional, this choice blocks idiomatic reading in subordinate clauses.

2. **Phrases as Projections of Formal Features and Idiomatic Interpretation**

What formal features are required on the head of a complement in order to make an idiomatic interpretation possible? We must be very careful about the rules of composition that grammar involves. Chomsky (1995) has recently proposed that Merger is the fundamental building block of phrases, rather than X-bar theory or phrase structure. Merger allows any two categories to combine under the operation of Merge. When Merge occurs, one category must dominate and function as the Head while the other is either a Specifier or a complement.\(^7\)

We will not proceed into the details of this claim, but rather seek to articulate the intuition in terms of acquisition data. How abstract are the structures that a child uses? How abstract are the operations that are involved? Acquisition should provide special insight into that question for

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\(^7\)See Roeper (1996) and Powers (1995) for application of Merge to acquisition data.
the following reason. We know that no grammar can be acquired instantaneously. The steps should reveal what level of abstraction is involved. Consider the question of grammatical categories. Does the child utilize a definition of a node in terms of grammatical categories or are more abstract elements at work? Chomsky has substituted traditional categories like NP, VP, etc. into a larger set which includes both lexically specific and semantic features, which are called *Formal Features*. In brief, Chomsky argues that we can imagine that one lexical item itself is chosen to dominate the node. In principle, the consequence of this perspective for acquisition is twofold:

a. We should find "undergeneralization", namely, the ability of the child to define a complement in terms of a particular lexical item (for instance the word *hope*), and

b. Given that complements are selected in a rather idiosyncratic way, we should find that the children may not have identified all of the Formal Features of a particular lexical item, for instance, saying "I'm strong to do that" suggests that *strong* took a simple complement ("strong to do that") like with the adjective ("eager to please"). In fact it allows a complement only if there is a further subcategorization of Degree Phrase [e.g. *strong enough* to do that].

Let us consider an example which, in fact, contributes to the claim that Formal Features and not grammatical categories which reflect subcategorization. Consider the following paradigm:

17. a. put the cake away
   b. John put the cake in the cupboard
   c. John put the cake here

The verb *put* is followed by either a particle, PP, or an NP (unless "here" is an adverb). It has traditionally been argued that verbs carry subcategorizations which are stated primarily in categorial terms. However it is clear that the verb *put* does not really require a particular category, like PP, but rather a thematic role, like LOCATIVE. However earlier theories required that thematic roles be "selectional restrictions" which are added to subcategorizations. However this clearly fails to be an accurate version of *put* since it does require a locative, but does not require a PP. Therefore subcategorization should be restated in terms of a series of required
Formal Features, LOC in this case, and not a set of categorically defined subcategorizations frames.

Now let us ask a question about how idioms are represented in terms of Formal Features. The basic assumption is that they must also undergo a kind of composition with a higher phrase. It is clear that it is possible to have both adjoined idioms and idioms which constitute just part of a phrase (i.e. in either the subject or the object position):

18. a. John came, by golly
   b. Bill said that John kicked the bucket
   c. John knows what's what/who's who

Each of these idioms has a different representation. The first (18a) involves adjunction of an idiom where the idiom modifies the entire previous sentence. If we represent the phrase with the idiom as a head with a feature like [Sentence Adverb], then we have a representation which involves the same Formal Feature as speaker adverbs (e.g. "unfortunately"):

19.

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  Idiom
 [S,+AD
  v]
 /     \
S       \ Idiom
 /           \       
John came   by golly
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The second example (18b) involves a declarative idiom which occurs within a fixed VP domain which happens to be in a subordinate clause embedded as the sister of the matrix verb. As no special selectional restrictions hold in this case, the embedded idiom should show no difference from an idiom that is not embedded, such as John kicked the bucket. In effect, then, the idiom is encapsulated and despite being an idiom, it bears a compositional relation to the main clause.
The third idiom (18c) has the interpretation:

20. a. who's who = who is important/unimportant, or
    b. what's what = what is significant and what is insignificant

In contrast with (18b), (18c) has a special property because it is specifically subcategorized by the higher verb: know. It is not really free to appear with other verbs. Thus it is ungrammatical in (21a) and has a different meaning in (21b):

21. a. "John believes who is who"*
    b. John identifies, in each picture, who's who.

(21b) means "fits names to faces", but not "who is important". It also engages a special property of the verb know namely that it can take an indirect question. That is usually represented by the fact that the CP is marked with a [+wh] form.

Consider now the case of a form which both appears by itself and as a subcategorized element. This is true for the following case:

22. a. who's who around here
    b. I know who's who.

The interesting fact is that the idiom must be learned in two contexts because it can exist on its own and it participates in the specific subcategorization of the verb. The verb know is thus linked to the Formal Features [+wh, +idiom].

We now turn to the question of what type of subordination is compatible with an idiomatic reading. As shown in (23), if the idiom is adjoined (e.g. as an adverbial or a free relative) the non-referential reading "who is important" is lost (note that (23b) is a possible representation, but not at all what (20a) means):

\footnote{Note that it is specifically the idiom which is excluded. If we translate "who is who" into "who is important", then it is possible to have the phrase:
    i. John believes who(ever) is important}
23. a. *I know in a who's who kind of way
   b. *What I know is that who is who

The incompatibility of adjunction and idiomatic reading holds also for Bernese Swiss German. So, for instance the complement clauses of *(nid) wüsste "(not) know" in (24a-b) can equally be interpreted as idiomatic or referential:

24. a. i weiss, wo dr Schue drückt
   I know where the shoe pinches
   "I know where the trouble is"
   b. i weiss nid, was i dert verlore ha
   I know not what I there lost have
   "it's none of my business"

However, if the subordinate clause is marked as adjoined, idiomatic interpretation cannot be maintained. This is the case not only with free relatives, but also with extraposed clauses. Cf., for instance (25) where the topicalized main clause antecedent das "that" explicitly marks the subordinate clause as being extraposed:

25. DAS weiss i nid was er da verloore het
   DAS know I not what he here lost has
   ..........what he lost here
   * ..........it's none of his business

The incompatibility of idioms and adjuncts follow from a UG principle which says that adjuncts are necessarily compositional in their relation to a larger clause. In order to have an idiomatic complement, which bears a non-compositional relation to the matrix clause, linked to a particular verb, the complement must be selected and therefore cannot be an adjunct.

We thus conclude that the idiomatic reading is possible if the Formal Features are specified as [+CP complement]. In certain cases (as in (18c) the idiosyncratic features [+wh, +idiom] must be specified as well. The prediction is thus straightforward: If the child adjoins the idiom, rather than embedding it under sisterhood, it will lose its idiomatic reading until the point where the idiom itself is selected with all of the Formal Feature [+CP complement]. How can the child acquire this feature? Our main claim is that the feature [+CP Complement] presupposes the acquisition of [+Focus, + (Bound) Variable]. More precisely, we will argue that, following Penner (1996), that in German the feature [+CP Complement] is secondarily
derived from the so-called "domain extension", and that the latter is triggered by identifying long-distance extractions as tailed by a gap ("bound variable") rather than a resumptive pronoun (cf. also Frank (1992)). The feature [+Variable], in turn, is tightly related to [+Focus] in the sense of Rizzi (1996) which u.a. marks an operator as quantificational.

Let us now briefly explain this hypothesis. It has been repeatedly proposed that complement clauses in German and Dutch have a dual status with regard to their position in the tree (cf., inter alia, Koster (1987, Bayer (1990, 1995) and Schönenerberger and Penner (1994, 1995) for Swiss German). On the one hand, they are underlyingly extraposed (adjoined). This is rendered visible not only by the fact that, in contrast with the OV character of the language, complement clauses occur to the right-side of the matrix verb, but also by certain islandhood effects (strong subjacency, LF opacity of focus particles (narrow scope), free insertion of main clause antecedents as in (25), etc.). On the other hand, complement clauses display several properties of clauses embedded under sisterhood. More precisely, the subordinate clause is transparent for long-distance movement both in the syntax and LF as well as for the idiomatic reading. In order to account for the dual status of complement clauses in Dutch and German, Bayer (1990, 1995), following Koster (1987) and Hoekstra (1987), proposes a marked "last resort strategy" by virtue of which domain extension takes place. That is, the extraposed (or adjoined) clause can be treated as a quasi-embedded complement due to a process of restructuring.

From the point of view of learnability, the main question is: What is the triggering mechanism for domain extension? The child is exposed to highly contradictory input with regard to the X-bar status of sentential complementation in German. On the one hand, upon hearing the frequent main clause antecedent patterns (such as (25)), the child is likely to opt for the extraposition structure. On the other hand, the child might change her mind, once s/he is exposed to long-distance patterns which are extremely productive in the input (especially in the southern varieties which lack the that-t effect). Licensing long-distance movement and other transparency effects suggest that, although being extraposed, the complement clause is lexically governed, that is it undergoes some
restructuring in order for the intrinsic islandhood of adjoined clauses to be voided. One possible solution is the domain extension hypothesis.°

This account leaves open a question: Does exposure to adult long-distance questions trigger domain extension? Given standard assumption on wh movement, we have to assume that long-distance extractions can be interpreted as "violating" island constraints only if their representations involve gaps (traces) which are subject to the Empty Category Principle as in (26):

26. was[i hat er gesagt [t[i dass er t[i getan hat]
               [what has he said     that he done has]

At what stage does the child acquire these representations? De Villiers, Roeper, and Vainikka (1990), Roeper and de Villiers (1992), and Pérez-Leroux (1993) argue that long-distance movement as a fully-specified bound-variable configuration (i.e. operator-trace chain) is not available in all relevant patterns from the onset, but emerges stepwise.° Instead, the child uses an empty or overt constant (with a non-variable interpretation) until s/he acquires the [+Variable] feature. The basic assumption is that until a [+Variable] empty category is part of a chain, instead of [operator .... (null) constant], the adult grammar is not acquired. The null constant concept originated in work by Lasnik and Stowell (1991) and was extended to acquisition by Rizzi (1994). The argument is developed to account for chains that reach into adjuncts, like:

27. who[i was it easy [Operator[i for his mother to help Null Constant]]

Here no strong crossover arises because there is no trace, but a Null Constant instead. The variable interpretation of wh- is not recognized, but Lasnik and Stowell (1991) argue that a similar interpretation is available if it is treated as a plural. As with resumptive pronouns (cf. Sells (1984)), the null constant structure is systematically exempted from subadjacency and other barrierhood constraints. That is, as long as the child maps long-

° An alternative could be developed within the Kayne approach, but we are not sure that it would have an impact upon acquisition decisions

° Adverbal adjuncts of the type "why" have an exceptional status in this regard.
distance data onto a null constant representation, s/he will fail to represent island violations (s. (26)).

These observations are completed by the studies on the acquisition of bound-variable interpretation in bare wh questions in main clauses reported on in Penner (1994, 1996). On the bound-variable-reading, a question of the type *whom did you see?* is said to denote the set of pairs of objects and the description denoted by the predicate [you saw]. Thus the answer to such a question is expected to be a complete list of propositions of the type *I saw John, I saw Bill, I saw Mary,* and so on. In this sense, we may say that the bound-variable-reading is distributive and, under unmarked pragmatic conditions, exhaustive (i.e. exhaustive pair reading). In more formal terms, the bound-variable-reading is assigned the following notation. The naturalistic data show that children initially fail to give answers associated with the exhaustive pair reading. The child's preference for the singleton answer (i.e. interpreting the gap as a constant) is illustrated by an example taken from J.'s corpus (Age: 2;0,23. Situation: After lunch; J. has just watched his sister Naomi and her friend Jaennine leaving for school):

28. F: wär isch id Schueu ggangen?
   who is to the school gone
   "who went to school?"
   J: Nomi
   F: und wär no?
   "and who else?"
   J: Jeannine

The gap is thus interpreted as a singleton or a null epithet. On this view, if the empty category [e] in a question of the type *whom did you see?* is assigned the status of a null constant, rather than a variable, it will not be

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11. We have good evidence from a variety of experiments that children are sensitive to barriers at 3yrs for adjunct-extraction. Here one can argue that there is no NC for adjuncts. Therefore we predict that precisely in this case barrier effects and subjacency should be present. In addition, the Op....NC chain is also licensed in some manner and though occurring with optional adjuncts, still must be licensed by a verb class. For instance:

*John is twelve to surprise his grandfather*

is excluded because stative-be does not take a purpose clause. Therefore we need a more refined typology for adjunction. That is, some optional phrases, like purpose clauses, are weakly licensed by verbs and therefore an Op....NC chain is licensed as well.
interpreted as ranging over the things which are "persons such that you saw them", but rather as "one single person such that you saw him".

In an experimental study on the acquisition of the exhaustive pair reading in Early Bernese conducted at the university day care we presented children (among other tasks) pairs of pictures of the type:

![Picture]

encouraging them to give exhaustive answers to questions like "who is wearing a headscarf?", "who is wearing a hat?", etc. The results of these tests suggest that the Bernese speakers acquire the bound-variable-reading, abandoning the overextended null constant construal late in the time period between 3;6 and 4;0. In sum, a wide range of both spontaneous as well as experimental data supports the hypothesis that children do not acquire the feature Focus until late in the fourth year of life.

It remains unclear what the trigger for a variable will be. Each proposal has a possible escape. If the child encounters a context with a non-single reference, then it might trigger the notion of variable, or it might be represented via the notion of plural (as we illustrated with forms like "everybody" above). It is also possible that maturation plays a role. Perhaps long-distance wh-extractions will generate a bound-variable chain as soon as such a representation is maturationally possible, but not before. These are options that further research should clarify. While the emergence of the feature [+Variable] is subject to speculation, it would be plausible to assume that it is closely related to [Focus]. Rizzi (1996) has argued, following Cinque (1990), that the Focus position (in constrast with the topic) entails a variable interpretation. This follows from the notion that Focus entails a Contrast Set, which entails a variable interpretation. Evidence for the assumption that Focus is quantificational comes, inter alia, from the observation that topics never give rise to any weak-crossover effect, while it is absent in Foucs constructions as in (29):

29. a. Gianni (TOP), sua madre lo ha sempre apprezzato
   "Gianni, his mother always appreciated him"
b. ??GIANNI sua madre lo ha sempre apprezzato (non Piero)

In Rizzi’s system the Focus Phrase is in fact distinct from the CP. We shall not enter that discussion here, but limit ourselves to a discussion of what the child must acquire in addition to the notion of subordination. One possible assumption is that the bound-variable chains emerge once the child adds the feature [+Focus] to the wh operator. Confining ourselves to main clause questions, it might be that the child starts out with a representation which involves a wh operator marked as [+Topic, -Focus], that is, the wh element is linked to old, but not to new information. This feature specification leads to the non-quantificational [operator ... constant] chain. Around the age of 4;0 the wh operator is assigned [-Topic, +Focus]. Given that the wh operator is now quantificational, this automatically gives rise a bound-variable chain. From the acquisition perspective, [+Variable] is a subfeature of [+Focus]. This means that the feature [+Focus] is a prerequisite for the acquisition of [+Variable], hence must precede the feature [+Idiom].

Interestingly enough the Focus feature is associated with the idiomatic reading independently of wh constructions. Geilfuss (1991:50 ff.) has demonstrated that subordinate idioms are interpreted referentially (i.e. non-idioimatically) unless they are focussed as a whole. For instance, he observes that in German one cannot place contrastive focus on a part of an idiom. So, for instance, one cannot take part of the idiom in Kauf nehmen "take-in-buy > accept, risk, take into consideration" and topicalize it (note that the raised phrase bears focus stress):

30. *in KAUF hat er diese Niederlage genommen
    in BUY has he this defeat taken

According to Geilfuss, this follows if an idiom in a subordinate clause must entail a FOCUS feature and therefore cannot receive a further Focus-marking. In effect the idiom binding that exists among the parts of an idiom are in complementary distribution with the Focus Phrase, which can be captured under the assumption that idioms entail Focus.
Turning now to the acquisition of non-interrogative (-wh) Focus, there is early evidence from C. Chomsky (1970) that children will get some form of contrastive stress, but not properly focused constituents. Roeper likewise (pc) reports that four year olds exposed to (31a-b) in unpublished work:

31. a. John didn't run UP the hill.
    b. John didn't eat ALL the soup

would answer "he walked" (adults: "down") and "he ate bread" (adults: "SOME of the soup"), respectively. We thus have some preliminary evidence that children around the age of 4;0 still assign focus in an improper way\(^{12}\).

Given these data, it would be plausible to assume that the acquisition of the [Focus/Variable] complex start short before 4;0, being established piecemeal in the subsequent period.

3. Predictions

Our point of departure is that, in order to be able to identify idiomatic readings in subordinate clauses, the child must acquire the feature cluster [+CP Complement, +Focus, +Variable]. In some cases the idiom is selected by specific verbs which are specified as [+Wh, +Idiom]. Converting first on the non-idiosyncratic features [+CP complement, +Focus, +Variable], this cluster is by no means an unordered set of features. As alluded to above two types of dependencies arise:

a. The feature [Variable] is tightly linked to [Focus]. In fact, it has been suggested that [Variable] is a subfeature of the more general [Focus].

b. In languages like (Swiss-) German and Dutch the feature [CP complement] is taken to reflect the application of domain extension. As such it can be detected by the child only if the feature [Variable] is available.

\(^{12}\)There is a substantial sequence of unpublished work that leads in e direction of the claim that children will misconstrue contrastive focal stress, beginning with C.Chomsky (1971) and more recently with work by Jill deVilliers who tested 22 3-5 yr old children on sentences of the form:

- it is not the big PINK treasure troll
- The 3-4 yr olds constued the stress as being on Big and not pink.
In the terminology employed here, this is a case cross-modal learning which demands a combination of information from different sources. More precisely, the child combines the knowledge concerning the identity of the empty category and constraints on long-distance movements (the Empty Category Principle) in order to dismantle the type of subordination involved. As suggested above, the cross-modal character of the learning procedure gives rise to a developmental delay which forces the child to resort to interim solutions.

The Minimal Default Grammar Hypothesis then determines the form of the child’s interim solution. Following Lebeaux (1988), Penner (1996), and Roeper and de Villiers (1994), we would like to suggest that children initially treat complement clauses as adjuncts, a view which has received support since the work of Tavakolian (1978). Thus, initially, the child would give an adjunct representation to (32a,c), which are unequivocally marked as exoraposed by the main clauses antecedents (so, it) as well as to (32b), which is ambiguous between adjunct and complement, and (32d) which is unequivocally a complement-by-sisterhood:

32. a. John yelled so that Bill could hear him
   b. John yelled that Bill could hear him
   c. John believes it that Bill is here
   d. John believes that Bill is here

Analogously, children would treat indirect questions (wh complements) on a par with free relatives:

33. a. John asked what Bill wants
   b. John will give him what (-ever) he wants

The underlying structure of the subordinate clauses at this stage involves a null constant chain:

34. John asked [what Bill wants Null Constant]

If this assumption is basically correct, the child’s subordinate clauses are generally adjuncts, hence compositional in their relation to the larger
clause. **This is compositional in the fundamental sense in which all discourse requires a compositional interpretation of a sequence of sentences.** As claimed above, idiomatic readings demands the feature [+CP Complement] and is ruled out if there is a compositional relationship between the matrix and the subordinate clause. Our account thus predicts that the child will not be able to recognize idioms in subordinate clauses prior to the acquisition of [Variable] and domain extension. In other words, idioms like *John knows who's who* will be interpreted by the child as "pairing faces with individuals" (in the singleton reading "pairing one face with one person") rather than "who is important".

When does the child drop the generalized adjunct option? It is argued in Penner (1996) that the transition to a grammar with CP complements (i.e. domain extension in Swiss German) takes place between 4;0 and 5;0 shortly after the acquisition of the feature [Variable] around 3;9 in main clause questions (s. above). The data provide us with evidence that in the period between 4;0 and 5;0 the child starts distinguishing between CP adjuncts and CP complements in a systematic way. As a first step (around 4;0), the child marks all declarative CP complements with the target *dass* "that" as opposed to all CP adjuncts which are introduced by the preposition *bis* "until" (mainly instead of the target *dass* in purpose clauses). Some typical examples are given in (35):

35. a. J. (4;00,02): Complement u nächher het er Fröid gha, **dass** dr Muulwurf cho isch and afterwards has he pleasure had that the mole come is "and afterwards he was happy that the mole has come"
   
   b. J. (4;00,10): Adjunct (purpose clause) V: werum isch ds Fänschter offe? F: why is the window open? J: *BIS* i dr Zug besser ghööre J: "until" I the train better hear "in order to hear the train better" (target: dass i dr Zug besser ghööre)
   
   c. J. (4;03,12): Adjunct (purpose clause) V: für was tuet d'Ima ds Zimmer ufruume? F: for what does Mamy the room tidy "why (for what reason) does Mamy tidy your room?" J: *BIS* me cha wider es Puff mache J: "until" we can again a mess make "in order that we can mess it up again" (target: dass me cha wider es Puff mache)
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The preposition *bis* as a generalized, target-inconsistent marker of purpose clauses disappears at 4;11 being replaced by the target *dass* "that". One of the first examples is given in (36):

36. J. (4;11,11)
   V: für was tuet d'Ima ufruume?
   F: for what does mother tidy-up
   J: *dass* es nimm dräckchig isch
      that it no more dirty is

The emergence of the target *dass* in purpose clauses of this type marks a dramatic decrease from nearly 100% (*n* = 131 *bis* purpose clauses until 4;11) to 0%. At the same time, wh complements with doubly-filled COMP emerge (wh word + *dass*). Since doubly-filled COMPs are ruled out in free relatives, we will take it that it unequivocally marks the wh subordinate clauses as [+CP Complements] (cf. Bader and Penner (1990)):

37. J. (4;10,13)
   i wott wüsse [CP **wi lang** [C *dass* [mis Mami tuet (dusche)]]]
   I want know how long that my mother does (take a shower)
   "I want to know how long Mummy will take a shower"

Notice that the doubly-filled COMP is obligatory with complex wh phrases in SPEC,CP. We will thus assume that at this late point not only the complement/adjunct distinction is established, but also the subcategorization features of the CP ([±Wh]) and the COMP-internal features in complement clauses. At this point of development all the structural prerequisites necessary for the identification of embedded idioms are available to the child. Given our analysis, we now expect the idiomatic reading in subordinate clauses to emerge around 4;10. The experiment reported on in the next section shows that this prediction is indeed borne out.

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13. The fact that the acquisition of complementation features is a long and piecemeal process is discussed in detail in Roeper and de Villiers (19...), Philip and de Villiers (19...), and Pérez-Leroux and Schultz, deVilliers (19...).  
14. There is an interesting further hypothesis which it is useful to articulate although we shall not examine it within the scope of this paper. If Domain Extension is an independent operation, then we predict that idioms may be treated as adjoined for a longer period in German than in English where no Extraposition operation is required to place the complement on the right. If, however, Kayne is right that
4. The Experiment

In order to scrutinize our working hypothesis we performed a comprehension experiment which explored the three to six years old's sensitivity to idiomatic reading in subordinate clause. In what follows I will briefly summarize the design and results of the experiment. For more details cf. Penner et al. (1994). The experiment examines the comprehension of two idioms, namely the "wh idiom" wo drückt dr Schue? "where the shoe pinches/what is the trouble?" (17 children) and the declarative idiom uf en Arm näh "to take on the arm/to cheat" (16 children). Both idioms can occur in root as well as in embedded clauses. They are thus not selected by a specific matrix verb. In this sense the acquisition of the idiomatic reading in the subordinate clauses in these two tasks is independent of idiosyncratic learning of item-specific features. The subordinate clause versions are given in (38)

38. a. er wüssi, wo dr Schue drückt
   he knows where the shoe pinches
   "he knows where the trouble is"
   b. Meinsch, dass dr Vater ne uf en Arm nimmt?
   do you think, that father ihm on the arm takes?
   "do you thionk father cheated him?"

We are now in a position to make a crucial distinction. If the subordinate clauses are attached as adjuncts, then a compositonal, non-idiomatic reading must be preferred. Therefore we predict that some children will acquire knowledge of matrix idioms but be unable to project an idiomatic connection between a verb and a subcategorized complement:

Hypothesis: some children must project subordinate clauses as adjuncts,

therefore as non-idioms

Prediction: some children will utilize the idiomatic reading for the matrix clause only.

We would predict no difference in the point of idiom-acquisition in the two languages.

both German and English are SVO languages, then we would predict no difference in the point of idiom-acquisition in the two languages.
Set-up: The children were told two stories in which the idioms occurred twice: once in a tutorial part which ensured that the children mastered the idiomatic reading in root clauses, and once in the main story in an embedded environment (i.e. as a complement of a matrix verb). Both the Bernese text and its High German glosses are found in the appendix of this chapter. At the end of the main story the children's comprehension of the complement idiom was controlled. The results are represented in the chart (39):

In the case of the wh idiom \textit{wo drückt dr Schue}, 80\% of the children under the age of 4;7 clearly preferred the referential reading "where the shoe pinches". By contrast, children older than 4;8 show a clear preference for idiomatic reading. Things are more intricate in the case of the declarative idiom \textit{uf en Arm näh} "to take on the arm/to cheat". In the younger group (under 4;7) none of the children opted for the idiomatic reading. In the second group only the oldest child (5;9) gave the idiomatic answer.

There is, however, another significant result, namely what Penner et al. (1994) dub as \textit{schwankende Antworten} "swaying answers", i.e. variable answers. These answers were provided by children between the ages of 4;5 and 5;7:

- Children unequivocally articulated their idiomatic interpretation during the main story
- and rejected it as soon as they heard the idiom as a subordinate clause.

The existence of this group is precisely what our hypothesis predicts. These answers express the tension between the preference of the idiomatic reading on pragmatic grounds and its rejection on grammatical grounds.

These results indicate that the idiomatic reading in subordinate clauses is unavailable for children until the age of 4-5yrs, a fact which is best accounted for by assuming that complement clauses up to this age are uniformly treated as adjuncts (or extraposed complements). At the age of 4;8 children master idiomatic readings both in main and subordinate
clauses. Given the analysis developed here, this shift is amenable to the fact that the domain extension strategy has become operative. We will assume the following succession of "triggering events":

Initially, long extraction cannot figure as a trigger for the [+CP Complement] option due to the fact that long extraction configurations involve a null constant (or a related empty category) in the gap position, hence unlikely to be interpreted as movement structures. Shortly before the age of 4;0 the bound variable reading becomes generally available in main clause questions. Long extractions can now be interpreted as instances of wh movement tailed by a gap. Once long extractions are interpreted in this way, the complement clause can be recognized as having undergone some re-analysis. The child is now in the position to relate the feature [+CP Complement] to the mechanism of domain extension. Once the subordinate clause is analyzed as a lexically governed CP complement the compositionality effect of adjuncts is voided and the embedded clause can be assigned idiomatic reading.

Idiomatic reading in subordinate clauses becomes available first in wh-complements. In fact, there is a time span of fourteen months between the acquisition of idiomatic reading in wh versus declarative complements. We assume that the discrepancy between wh- and declarative complements falls out from the way children treat declarative complements in Bernese. It must be pointed out here that, whereas the fully-fledged COMP structure of wh complements is available to the child in form of doubly-filled COMP at 4;10 (s. (37)), declarative complements of assertive verbs (say, believe, think) are uniformly built as (target-consistent) V2 clauses at this time. As shown in Penner (1996), V2 declarative complements of the type (40a) become productive at 3;5. Until 5;6 there are no cases attested in which the counterpart with dass "that" (40b) occur:

40. a. J. (3;05,15)
   i ha gmeint das sig Chueche
   i have thought this be (subjunctive 3.sg.) cake
   "I thought it was a cake"

b. The dass version:
   i ha gmeint dass das Chueche isch
   i have thought that this cake is
"I thought that it was a cake"

Recall now that the embedded declarative idiom (38b) is a dass complement of an assertive verb. As such this type of complementation is not available to the child until late between 5;0 and 6;0. This accounts for the delay in assigning idiomatic reading to this type of complement clauses.

Conclusion:

We have sought to articulate the inevitable intricacy of the trigger mechanism in language. It is clear that, in Chomsky's terms (1975), the child is exposed to "triggering experience" where the term "experience" implies an array of factors relevant to a successful language particular decision. We have argued that the acquisition of subordinate idioms reveals the connection between a) lexical information, and b) a variety of required Formal Features. These features are not all initially present in subordinate clauses. Therefore we were able to predict that subordinate clause idioms are acquired after the same idiom occurs in a matrix clause. The subordinate clause idiom requires the child to project a subordinated CP linked to Focus and Variable features.

Until language particular decisions are made, the child employs a Default Grammar that is defineable in terms of Minimalist Principles of Economy. These principles are also intuitively natural: they predict that less structure is projected whenever possible.

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APPENDIX: THE BERNESE AND HIGH GERMAN TEXTS OF THE IDIOM EXPERIMENTS

Idiom 1: Sagen, wo der Schuh drückt

a) Bernese


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[20] So, itz isch die Gschicht scho fertig. [21] Dr Pingu het natürlich
nid so guet ufpaasst wi du. [22] Was het dr Vater vom Dani gseit?
[23] [Wo d’Mueter ganz besorgt gfragt het, was de ömu o los sigi?]
[24] Dr Vater het auso gseit, är wüssi scho, wo dr Schue drückt. [25]
Wie het äch dr Vater das gmeint?

b) High German Version

aufpassen, weil du sie vielleicht dann dem Pingu erzählen musst. [3]
Der Pingu ist nicht so ein lieber wie du, und er passt meistens nicht
auf.
Kuchen, sie sieht Daniel dort sitzen und geht auf ihn zu. [7] «Wo
drückt der Schuh, Daniel?» fragt sie ihn mitleidvoll. – [8] Darauf sagt
sagt man, wenn man wissen will, warum jemand traurig ist», sagt
jetzt auch Bruno, weil er jetzt verstanden hat, dass man das fragt,
verloren hat.
Daniel wollte zu Hause bleiben und fernsehen. [14] Sein Vater hat es
ihm aber nicht erlaubt. [15] «bei solch herrlichem Wetter geht man
doch wandern!» sagte der Vater. [16] Der Vater brachte Daniels
Wanderschuhe, weil sie mit der ganzen Familie an die Aare gehen
wollten. [17] Sie sind kaum aus dem Haus, als Daniel sich auf den
Boden setzt und nicht mehr weiterlaufen will. [18] Seine Mutter fragt
weiss schon, wo der Schuh drückt!»
natürlich nicht so gut aufgepasst wie du. [22] Was hat der Vater von
Daniel gesagt? [23] [Als die Mutter ganz besorgt gefragt hat, was
denn auch los sei?] [24] Der Vater hat also gesagt, er wisse schon,
wo der Schuh drückt. [25] Wie hat er das wohl gemeint?
Idiom 2: Auf den Arm nehmen

a) Bernese Version


b) High German Version
