Was für N Interrogatives and Quantifier Scope in English-German Interpretation

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1. Interpretation and L2 grammatical knowledge

A central issue in nonnative language (L2) research is the degree to which L2 grammars are epistemologically equivalent to grammars acquired in native language (L1) acquisition. Of relevance here is the investigation of the acquisition of grammatical phenomena in the Target Language, which (1) represent a severe of poverty of the stimulus in that natural analogical extension of the input would lead to overgeneralization, (2) are not directly instantiated in the learners’ L1, and (3) are not the object of classroom instruction. One particularly probative grammatical domain is offered by idiosyncratic syntax-semantics interface properties. This is because it is in principle possible that L2ers might develop syntactic systems that are extensionally equivalent to systems acquired in L1 acquisition within a particular domain, even though the two systems might be fundamentally different at a deeper epistemological level. It is extremely implausible that epistemologically nonequivalent systems would agree not only in licensing the same patterns, but also in constraining the interpretations of such patterns in the same highly idiosyncratic ways. Several previous studies have pointed to the conclusion that L2 grammars are epistemologically equivalent to L1 grammars on the basis of such phenomena, including: Dekydtspotter, Sprouse & Anderson (1997) on process vs. result interpretations of double genitives in English-French interlanguage; Slabakova (1997) on telic vs. atelic interpretations of verbs in Slavic-English; Kanno (1998) and Pérez-Leroux & Glass (1999) on bound variable vs. deictic interpretations of overt pronouns in English-Japanese and English-Spanish interlanguage respectively; Dekydtspotter, Sprouse & Thyre (1999/2000) on single-event vs. multiple-event interpretations of quantifiers in adverbial position in English-French interlanguage; Dekydtspotter, Sprouse & Gibson (2001) on the interpretation of internally headed versus externally headed relatives in English-French interlanguage, Anderson (2002) on presupposition vs. non-presupposition of uniqueness of the noun referent in attributive adjectival constructions in English-French interlanguage; among others. This paper is intended to offer an additional contribution to this body of research.

In this paper, we investigate constraints on quantifier scope in the acquisition of continuous and discontinuous was für ‘what for’ interrogatives in English-German interlanguage. We focus on interpretive properties of was für ‘what for’ interrogatives due to scope. These meet the three criteria for relevance in studies of this nature: (1) they are not found in the learners' native grammar; (2) they are not obvious in the input; and (3) they are not the object of instruction. Despite these obstacles, we find that English-German learners develop knowledge of the same interpretative asymmetry found in native German. It is highly implausible that this knowledge would develop in nonnative acquisition unless the same intermodular constraints operant in native language acquisition continue to constrain nonnative language acquisition in adult learners.

2. Was für N Interrogatives

2.1 A highly idiosyncratic construction

In German, was für ‘what for’ interrogatives can be used to express questions about kinds, as in (1) or as in (2). In (1), the wh expression was and the restriction PP für Bücher form a (continuous)
constituent. In the sentence in (2), the *wh* expression *was* and its PP restriction *für Bücher* form a discontinuous constituent.

(1) Was für Bücher hat Johannes gelesen?
    Was-für books has Johannes read
    What kinds of books did Johannes read?

(2) Was hat Johannes für Bücher gelesen?
    Was has Johannes für books read
    What kinds of books did Johannes read?

The use of *für* in *was für* ‘what for’ interrogatives is highly idiosyncratic to this construction. Whereas the preposition *für* ‘for’ otherwise requires the accusative case, in this construction the case of the noun phrase is solely dependent on the verb: it is accusative in (3) because *treffen* ‘meet’ governs the accusative case, but nominative in (4a) because it is the subject of a finite clause and dative in (4b) because *helfen* ‘help’ governs the dative case.

(3) Was für Kinder hat Johannes getroffen?
    Was-für kids-ACC has Johannes met
    What kinds of kids did Johannes meet?

(4) a. Was für ein Mann hat den Roman geschrieben?
    Was-für a man-NOM has the novel written
    What kind of a man wrote the novel?

     b. Was für Kindern hat Johannes geholfen?
    Was-für kids-DAT has Johannes helped
    What kinds of kids did Johannes help?

The meaning of *was für* as ‘what kind of’ is introduced in textbooks, and both word orders occur frequently in conversational German. Regardless of the approach used in the classroom, we assume that the fact that the case of the noun phrase is independent of the preposition *für* becomes salient in the input as the result of examples like (4a).

2.2 Discontinuous quantifiers and scope

Despite their many morphosyntactic similarities, there are subtle interpretive differences between (1) and (2), associated with the scope taking properties of continuous versus discontinuous quantifiers. de Swart (1992) notes that discontinuous quantifiers do not have the range of interpretive possibilities available to continuous quantifiers. This difference in interpretation is observable only when they occur with other scope-taking expressions, in which case, specifically discontinuous quantifiers must take narrowest scope, while continuous quantifiers are in principle free to take either wide or narrow scope. de Swart (1992) documents this with a number of constructions from various languages and characterizes the interactions implicated in this interpretive difference with the constraint in (5).

(5) In the configuration [Q₂... [Q₁... [ e₁ [ restriction of Q₂ ]]]] Q₂ cannot take scope over Q₁.

Semantic formulation: A quantifier Q₁ can separate a quantifier Q₂ from its restrictive clause only if Q₁ has wide scope (or is scopally independent of Q₂).

(de Swart (1992), p. 398)

This generalization straightforwardly holds for German *was für* interrogatives. Consider the scope interaction of the continuous and discontinuous interrogative expressions in (6) and (7) with the floated quantifier *alle* ‘all’ which is construed with the subject *die Studenten* ‘the students’.
Given the constraint in (5), the continuous *wh* quantifier in (6) can take scope under the universal quantifier, can take scope over the universal quantifier or not interact scopally with the universal quantifier, yielding distributive, common and collective interpretations respectively. In contrast, the continuous *wh* quantifier in (7) cannot take wide scope. This bars the common interpretation which requires the *wh* expression to take scope over the universal quantifier.

### 2.3 Distinct answerability conditions

This study focuses on two types of interpretations: the collective interpretation which is available to the continuous interrogative in (8) and to the discontinuous interrogative in (9) and the common interpretation which is a second legitimate interpretation of (8) but an illegitimate interpretation of (9).

(8)  
Was für Bücher haben die Studenten alle gelesen?  
Was-für books have the students all read  
What kinds of books did the students all read?

(9)  
Was haben die Studenten alle für Bücher gelesen?  
Was have the students all für books read  
What kinds of books did the students all read?

These interpretations of the interrogatives determine distinct answerability conditions for (8) and (9). Consider the scenario below in which three children each read two types of books at camp, with all three children having read zoology books. In response to the continuous was für interrogative, it is natural to provide a collective answer providing the sum of the subjects that the three children read. It is also possible to construe the interrogative as asking about the type of books that were read by all, and to provide a common answer. This is exemplified in (10).

(10)  
On the first day home from Kinderkamp(f), Mutti Magdalena asked her three children what sort of reading program they had pursued at camp. Andreas had read astronomy books and zoology books, Beatrix had read botany books and zoology books, and Charlotte had read chess books and zoology books.

Question:  
[Was für Bücher] haben die Kinder alle gelesen?

Felicitous answers:  
Bücher über Sterne, Pflanzen, Schach und Tiere. collective answer

Bücher über Tiere. common answer

In response to the discontinuous was für interrogative, it is also natural to provide a collective answer providing the sum of the subjects that the three children read. It is impossible, however, to construe the interrogative as asking about the type of books that were read by all. The common answer is therefore illicit. (It is not strictly speaking false, but it is infelicitous, because on the collective interpretation of the interrogative, it violates the pragmatic condition of Maximality.) This is exemplified in (11).
On the first day home from Kinderkamp(f), Mutti Magdalena asked her three children what sort of reading program they had pursued at camp. Andreas had read astronomy books and zoology books, Beatrix had read botany books and zoology books, and Charlotte had read chess books and zoology books.

Question:
Was haben die Kinder alle für Bücher gelesen?

Felicitous answer:
Bücher über Sterne, Pflanzen, Schach und Tiere. collective answer

Infelicitous answer:
#Bücher über Tiere. common answer

Therefore, the constraint on the relative scope of discontinuous quantifiers (versus continuous quantifiers) determines an asymmetry in the range of interpretations available to continuous and discontinuous was für interrogatives. This asymmetry can be seen in the type of answers accessible to continuous and discontinuous was für interrogatives. We investigate the learnability problems facing English-German adult learners posed by this aspect of knowledge of the interpretation of was für interrogatives.

3. The interpretation of was für interrogatives and learning strategies

3.1 L1-induced misanalysis

In the case of L2 acquisition, it is important to establish the range of superficially similar patterns which the L1 grammar may license. Learners might attempt analogical extension on the basis of properties of the L1. Although as shown by the ungrammaticality of example (12), English does not exhibit a surface pattern similar to the was für construction per se, the sentence pattern in (13) is nevertheless exhibited by some varieties of U.S. Midwestern English. This surface pattern is clearly reminiscent of discontinuous was für interrogatives (and may well have arisen through language contact with German or Scandinavian languages in the U.S. Midwest in the 19th century).

(12) *What for books did John read?

(13) %What did John read for books over the summer at camp?

Despite the surface similarity with German discontinuous was für interrogatives, the Midwestern English construction (13) is syntactically and semantically distinct. Syntactically, the phrase introduced by for has properties of a syntactic adjunct, rather than of an argument. As shown in (14), the for phrase can be sandwiched between two adjuncts, unlike the German für phrase which is restricted to the (governed) argument positions.

(14) %What did John read over the summer for books at camp?

Unlike the discontinuous was für interrogatives, the interpretation of the English string is fully transparent: i.e., it is not limited to the expression of questions about kinds. It allows individual answers like: The Great Gatsby, The Old Man and the Sea, and Moby Dick. Additionally, in contradistinction to the was-für construction, the English interrogative in (15) is ambiguous among distributive, collective, and common answers. We suggest that this is because the adjunct for books and the wh-expression what in (14) do not constitute a discontinuous constituent.

(15) %What did the students all read for books?
The existence of the for modification construction in dialects of Midwestern English raises severe learnability problem if learners might extend or adopt for-modification as a strategy to capture the discontinuous was-für interrogative input. We note that the range of interpretations available to (13) stands in a proper superset relation with respect to the range of interpretations available to the German sentence in (6): the set of answers to discontinuous was für interrogatives is a proper subset of the set of answers to the English what...for interrogatives. Hence, if English-German learners analyze the German discontinuous structure in such a way that the für phrase is treated as a syntactic adjunct, no interpretive evidence will ever disabuse the learner that her working assumption is incorrect. A learner with a robustly established target-like case system might be puzzled by non-accusative noun phrases as the apparent object of the preposition für in this construction, but no local requirement would ever force the abandonment of a for-modification analysis for input that it can handle. Given the range of interpretations associated with (13), it is difficult to see how a learner whose English-German has developed along these lines would exhibit knowledge of the infelicity of the common interpretation of (9).

3.2 The was für interrogatives and the (surface order) scope condition

de Swart (1992) notes that (16) is in principle ambiguous; however, wat voor boeken in Dutch tends to take wide scope over the subject. However, stressing BOEKEN makes the narrow scope reading more perspicuous.

(16) Wat voor BOEKEN heeft iedereen gelezen?  
    was für BOOKS has everybody read  
What kind of BOOKS did everyone read?  
    \( \forall \) wide scope  
    de Swart (1992, (39a) p. 398)

The preference for wide scope of the wh continuous quantifier is not what is expected on the basis of English intuitions, as the common answer tends to be the least readily available one. In other words, there seems to be a reconstruction bias in English, whereas in German the wide scope construal is preferred.

The preference for wide scope of the wh continuous quantifier in German follows from a difference with respect to scope-taking between English and German. Diesing (1996) observes that the surface position of quantifiers in German largely determines the relative scope of quantifiers. Thus, consider (17) and (18) which vary in the relative position of the existential expression eine Sopranistin ‘a soprano’ and of the universally quantified expression jedes Brahmslied ‘every Brahms song’. In (17) the interpretation is that there is (at least) one soprano that sang all of the songs by Brahms, excluding the possibility that every song had a potentially different soprano. In (18), however, the order of quantifiers is reversed and so is the availability of interpretations. Thus, (18) is felt to exclude the possibility that the same soprano sang all of the songs.

(17) dass eine Sopranistin jedes Brahmslied gesungen hat.  
    that a soprano every Brahms song sung has.  
    that a single soprano sang all of Brahms’ songs.  
    NOT that for each of Brahms’ songs there is a soprano who sang it.  
    Cf. Diesing (1996, (12a) p. 71)

(18) dass jedes Brahmslied eine Sopranistin gesungen hat.  
    that every Brahms song a soprano sung has.  
    that for each of Brahms’s song there is a soprano who sang it.  
    NOT that a single soprano sang all of Brahms’ songs.  
    Cf. Diesing (1996, (12b) p. 71.)

We note that the acquisition of such a difference is not a trivial matter. Observation of form meaning pairs is not guaranteed to result in acquisition, even in the best exposure scenario in which all the facts are accessible. Thus, if a learner observes that in every context where (17) is uttered, (17) characterizes situations in which the same soprano sang all the songs by Brahms, still acquisition is not guaranteed:
The learner's observation does not rule out the possibility that (17) could describe situations where a potentially different soprano sang each song. This is because the logical form in which the soprano potentially varies with each song by Brahms allows for situations where the soprano is the same for all.

Given that the logical form where for each of Brahms’s song there is a soprano who sang it allows for the possibility that the same soprano sang them all, how is the interpretation of (18) arrived at? The interpretation of (18) is dependent on implicatures satisfying Grice’s principles of conversational cooperation through entailment-based informational scales induced by the quantifiers (Horn 1985, 1989, 1992). Thus, if one intends to communicate that the same soprano sang all of Brahms’s songs, the statement in (16) is informationally stronger than (18), precisely because (17) uniquely describes such situations, whereas the logical form (LF) of (18) allows in principle for other cases as well. In the informational scales, the LF of (18) triggers the implicature that the stronger statement (expressed by (17)) must be false. Again, since this is an implicature, it can be denied and suppressed which leads to significant acquisitional problems, as form-meaning relations become even harder to ascertain (Dekydtspotter and Hathorn, 2005).

Thus, if (17) characterizes exactly what one knows to be the case then as a cooperative speaker one must use (18). When the speaker uses (18), the hearer (assuming that the speaker acts cooperatively) deduces that situations of the type characterized by (17) are excluded. Thus, the interpretation of (18) requires that the LF of (17) uniquely reflect the surface order of quantifiers. In order to arrive at the knowledge that (18) eliminates situations in which the same soprano sang the songs by Brahms, it is crucial that one first compute the interpretive restrictions on (17). However, unless there is a mechanisms internal to the learner that computes the interpretation of (17) and (18) and a mechanism that computes the pragmatic consequences of these interpretations, learners are unlikely to show such sensitivity to word order.

4. The Study
4.1 Instruments and procedures

To examine knowledge of the interpretations of questions about kinds in adult English-German interlanguage development, we administered a truth value judgment task to adult learners with different levels of exposure to German. The experiment also included a syntactic post test designed to determine for each learner whether that learner allows the for-modification construction, since not all English speakers allow this usage of for. We sampled respondents with various levels of exposure. Thus, there were 30 beginning learners with no more than 3 semesters of college German, 18 intermediate learners in their 6th or 7th semester of college German, and 8 advanced learners with several years of residence in Germany. All were native speakers of English (many from the U.S. Midwest).

The interpretive task and the syntactic post test contained 40 items each. The interpretive task consisted of 28 test items devised to test the interpretation of the was-für construction and 12 fillers. The syntactic task, designed to probe whether the respondents accept the for-modification construction in English, allows us to determine whether the presence of this construction in the native grammar of learners affects development of interpretive knowledge in German. The syntactic task was administered after the interpretive task. The instructions introduced respondents to the imaginary world of Frau Messerschmidt, who teaches English to seventh grade pupils at a Gymnasium in Germany. Each respondent is to act as one of the many judges for the listening comprehension section of the final examination in Frau Messerschmidt’s English course. Test items are presented as random examination transcripts consisting of the English story that the pupil heard, the actual question (in German) that Frau Messerschmidt asked, and the response that the pupil gave. For each item the respondents are to indicate whether the pupil has responded with a correct answer on the basis of the English story.

The 28 test items are composed of 7 quadruples presented in random order. Sample test items 1 and 2 include a continuous was-für interrogative followed by a collective answer and by a common answer respectively. Both types of answers are licensed by the grammar. In each member of the quadruple, the scenario is constant; however, the word order of the interrogative and the answer vary. The scenarios are presented in English to ensure that the semantic intuitions of beginning learners may be tested.
Sample test item 1:

Bruce, Lee, and Linda just finished medical school. A week ago they attended a party to celebrate their graduation and brought all the drinks. Bruce brought cola and beer, Lee brought water and beer, and Linda brought champagne and beer.

Frau Messerschmidt asks: Was für Getränke haben die Ärzte alle gebracht?
Schüler: Cola, Wasser, Sekt, und Bier

Sample test item 2:

Bruce, Lee, and Linda just finished medical school. A week ago they attended a party to celebrate their graduation and brought all the drinks. Bruce brought cola and beer, Lee brought water and beer, and Linda brought champagne and beer.

Frau Messerschmidt asks: Was für Getränke haben die Ärzte alle gebracht?
Schüler: Bier

Sample test items 3 and 4 include a discontinuous was-für interrogative followed by a collective answer and by a common answer respectively. The collective answer in sample test item 3 is licensed by the grammar; however, the common answer in sample test item 4 is not.

Sample test item 3:

Bruce, Lee, and Linda just finished medical school. A week ago they attended a party to celebrate their graduation and brought all the drinks. Bruce brought cola and beer, Lee brought water and beer, and Linda brought champagne and beer.

Frau Messerschmidt asks: Was haben die Ärzte alle für Getränke gebracht?
Schüler: Cola, Wasser, Sekt, und Bier

Sample test item 4:

Bruce, Lee, and Linda just finished medical school. A week ago they attended a party to celebrate their graduation and brought all the drinks. Bruce brought cola and beer, Lee brought water and beer, and Linda brought champagne and beer.

Frau Messerschmidt asks: Was haben die Ärzte alle für Getränke gebracht?
Schüler: Bier

The syntactic post-test included sentences such as (19a, b) and (20a, b) designed to determine whether learners reject or accept pseudo discontinuous sentences in English.

(19) a. What does the hardware store have in stock for nails?
b. What does the hardware store have for nails in stock?
(20) a. What does Pat meet at the bars for guys?
b. What does Pat meet for guys at the bars?

Respondents who produced more ‘yes’ answers than ‘no’ answers to sentences with for adjuncts were grouped together (n = 21). Respondents who produced more ‘no’ answers that ‘yes’ answers to sentences with for adjuncts were grouped together (n = 27). We found no significant difference between the respondents who found the for-modification construction natural in English and those who did not.
4.2 Results

As shown in Table 1, beginning learners do not exhibit interpretive differences: They accept collective and common answers to continuous interrogatives equally. They accept collective and common answers to discontinuous interrogatives equally.

Table 1: Beginning learners (n = 30)

<table>
<thead>
<tr>
<th></th>
<th>continuous syntax [was für N] ... ?</th>
<th>discontinuous syntax [was] ... [für N] ...?</th>
</tr>
</thead>
<tbody>
<tr>
<td>collective interpretation</td>
<td>56.19% SD = 37.88</td>
<td>69.52% SD = 31.10</td>
</tr>
<tr>
<td>common interpretation</td>
<td>67.62% SD = 33.54</td>
<td>69.53% SD = 27.76</td>
</tr>
<tr>
<td>paired samples t-tests</td>
<td>t(29) = 1.083 p = .288</td>
<td>t(29) = .000 p = 1.000</td>
</tr>
</tbody>
</table>

In contradistinction with beginning learners, intermediate learners show certain interpretive asymmetries: Intermediate learners accept common answers significantly more than collective answers to continuous *was-für* interrogatives. However, intermediate learners accept common and collective answers to discontinuous *was-für* interrogatives equally. Results for intermediate learners appear in Table 2.

Table 2: Intermediate learners (n = 18)

<table>
<thead>
<tr>
<th></th>
<th>continuous syntax [was für N] ... ?</th>
<th>discontinuous syntax [was] ... [für N] ...?</th>
</tr>
</thead>
<tbody>
<tr>
<td>collective interpretation</td>
<td>46.03% SD = 33.79</td>
<td>80.14% SD = 27.35</td>
</tr>
<tr>
<td>common interpretation</td>
<td>92.86% SD = 14.90</td>
<td>78.57% SD = 24.13</td>
</tr>
<tr>
<td>paired samples t-tests</td>
<td>t(17) = 5.527 p &lt; .0005</td>
<td>t(17) = .158 p = .876</td>
</tr>
</tbody>
</table>

Finally, Table 3 presents advanced learners’ results. These learners exhibit the expected pattern: They accept collective and common answers to continuous *was-für* interrogatives equally. However, in the case of discontinuous *was-für* interrogatives, they accept collective answers significantly more than common answers.

Table 3: Advanced learners (n = 8)

<table>
<thead>
<tr>
<th></th>
<th>continuous syntax [was für N] ... ?</th>
<th>discontinuous syntax [was] ... [für N] ...?</th>
</tr>
</thead>
<tbody>
<tr>
<td>collective interpretation</td>
<td>64.29% SD = 38.18</td>
<td>87.50% SD = 19.38</td>
</tr>
<tr>
<td>common interpretation</td>
<td>58.93% SD = 35.38</td>
<td>41.07% SD = 37.75</td>
</tr>
<tr>
<td>paired samples t-tests</td>
<td>t(7) = .232 p = .823</td>
<td>t(7) = 2.799 p = .027</td>
</tr>
</tbody>
</table>
Beginning learners’ behavior is consistent with an English-like Grammar. Intermediate learners differ in terms of sensitivity to the (surface order) Scope Condition. Advanced learners exhibit evidence of the scope constraint on discontinuous constituents.

5. Discussion

In native German, interactions between the (surface order) Scope Condition and the constraint on discontinuous quantifiers determine the interpretation of continuous and discontinuous was-für interrogatives. English-German (adult) acquirers have much to acquire beyond what knowledge of English could provide. It is difficult to imagine how a German-like grammar in this domain could arise through simple analogical extension either from the L1 grammar plus input or from input alone.

The possibility that learners could determine the range of legitimate interpretations inductively through observation of interrogatives and their answers seems remote. In the world of conversation, one generally does not ask questions when the answer is known to all. When a question is asked and an answer is provided, there is no way to know for sure that the questioner and answerer had the same interpretation in mind, that they were correct in their belief about the world and that they answered honestly. Essentially, being able to tease apart which interpretations are legitimate in a purely inductive fashion requires knowing the minds of the conversationalists. Any error is potentially fatal to the acquisition of a targetlike grammar, as any (even erroneous) counterexample can disconfirm a conclusion obtained inductively.

Despite these problems, English-German acquirers seem to follow an acquisition sequence that is consistent with two scope constraints in native German: the (surface order) Scope Condition and the constraint on discontinuous was-für interrogatives. First, intermediate English-German acquirers appear to be developing a strong preference for common answers, involving wide scope of the interrogative quantifier. This is particular to English-German acquisition as there has not been such a tendency found in a similar experiment by Dekydtspotter, Sprouse and Swanson (2001) investigating (dis)continuous cardinality interrogatives in English-French interlanguage. This difference suggests to us that English-German acquirers tend to fix relative scope on the basis of surface syntax. Advanced English-German acquirers are developing an interpretive asymmetry between continuous and discontinuous was-für interrogatives. We suggest that the reduced tendency to accept common answers among advanced learners might be explained in terms of the ability of the advanced learners to consider different prosodic contours. This hypothesis, however, requires testing in a manner that manipulates prosody to induce changes in interpretation preferences.

The asymmetries that we have documented here cannot have arisen through explicit instruction, knowledge of the L1 (English), or natural analogical extension from the input. Instead such interpretive knowledge bears reflexes of constraints of syntax-semantics composition interacting with the specific character of the input provided by German, typified by scrambling and the possibility of splitting quantificational head and restriction.

6. Conclusion

The interpretation of was-für interrogatives in English-German interlanguage seems revealing of two properties of scope taking in German: the (surface order) Scope Condition and the constraint on discontinuous quantifiers. This development of knowledge in L2 acquisition points to the persistence into adulthood of the cognitive structures to which generative grammarians standardly attribute the ability of children to “overcome” poverty-of-the-stimulus problems in native language acquisition. Furthermore, the emerging preference for surface scope was-für interrogatives in English-German interlanguage seems unlike the properties of English-French acquisition. This suggests that the learning algorithm is very sensitive to semantically triggered movement in the TL-input—a claim to be further examined.
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References


