THE ACQUISITION OF PIED-PIPING IN FRENCH
AND ITS THEORETICAL IMPLICATIONS

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1. INTRODUCTION

Within the Principles-and-Parameters approach to UG (including the recent Minimalist Program), the process of language acquisition is interpreted as the process of fixing the values of parameters in one of the permissible ways (see e.g. Chomsky 1995:6). Under this view, the data from child language can (in principle) be especially valuable, in evaluating the parameters proposed through the investigations of comparative syntax. Hyams (1986) was the first study that provided a concrete illustration of this possibility. She attempted to lend acquisitional support to the null-subject parameter, by showing that some notable characteristics of child English, such as the optionality of overt subjects and the absence of expletives and modals, can be uniformly accounted for by the early non-adult-like setting of the relevant parameter. Even though the details of the study by Hyams (1986) have undergone various criticisms, several recent studies of child language pursue this line of research, and have made significant contributions to the domain of parametric variation (see Isobe, in press; Snyder 1995, 2001; Sugisaki 2003; among others).

In this study, we evaluate the recent parametric proposal by Law (1998) and Salles (1997:Chapter 4), which relates the lack of preposition stranding (P-stranding) in Romance to the existence of suppletive forms of prepositions and determiners. We will show that evidence from child French directly contradicts the view held by Law and Salles that the availability of such suppletive forms in a given language constitutes a sufficient condition for the obligatory pied-piping of prepositions. A broader implication of this study is that the time course of child language acquisition provides an important testing

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ground for theories of parameters.

2. ON CERTAIN DIFFERENCES BETWEEN FRENCH AND ENGLISH

English and French, despite their superficial similarity, exhibit an intriguing contrast with respect to the movement possibilities for prepositional complements. While the wh-movement of prepositional complements can strand the prepositions in English, this is not possible at all in (standard) French: Prepositions must be pied-piped along with the wh-word. ¹ The relevant examples are presented in (1) and (2).

(1) English: Which subject have you talked about t?

(2) French:
   a. *Quel sujet as-tu parlé de t?
      which subject have-you talked about ‘Which subject have you talked about?’
   b. De quel sujet as-tu parlé t?
      about which subject have-you talked

Given this contrast, the following questions should be addressed: What is the parameter that distinguishes between P-stranding languages like English and pied-piping languages like French?

3. PRE-MINIMALIST PARAMETERS OF P-STRANDING

One of the earliest works on P-stranding by van Riemsdijk (1978:275) suggested that the possibility of P-stranding (with wh-movement) in English results from the availability of the COMP position in PPs (which would correspond to [Spec, PP] in current terms): PPs constitute an island in every language, but in English they can project a COMP position, and as a consequence, wh-movement of the prepositional complement can use that position as an ‘escape hatch’, making P-stranding possible.

In contrast, Hornstein & Weinberg (1981:63) claimed that the cross-linguistic variation in P-stranding stems from the availability of a certain syntactic operation, rather than the availability of a certain syntactic position. Specifically, they proposed a syntactic rule of Reanalysis, which creates a complex verb from a verb and any set of contiguous elements to its right in the

¹ A variety of French spoken in Prince Edward Island, Canada, reportedly permits P-stranding. See King & Roberge (1990) for discussion.
domain of VP. For example, this operation creates the structure in (3b) from the one in (3a).

\begin{align*}
(3) & \quad \text{a. } \text{John } [\text{VP } [\text{V talked}] [\text{PP about Fred}]]. \\
& \quad \text{b. } \text{John } [\text{VP } [\text{V talked about}] \text{ Fred}].
\end{align*}

According to Hornstein & Weinberg, UG provides a universal filter that rules out traces marked with oblique Case, the Case that is assigned by prepositions. Given this filter, \textit{wh}-movement of prepositional complements is excluded under ordinary circumstances. Yet, in languages like English that have the Reanalysis rule, a verb and a preposition may undergo this operation, and as a result, the NP in the complement of a preposition can be assigned objective Case by this complex verb. Thus, P-stranding does not induce a violation of the relevant UG filter in English. In other words, under Hornstein & Weinberg’s analysis, the contrast between English and French results from the fact that the former has a way to obviate the violation of the UG filter (i.e. Reanalysis operation), while the latter does not.\footnote{See Baltin & Postal (1996) for arguments against the Reanalysis operation.}

Even though the analyses reviewed above have been quite influential, they share one important conceptual problem: The parameters proposed in their studies are quite ‘small’, in the sense that they are relevant only to the phenomenon of P-stranding. The consideration of learnability requires that the theory of UG should restrict the range of possible adult grammars as narrowly as possible. One obvious way to do this is to reduce the number of parameters, by making each of them responsible for multiple properties.\footnote{See Chomsky (1981:6) for related discussion.} Then, the parameter relevant to P-stranding is also preferred to have more than one consequence for the surface grammar.

Kayne (1981) makes one such attempt. He argues that the possibility of P-stranding is associated with availability of what we will call the prepositional complementizer (PC) construction, namely an infinitival clause with an overt subject headed by a (null) prepositional complementizer.

\begin{align*}
(4) & \quad \text{a. } \text{English: } \text{John wants } [\text{CP } (\text{for})] [\text{IP Mary to leave}]]. \\
& \quad \text{b. } \text{French: } * \text{Jean veut } [\text{CP } (\text{de})] [\text{IP Marie partir}]].
\end{align*}

Kayne claims that English prepositions are structural governors, and their government domain extends to the nearest barrier. French prepositions,
however, govern only in the sense of subcategorization, and their government domain is restricted to their sister. Given this difference, the Case-assignment by the prepositional complementizer to the subject of an infinitival clause is possible in English but not in French, leading to the contrast illustrated in (4). Furthermore, under Kayne’s system, even though Reanalysis is available in every language, UG dictates that this rule can apply only when prepositions and verbs govern in the same way. English satisfies this condition, since both prepositions and verbs structurally govern NP. On the other hand, French prepositions never meet this condition, because they differ from verbs in that their governing domain extends only to its sister. This way, the contrast between English and French regarding P-stranding also follows from the difference in the government properties of prepositions.

Even though Kayne’s (1981) parametric system is quite attractive, in that it covers not only cross-linguistic variation in P-stranding but also variation in the PC construction, it cannot be maintained in the current Minimalist framework. Kayne’s parameter crucially relies on the notion of government, which is abandoned in the present framework due to its lack of conceptual necessity (Chomsky 1995:176). In light of this theoretical development, a minimalist parameter of P-stranding has recently been proposed, which we will discuss in the next section.

4. **A MINIMALIST PARAMETER OF P-STRANDING**

The parametric analyses discussed in the previous section all attempted to explain why P-stranding is permitted in English. In contrast, the recent studies by Law (1998) and Salles (1997) have proposed an account for why prepositions are obligatorily pied-piped in a number of languages. More specifically, they argue that the lack of P-stranding in French and other Romance languages can be attributed to an independent morphological property of these languages. In this section, we briefly review their innovative proposals.

The analyses by Law (1998) and Salles (1997) are based on one noticeable characteristic of Romance (and some Germanic) languages: A preposition sometimes coalesces with the following determiner into a suppletive form. The relevant examples are given in (5) - (8).
Law and Salles made an intriguing observation that the availability of such suppletive forms of prepositions and determiners (henceforth, P+D suppletive forms) correlates with the lack of P-stranding cross-linguistically. Their cross-linguistic survey is summarized in (9).

9. Cross-linguistic survey:

<table>
<thead>
<tr>
<th>Language</th>
<th>P+D suppletive forms?</th>
<th>P-stranding?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Romance:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>French:</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Italian:</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Portuguese:</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td><strong>Germanic:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>German:</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>English:</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Scandinavian languages:</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

The generalization that they have drawn from this survey is stated in (10).
If a language has P+D suppletive forms, then pied-piping of prepositions (P-pied-piping) is obligatory.

In other words, the existence of P+D suppletive forms in a given language constitutes a sufficient condition for obligatory P-pied-piping.\(^5\)

In order to account for the generalization in (10), Law (1998) postulates the parameter and the principle given in (11) and (12), respectively.\(^6\)

\[(11) \textit{Parameter of D-to-P incorporation}:\]
A language \{has, does not have\} D-to-P incorporation.

\[(12) \textit{Syntactic constraint on suppletion} (\text{Law 1998:227}):\]
Elements that undergo suppletive rules must form a syntactic unit \(X^0\).

Romance languages in general (and German) take the positive value of the parameter, while English and Scandinavian languages take its negative setting. If the positive value is chosen, the head of DP in that language always incorporates into P under the following structure.

\[(13) \begin{array}{c}
\text{[PP} \\
\text{[P} \\
\text{P + D]} \\
\text{[DP} \\
\text{t} \\
\text{NP]}
\end{array} \]

Given the constraint in (12), only those languages that have the positive setting of (11) are permitted to have P+D suppletive forms.

The obligatory P-pied-piping in Romance languages also follows from the positive setting of the parameter in (11). If we assume that \(wh\)-words are Ds, then languages with the positive value require that \(wh\)-words in the complement of P should undergo adjunction to P. In this situation, the minimal phrasal category that contains the \(wh\)-word is PP, and hence \(wh\)-movement to the specifier of CP results in P-pied-piping. On the other hand, in languages with the negative value, there is no incorporation of the \(wh\)-word to P, and thus the \(wh\)-word can move to the specifier of CP without pied-piping the prepositional head. The relevant derivations are schematically shown in (14)

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\(^5\) It does not constitute a \textit{necessary} condition, though. There are languages (like Japanese) which apparently do not have P+D suppletive forms but still lack P-stranding.

\(^6\) We focus on Law’s analysis here, for ease of exposition. It shares basic ideas with the analysis by Salles, even though they differ in technical implementations.
and in (15).

\[(14) \text{ Languages with the positive setting:} \]

\[
\begin{array}{c}
[CP] \\
[IP] \ldots [VP] \ldots \\
[PP \ P+D \ [DP \ t \ NP ]] \\
\text{about + which topic}
\end{array}
\]

\[(15) \text{ Languages with the negative setting:} \]

\[
\begin{array}{c}
[CP] \\
[IP] \ldots [VP] \ldots \\
[PP \ P \ [DP \ D \ NP ]] \\
\text{about which topic}
\end{array}
\]

In sum, under Law’s parametric system, the existence of P+D suppletive forms in a given language is a reflection of the positive setting of the parameter in (11) that induces obligatory D-to-P incorporation, and this obligatory D-to-P incorporation causes obligatory pied-piping of prepositions in wh-movement.

The analyses of Law (described above) and Salles successfully resolve the problems faced by previous proposals. First, their parameter is not too ‘small’: It is responsible not only for variation in P-stranding but also for the availability of P+D suppletive forms. Second, their analyses are compatible with the Minimalist Program, given that they do not rely on the notion of government. Yet, one important question remains to be addressed: Do their analyses make a correct prediction for the time course of child language acquisition?

5. **A PREDICTION FOR THE ACQUISITION OF FRENCH**

Recall that the parametric systems of Law (1998) and Salles (1997) were an attempt to explain the cross-linguistic generalization that the existence of P+D suppletive forms in a given language constitutes a *sufficient* condition for obligatory P-pied-piping in wh-movement. Informally, their analyses argue that, in every language that has such suppletive forms, D-incorporation to P is obligatory and hence pied-piping of prepositions is required. In acquisitional terms, then, their analyses suggest that the only language-particular knowledge that French-learning children need to acquire in order to induce obligatory pied-piping is (i) knowledge of the availability of P+D suppletive forms and (ii) knowledge of overt wh-movement. Hence, the following acquisitional
prediction can be made.

(16) Prediction for acquisition:
A French-learning child should exhibit P-pied-piping as soon as she acquires P+D suppletive forms and overt wh-movement.

6. TRANSCRIPT ANALYSIS
In order to test the prediction in (16), we examined two longitudinal corpora for French in the CHILDES database (MacWhinney & Snow 1990). The list of transcripts analyzed in our study is presented in (17).

(17) Transcripts analyzed:

<table>
<thead>
<tr>
<th>child</th>
<th>data collected by</th>
<th>age</th>
<th># of files</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grégoire Champaud</td>
<td>1;9.18 – 2;5.27</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Philippe Suppes, et al. (1973)</td>
<td>2;1.19 – 3;3.12</td>
<td>33</td>
<td></td>
</tr>
</tbody>
</table>

For each child, we began by locating the first clear uses of (a) overt wh-movement of que ‘what’ or qui ‘who’ from a complement position, (b) a wh-question with pied-piping, and (c) a P+D suppletive form. To count as a clear use, we required the P+D suppletive form to appear after verbs, nouns, or adjectives that take a PP complement, thereby eliminating the possibility that the child is using the relevant form as a pure determiner. Following Snyder & Stromswold (1997), the age at which a child produced his or her first clear example of a construction (followed soon after by additional uses) was considered to be the age of acquisition for this construction. The CLAN program Combo, together with complete files of wh-words and P+D suppletive forms in French, was used to identify potentially relevant utterances, which were then searched by hand and checked against the original transcripts to exclude imitations, repetitions, and formulaic routines.

The results are summarized in (18), and the actual examples from the corpora are presented in (19) and (20). Only Philippe acquired pied-piping

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8 Philippe (and also Grégoire) showed virtually no example of P+D that is immediately followed by a determiner. This observation excludes the possibility that children are using P+D forms as pure prepositions. We thank William Snyder for relevant discussion.
of prepositions by the end of the corpus.\(^9\)

(18) Results:

<table>
<thead>
<tr>
<th>Child</th>
<th>Overt Wh-movement</th>
<th>P+D Suppletive Form</th>
<th>Pied-piping</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grégoire</td>
<td>2;0.5</td>
<td>2;3.0</td>
<td>-----</td>
</tr>
<tr>
<td>Philippe</td>
<td>2;2.17</td>
<td>2;2.3</td>
<td>2;6.20</td>
</tr>
</tbody>
</table>

(19) Grégoire:

a. *que fait la [?] titite?*  
   *what does the ‘titite’*  
   (Gre05:403)

b. *papa et maman é été (étant) mangé les nouilles des monstres*  
   *Papa and Mommy be eaten the noodles of the monsters*  
   (Gre07:1512)

(20) Philippe:\(^{10}\)

a. *à côté du huit qu’est ce y a?*  
   *to side of the eight what ES there has*  
   (Phil05:831)

b. *sortie du garage la voiture*  
   *come from the garage the car*  
   (Phil03:1170)

c. *par quoi il sort le feu?*  
   *by what it comes the fire*  
   (Phil12:683)

To evaluate the statistical significance of observed age-differences between acquisition of P-pied-piping and acquisition of P+D suppletive forms in Philippe, we began at the first overt wh-movement, and then counted the

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\(^9\) Philippe’s MLU was 3.543 when he first used P+D suppletion, and a very similar 3.553 at the point when he first used P-pied-piping. Hence, the reason for the delay in pied-piping is unlikely to have been a simple performance limitation on utterance length.

\(^{10}\) There might be a possibility that Philippe uses the *wh*-question in (20a) as an unanalyzed unit. Then, the following example from the next file (Phil06) would be more reliable as the first example of *wh*-movement from a complement position.

(i) *qu’est ce que tu fais en ce moment?*  
   *what ESK you do at this moment*  
   (Phil06:1093)

The results of the statistical analysis are not significantly affected even if we take this example as the first clear use.
number of clear uses of the earlier construction before the first clear use of a later construction. We next calculated the relative frequency of the two constructions in the child’s own speech, starting with the transcript after the first use of the later construction, and continuing through the end of the corpus. We then used a modified sign test to obtain the probability of sampling the observed number of tokens of the earlier construction simply by chance, before the first clear use of the later construction, under the null hypothesis that both became available concurrently and had the same relative probability of use as in later transcripts (cf. Stromswold 1996, Snyder & Stromswold 1997).

The actual numbers and the results of the statistical analysis are shown in (21) and in (22), respectively.

(21) Numbers of uses:

\[
\begin{align*}
\text{first } P+D & \quad 2;2.3 & \quad 19 \text{ uses of } P+D \\
\text{first wh-mvt} & \quad 2;2.17 & \quad 2;6.20 & \quad 18 \text{ uses of pied-piping} \\
\text{first pied-piping} & \quad 2;6.20 & \quad 91 \text{ uses of } P+D
\end{align*}
\]

(22) Results of the statistical analysis:

<table>
<thead>
<tr>
<th>child</th>
<th># of earlier construction</th>
<th>relative frequency</th>
<th>P+D</th>
<th>Pied-piping</th>
<th>( p = )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippe</td>
<td>19 (P+D)</td>
<td>.835</td>
<td>.165</td>
<td>(.835)^19 &lt; .05</td>
<td></td>
</tr>
</tbody>
</table>

The results show that the age-discrepancy between the P+D suppletive form and P-pied-piping is statistically significant \( p = .032 \) by modified sign test. This indicates that Philippe acquired P-pied-piping significantly later than overt \( wh \)-movement and P+D suppletion, contrary to the prediction in (16). Thus, we find that the evidence from acquisition argues against the parametric system of Law (1998) and Salles (1997).

7. CONCLUSION

Our findings from the acquisition of French directly contradict Law-Salles’s view that the existence of \( P+D \) suppletive forms in a given language constitutes a sufficient condition for the obligatory pied-piping of prepositions. One child in our study, Philippe, clearly exhibited a grammar that permitted both overt \( wh \)-movement and \( P+D \) suppletion but did not permit P-pied-piping. The results are compatible only with an analysis in which the
availability of P+D suppletive forms is a necessary condition for pied-piping. Yet, such an analysis is far from appealing, given that it permits adult grammars that have P+D suppletive forms but still permit P-stranding. Even though it remains to find an alternative proposal for the P-stranding parameter (see Abels (in press) and Bošković (2001) for relevant discussion), our findings severely restrict the range of possible parametric analyses, and hence demonstrate that the time course of child language acquisition is a rich source of evidence concerning the parameters of variation permitted by human language (Snyder 2001, Sugisaki 2003).

REFERENCES


