ON EARLY ACQUISITION OF VERB INFLECTION IN AUSTRIAN GERMAN AND FRENCH: THE CASE OF PERSON AND NUMBER MARKING

0. Introduction

Whereas there exist a few longitudinal studies on the monolingual acquisition of verb inflection in German (e.g. Clahsen, Penke & Parodi 1993; Köhler & Bruyère 1996; Vollmann, Sedlak, Müller & Vassilakou 1997) and in French (e.g. Bassano to appear; Champaud 1994; Sabeau-Jouannet 1973), no theoretically and methodologically coherent contrastive study on monolingual verb acquisition in the two languages has been published so far. Our paper, which is part of an ongoing research project on the early acquisition of verbs in Austrian German and French, intends to fill this lacuna.

In the course of the acquisition of morphology, some categories or parts of categories are acquired earlier by children than others. At least three possible reasons can be assumed for the order of acquisition: I. some categories (or elements thereof) may be in general conceptually more complex, and so take longer to learn; II. language typology may influence the process of morphological acquisition; and III. idiosyncratic language-specific properties may affect the order of acquisition. A certain number of factors such as input frequency, perceptual and pragmatic saliency in child-centered speech situations may interfere with the three reasons cited above.

This paper will discuss, within the functionalist theoretical framework of Natural Morphology, the issue of the emergence of the grammatical categories 'person' and 'number' in the speech of one Austrian German and one French speaking child. The focus will be on person and number marking on verbs. After a characterization of German and French person and number marking according to the three subtheories of Natural Morphology (1.1.), several hypotheses about its acquisition will be formulated (1.2.). In (2.) the database and the method of analysis will be described. Section 3 will present the results for both German (3.1.) and French (3.2.) data. Under (4.) the relevance of our assumptions on acquisition for the analyzed data will be discussed. The conclusion (5.) will briefly sum up the major results.

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\^ Bilateral French-Austrian project Amadée 45197: ‘Acquisition chez l’enfant de la classe des verbes en français et en allemand autrichien’.
I. Theoretical background

1.1. Person and number marking within NM

Within Natural Morphology (henceforth NM), the analysis of person and number marking can be conducted on three different levels:

I. the subtheory of universal preferences or of universal markedness (cf. Mayerthaler 1981),

II. the subtheory of typological adequacy (cf. Dressler 1985b),

III. the subtheory of language-specific system adequacy (cf. Wurzel 1984).

ad III. Language-specific system adequacy

One of the most important properties of morphological system adequacy is the distribution of productive and unproductive categories and patterns (cf. Dressler 1997a). Person and number are productive grammatical categories in German and French. Both languages distinguish three persons (1st, 2nd, 3rd person) and two numbers (sg, pl). This paper will focus exclusively on person and number marking on verbs, and especially on the productive categories of present indicative and imperative, since in these verbal categories person and number marking emerges first in both languages. In German and (largely) in French verbs the categories of person and number are cosymbolized by the same form (i.e. fusional).

IIia. German

With regard to inflectional properties in the present indicative, imperative, infinitive and past participle, German verbs may be grouped into the following classes (cf. Bittner 1996: 83-109). Since in spoken Austrian German, children are hardly ever exposed to preterite forms (except for the verb sein 'to be' and for fairtales) the preterite was not taken into consideration for this classification. The forms given are Inf., 3. Sg. Pres.Inv., 1. Pl. Pres.Inv., 2. Sg. Imp., PP.

(1) Suffixation, PP = 3sg

ex. spielen, schauen; This is the only productive class (weak verbs).

spielen 'to play': er spielt, wir spielen, spielte, (ge)splie

(1') Suffixation, PP + A

ex. brennen, senden

brennen 'to burn': es brennt, wir brengen, brennt, (ge)brennt

2 Productivity of inflectional patterns is the ability to use inflectional rules with new words. This may be (in order of importance): i. loan-words, ii. indigenous neologisms; iii. also class change of old words contributes evidence (cf. Dressler 1997a).

3 The following classification was done without taking into consideration the prefix ge-. Note that dialectal Austrian German Ps do not have the prefix ge- before inessive (ex. gebraucht 'brought' → bracht). There is no prefix ge- with inseparable prefix verbs in all types of German. Furthermore, ge- is always unstressed and often missing in early child speech.

(2) Suffixation, PP + A

ex. bleiben, greifen, fließen, biegen, rinnen, singen

bleiben 'to stay': es bleibt, wir bleiben, blieb, (ge)blieben

(3) Suffixation (+1U), PP = Inf

ex. schlafen, fahren

schlafen 'to sleep': er schläft, wir schlafen, schlaf, (ge)schlafen

(4) Suffixation + 2U, PP = Inf

ex. lesen, geben

lesen 'to read': er liest, wir lesen, liest, (ge)lesen

(5) Suffixation + 2U, PP + A

ex. brechen, schmelzen, stehlen, sterben

brechen 'to break': er bricht, wir brechen, bricht, (ge)brechen

(6) Modals

e. können, müssen, wollen, mögen, sollen, dürfen; wissen

können 'can': 1sg.Pres.Inf. ich kann, er kann, wir können, (ge)können

(7) Suppletive auxiliaries as main verbs

e. sein, haben, werden; tun

sein 'to be': 1sg.Pres.Inf. ich bin, er ist, wir sind, (ge)wesen

(7') Auxiliaries (same)

Verbs of class (1) and (2) express person by number suffix only. Table 1 gives an overview of the suffixes used. Parentheses and slashes indicate possible alternations in colloquial Austrian German.

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<tr>
<th>PRES. INDICATIVE</th>
<th>IMPERATIVE</th>
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<td>Sg.</td>
<td>Pl.</td>
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<tr>
<td>1st Pers.</td>
<td>spiel-e</td>
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<tr>
<td>2nd Pers.</td>
<td>spiel-st</td>
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<tr>
<td>3rd Pers.</td>
<td>spiel-t</td>
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Table 1: Person and number marking in the present indicative and imperative:

the weak German verb spielen 'to play'

Verbs of class (3) take the same suffixes as class (1) and (2), but display an additional stem vowel change (umlaut) in the 2. and 3. Sg. Pres.Inv. (ex. schlafen 'to sleep': du schläfst, er schläfst). In colloquial speech, however, this umlaut may be levellled (→ du schläfst, er schläfst). In class (4) and (5) umlaut is also used in the 2. Sg. Imp. (ex. lesen 'to read': du liest, er liest, liest/). Modal verbs and wissen 'to know' (class 6) end in zero in the 1. & 3. Sg. Pres.Inv. (ex. können 'can': ich / er kann). Despite different details in their paradigms, modal verbs share several morphosyntactic and semantic properties and thus will be grouped together for the purpose of this paper. The

4 In cases in which verb forms of the 1. Pl. are directly followed by the colloquial subject pronoun ma, the alternations observed in the imperative hold also for the indicative.
SABINE KLAMPFER ET AL.

suppletive auxiliaries sein 'to be', haben 'to have', werden 'to become' and tun 'to do' (class 7) are put together for the same reason.

Another important aspect of system adequacy is syncretism. For the German verb classes (1) to (7) the following number of possible homophonic forms can be identified with respect to present indicative and imperative forms (plus Inf., PP):

(1) 10 (Pres1sg = Imp2sg, Pres3sg = Pres2pl = Imp2pl = PP, Inf = Pres1pl = Imp1pl = Pres3pl)
(2) 9 (Pres1sg = Imp2sg, Pres3sg = Pres2pl = Imp2pl = PP, Inf = Pres1pl = Imp1pl = Pres3pl)
(3) 9/10 (Pres1sg = Imp2sg, (Pres3sg) = Pres2pl = Imp2pl, Inf = Pres1pl = Imp1pl = Pres3pl = PP)
(4) 7 (Pres2pl = Imp2pl, Inf = Pres1pl = Imp1pl = Pres3pl = PP)
(5) 6 (Pres2pl = Imp2pl, Inf = Pres1pl = Imp1pl = Pres3pl)
(6) 5 (Pres1sg = Pres3sg, Inf = Pres1pl = Imp1pl = Pres3pl)
(7) 4 (sein: Pres2pl = Imp2pl, Inf = Imp1pl = Pres3pl)
8 (haben, werden, tun: Pres1sg = Imp2sg, Pres2pl = Imp2pl, Inf = Pres1pl = Imp1pl = Pres3pl)

IIIb. French

For French verbs, the following classification may be proposed (cf. Kilani-Schoch & Dressler in prep., Le Goffic 1997: 6-32, but with collapsing of class differences which are of little relevance for small children), according to present indicative, imperative, infinitive and past participle. (The forms given are Inf., 3. Sg. Pres.Ind., 1. Pl. Pres.Ind., 2. Sg. Imp., PP).

(1) Suffixation, PP = Inf
ex. jouer, manger; This is the only productive class.

jouer 'to play': il joue, nous jouons, joue, joué

(1’) Suffixation + vowel change, PP = Inf
ex. lever, céder

lever 'to lift': il lève, nous levons, lève, levé

(1’’) Suffixation + j-insertion, PP = Inf
ex. payer, essayer

payer 'to pay': il paie, nous payons, paie, payé

(2) Suffixation
ex. ouvrir, courir
ouvrir 'to open': il ouvre, nous ouvrons, ouvre, ouvert

(3) Suffixation + sibilant-amplification, PP = Pres 1/2/3 Sg.
ex. finir, cuire

finir 'to finish': il finit, nous finissons, finis, fini

(4) Suffixation + amplified base
ex. dormir, rendre
dormir 'to sleep': il dort, nous dormons, dors, dormi

5 Here the base is amplified by adding a consonant.

(5) Suffixion + amplified base + vowel change
ex. boire, venir

boire 'to drink': il boit, nous buvons, bois, bu

(6) Modals
i.e. pouvoir, vouloir, devoir, falloir; savoir
(same overall meaning range as in German)
pouvoir 'can': 1.Sg.Pres.Ind. je peux, il peut, nous pouvons, pu

(7) Suppletive auxiliaries as main verbs
i.e. être, avoir, aller

être 'to be': 1.Sg.Pres.Ind. je suis, il est, nous sommes, été

(7’) Auxiliaries (same)

With verbs of class (1) and (2), person and number are simultaneously expressed by suffixation (cosymbolization of two categories by a single suffix). As can be seen in table 2, suffixation is limited to the 1st and 2nd person plural. Subclass (1’) displays an additional change or (in the case of shva) deletion of the stem vowel, subclass (1’’) has j-insertion in the 1st and 2nd plural. Verbs of class (3) are characterized by sibilant-amplification of the verb base in all three plural persons. With class (4) and (5), the plural verb base is amplified by adding a consonant, in class (5) an additional stem vowel change occurs in the 1st and 2nd plural. Modals (class 6) and savoir 'to know', which are grouped together for morphosyntactic and semantic reasons, show (with the exception of savoir) the same inflectional patterns as verbs of class (5). Class (7) consists of the suppletive auxiliaries être 'to be', avoir 'to have' and aller 'to go'.

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<td>Pl.</td>
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<tr>
<td>1st Pers.</td>
<td>[yu]</td>
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<tr>
<td>2nd Pers.</td>
<td>[yu]</td>
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<tr>
<td>3rd Pers.</td>
<td>[yu]</td>
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Table 2: Person and number marking in the present indicative and imperative: the regular French verb jouer 'to play'

For the French verb classes, the number of possible homophonic forms with respect to the present indicative and imperative (plus Inf., PP) is the following:

(1) 11 (Pres1sg = Pres2sg = Pres3sg = Pres3pl = Imp2sg, Pres2pl = Imp2pl = Inf = PP, Pres1pl = Imp1pl)
(2) 9 (Pres1sg = Pres2sg = Pres3sg = Pres3pl = Imp2sg, Pres2pl = Imp2pl = Inf = PP, Pres1pl = Imp1pl)
(3) 9 (Pres1sg = Pres2sg = Pres3sg = Imp2sg = PP, Pres2pl = Imp2pl = Inf = PP, Pres1pl = Imp1pl)
(4) 8 (Pres1sg = Pres2sg = Pres3sg = Imp2sg, Pres2pl = Imp2pl = Inf = PP, Pres1pl = Imp1pl)
(5) 8 (Pres1sg = Pres2sg = Pres3sg = Imp2sg, Pres2pl = Imp2pl = Inf = PP, Pres1pl = Imp1pl)
(6) 3 (Pres1sg = Pres2sg = Pres3sg)
(7) 2 (être, avoir: Pres2sg = Pres3sg)
8 (aller: Pres2sg = Pres3sg, Pres2pl = Imp2pl = Inf = PP, Pres1pl = Imp1pl)
ad II. Typological adequacy

Typologically, both German and French can by characterized as 'weakly inflecting' with some isolating and agglutinating features (cf. Dressler 1985a: 342; 1997b). In French, the isolating type is stronger than in German – thus, in contrast to German verbs, French verbs are marked for person and number in the 1. & 2. Pl. only. The distinction of the 1/2/3. Sg. and (class 1, 2) 3. Pl. in French is expressed in an 'isolating' manner by the use of clitic personal pronouns (see table 3):

<table>
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<th>GERMAN</th>
<th>FRENCH</th>
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| 1st Pers. | ich spielt- | wir spielen-<em>n</em> | [jø ju] | [nu yu-<em>o</em>]<br>
| 2nd Pers. | du spielst | ihr spielt | [ty ju] | [yu-yu-<em>e</em>]<br>
| 3rd Pers. | er spielt | sie spielt-<em>n</em> | [ti ju / jø yu]<br> | [li ju]<br>

Table 3: Person and number marking in the present indicative: German vs. French

Furthermore, monosyllabic forms are more frequent in French than in German, monosyllabicity being a typical property of the isolating language type (Geckeler 1984: 155; Skašić 1979: 32-35).

In both languages the use of subject pronouns is obligatory, but for the reasons mentioned above, subject pronouns in French seem to have a different status. According to some linguists, subject pronouns in Modern French ('français avancé') have become part of synthetic verbal inflection, sc. as prefixes (Zrbić-Hertz 1994: 137).

ad I. Universal markedness

System-independent ('universal') markedness reflects cognitive and perceptual preferences of the prototypical speaker and can be defined as function of both 'semantic markedness relations' and 'markedness of symbolization' (Mayerthalder 1981: 10; 1987: 50):

a) A semantically unmarked category (or element thereof) is a category (or element) which is conceptually less complex than a comparable category. Thus, within the category of number, in most languages, the singular is less marked than the plural. Within the category of person, the 1st or 3rd person indicative is less marked than the 2nd person, but the 2nd person is less marked than the 1st and 3rd person indicative. The issue whether the 1st or the 3rd person indicative should be regarded as least marked, is still an open question. Thus, for instance, one could argue that the 1st person as 'EGO' lacks the feature 'demonstrative' and is therefore less marked than the demonstrative 3rd person 'NON-EGO' (Engel 1998: 61ff, Wiese 1994: 178-184). On the other hand, one might say that the 3rd person as 'NON-PERSON' is characterized by the absence of features being typical of the 1st and 2nd person and thus should be less marked (Benveniste 1966: 228-231).


On the parameter of constructional iconicity, person and number marking in German verbs is generally more diagrammatic than in French: in person marking the morphosemantically unmarked imperative singular is morphotactically not marked (the marked plural is marked in a diagrammatic way) in both languages, in the indicative all categories are morphotactically marked in German, with the diagrammatic exception of the 1. Sg. in colloquial use and of the 1. and 3. Sg. in the modal verbs. In French both unmarked and marked categories are morphotactically not marked: the whole Sg. (with the exception of those few irregular verbs where there is an anticonic modifieric marking of the 1. Sg., as in je vais vs. tu vas, il va), the 3. Pl. in the only productive verb class (ils jouent), the colloquial morphosematic 1. Pl. (on joue). If there is an additional segmental marker, however, it is always diagrammatic in the plural: je/te/ils [yu, fini], nous [yu-o, fini-s-o], vous [yu-e, fini-s-e], ils [fini-s]. Thus the 3rd person as 'non-person' has never a specific (personal) marker of Sg. or Pl., and in the classes 3-5 there is a diagrammatic plural marker without cosymbolization of person. In French, the past participle is always diagrammatically marked by a suffix (-i or -ien), in French often only by weakly iconic modification or substitution (e.g. prend – pris, met – mit, boit – bu).

As far as the parameter of morphotactic transparency is concerned, person and number marking in the Pres. Ind. and Imp. of German and French verbs of class (1) and (2) is most transparent. Less transparent on the scale of morphotactic transparency (cf. Dressler 1985a: 316ff) is person and number marking in German verbs such as schlafen (class 3), followed by those such as lesen (class 4). Still less transparency is exhibited in weak suppletives, such as haben (class 7). Most opaque is strong suppletion exemplified by the verb sein (class 7). In French, person and number marking is less transparent with verbs such as finir (class 3), followed by verbs of the type boire (class 5). The verbs être and avoir (class 7) are examples for strong suppletion.

On the parameter of biuniqueness, verbal person and number marking in German is more natural than in French, due to the definitely higher number of homophonic forms and of allomorphy in French verbal paradigms (see IIIb). The same holds true for infinitive and past participle. As a consequence, morphosematic distinctions are symbolized morphotactically more distinctively in German than in French.

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* It is important to note that on joue is morphotactically singular, but morphosemantically nearly a plural, which in colloquial French competes with or replaces the 1st person plural.

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7 Sign languages often differ from verbal languages in that they have just a binary distinction between 'EGO' and 'NON-EGO' (cf. Fahres 1998).
1.2. Assumptions about acquisition

Our assumptions about acquisition integrate both linguistic and psycholinguistic factors:

1.2.1. Linguistic factors

On the basis of the different linguistic factors discussed in section 1.1., the following (sometimes conflicting) hypotheses (HYP 1-6) can be made for the acquisition of person and number in German and French:

ad I. Universal markedness

HYP 1: Semantically less marked subcategories of the categories person and number should emerge before corresponding marked ones, since categories with smaller cognitive complexity (unmarked categories) are easier accessible and thus less difficult for children to identify and take up (Slobin 1973, 1985: 1168). When both unmarked and corresponding marked categories have emerged, children are expected to use, ceteris paribus, unmarked (i.e. less complex) categories more often than marked ones (output token frequency).

HYP 2: For analogous reasons, a) iconic, b) morphotactically transparent and c) binunique person and number marking should emerge earlier and should be more frequent in children’s speech.

ad II. Typological adequacy

HYP 3: Due to the near absence of morphological operations, person and number expressed in terms of the isolating language type should be the first to emerge.

ad III. Language-specific system adequacy

HYP 4: Productive verb classes should emerge earlier and should be used more often during the course of the acquisition of person and number marking. (Note that for German and French verbs, the factor ‘productivity’ cannot be separated from ‘lemma frequency’ and ‘default’, since in both languages, the only productive verb class 1 (see section 1.1.) has the highest lemma frequency and functions also as default class).

HYP 5: Person and number marking should emerge earlier and should be more frequent in verb classes with morphologically less complex present indicative and imperative formation (see section 1.1.). This hypothesis converges with the factor ‘morphotactic transparency’ of HYP 2.

HYP 6: Person and number marking should emerge earlier in verb classes with a higher number of possible homophonemic forms (see section 1.1.). This hypothesis is in conflict with the factor ‘biuniqueness’ of HYP 2.

1.2.2. Psycholinguistic factors

A certain number of psycholinguistic factors resulting from principles of storage and processing of language material may reinforce, modify, or interact with the linguistic factors cited above.

An important psycholinguistic factor is the cognitive-conceptual complexity of the notions and perceptions that children have to identify and express. The cognitive-conceptual complexity, which is at the basis of the semantic complexity of linguistic categories mentioned above in HYP 1, reflects the general constraints that operate in the cognitive system, such as perceptual, mnemonic or learning constraints. Recently, cognitive-conceptual complexity has been considered as a determining factor for the developmental lag of verbs as compared to nouns (Gentner 1982; Caselli, Bates, Casadio, Fenson, Fenson, Sandier & Weir 1995; Caselli, Casadio & Bates 1999). Verbs are considered to be more difficult to learn than nouns because verbs are conceptually more complex, less tangible, and correspond to less cohesive perceptual entities than nouns. According to Gentner (1982: 324) “the perceptual elements that are packaged into verb referents are distributed more sparsely through the perceptual field’. A number of more recent studies (e.g. Tomasello 1992, 1995) have emphasized the cognitive-conceptual complexity of verbs that typically refer to ambiguous and transient events which are not perceptually available to the child when the word is uttered. Moreover, there exist differences in conceptual complexity between the notions referred to by different verb forms. For example, within the category of tense, present references are likely to be more accessible than past and future references; and within aspectual and modal categories, perfective is likely to be more accessible than imperfective, and actual more than non-actual.

In addition, more specific language-input factors, such as input frequency (i.e. adult token frequency in child-directed speech), perceptual saliency (e.g. utterance final position) and pragmatic saliency in child-centered speech situations are likely to influence the acquisition of verb categories (cf. Bates, Marchman, Thal, Fenson, Dale, Reznick, Reilly & Hartung 1994; Gopnik, Choi & Baumberger 1996; Naigles & Hoff-Ginsberg 1998; Tardif, Shatz & Naigles 1997). However, since the approach of this article is basically linguistic, we will not systematically investigate these factors and relegate them to the status of ‘confounding variables’.

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5 Cross-linguistic (typological) aspects of a general homophony hypothesis which are outside the area of the present contribution are, for example: the infinitive should emerge earlier in German and French than in Italian, Russian etc. because the German Inf. is homophonous with 1. and 3. Pl. Pres.Ind., the French Inf. of the dominant 1ª class with PP and 2. Pl. Pres.Ind., whereas the Italian, Russian etc. Inf. is not homophonous with any other verb form.
2. Methodology

2.1. The data

The present study is based on longitudinal spontaneous speech data of one Austrian and one French child. The Austrian child, the girl Katharina, is the second of three children of an Austrian couple living in Vienna. She was audiorecorded in free play situations (mostly in interaction with the mother) from the age of 1;6 to 3;0. In comparison with other German speaking children, Katharina’s onset of speech is rather late, namely at around 1;8 - but she advances rapidly later on. In terms of Peters and Menm (1993: 745), her approach to language can be characterized as 'formulaic': i.e. she initially focuses on multisyllabic chunks of speech rather than on single words. Nursery rhymes and songs play an important role in Katharina’s early acquisition phase (Müller 1997: 61ff.).

The French child, the girl Pauline, is the youngest of four children in a family living in Rouen. She was audio- and videorecorded in everyday situations (during interactive sessions with her family) from the age of 1;2 to 3;0. Various studies carried out on Pauline’s language (e.g. Bassano 1998a; 1998b; 1999; to appear; Bassano & Maillochon 1994; Bassano, Maillochon & Eme 1998) indicate that this child’s linguistic development is according to the norm (words as early as 1;2 and productive speech around 1;6). With respect to lexical style (cf. Bates et al. 1994; Nelson 1973), Pauline is referential, with a predominance of nouns in her vocabulary; with respect to grammatical development, she is not particularly precocious in the onset of grammar.

The data of both children were transcribed according to the norms of CHILDES in CHAT format (MacWhinney 1995). A detailed overview of Katharina’s and Pauline’s corpora, including the child’s age, the duration of the session in minutes, the number of the child’s productions (i.e. all verbal emissions of the child), the child’s utterances (i.e. those emissions which are linguistic productions), the analyzed utterances and the child’s MLU (in words) is given in the appendix (tables A, B). To qualify as an utterance, a production had to include at least one meaningful unit resembling a German or French word in form and meaning. Babbling, vocalizations and completely incomprehensible strings were not considered utterances and were thus excluded.

2.2. Morphological coding and analyses

In order to allow interindividual comparisons in terms of absolute values (instead of percentages), the analyses presented in this paper were conducted on monthly samples of 120 utterances. The Austrian sample was chosen automatically and randomly; the French sample was selected manually, preserving long and non-interrupted discursive sequences.

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9 Katharina: Data collection and transcription was made by Brigitta Müller (and Maria Sedlik) within the FWF-project P10250SPR.
10 Pauline: Data were collected and transcribed by Isabelle Maillochon.

11 Morphological coding of the French data was done by Isabelle Maillochon and Dominique Bassano, with assistance of Madeleine Leveillé for data processing; Sabine Klampfer was responsible for the automatic morphological coding of the Austrian data (using CLAN’s MOR utility) and for the creation of the full-form lexicon GER.LEX. which was used for this purpose.
12 It is important to note that Katharina produces 3. Sg. forms productively already from 2;1 on, but due to the restriction of data analysis to 120 utterances per month these examples were not taken into account.
13 This example is also the first occurrence of 2. Sg. Pres.Ind. with respect to the whole data.
From 2;7 to 2;9 erroneous replacements of 2.Sg. by suffixless stem forms (not included in Table 4) can be observed. (These forms do not result from phonological difficulties, since at this age Katharina already produces consonant clusters in words such as *Polster' 'pillow' and *finster' 'dark' and in the competing correct singular forms.) One example for such an erroneous replacement is given in (1):

(1) Child’s age: 2;08.22 (KAT = Katharina, the target child, MUT = the child’s mother)

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(2) Child’s age: 2;10.22

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</tbody>
</table>

Katharina starts to use plural verb forms in the present indicative at 2;6, i.e. after the emergence of all three persons in the singular. The first plural forms to be observed are 1st person plurals (2;6 *spielen wir das? ‘do we play this?’), followed by 3rd person plurals (2;10 *die sind ‘they/these are’). Verb forms of the 2. Pl. Pres. Ind. and of the 1. and 2. Pl. Imp. do not occur at all in the data. In the plural, the only errors to be observed are replacements of the 3. Pl. copula *sind ‘are’ by the 3. Sg. *ist ‘is’, as illustrated in (2):

Throughout the whole period of observation, Katharina produces most frequently verb forms of the 3. Sg. Pres. Ind. (42 types/162 tokens), followed by verb forms of the 1. Sg. (33/111). Verbs of the 2. Sg. and 1./3. Pl. occur less frequently (2. Sg. 8/15, 2. Sg. Imp. 7/17; 1. Pl. 8/14, 3. Pl. 2/9).

Paradigmatic relations (‘miniparadigms’\(^1^5\)) in the present indicative and imperative start to emerge at the age of 2;4. The first oppositions to be observed are within different verb forms in the singular (e.g. 2;4 haben ‘to have’; ich hab – hast du; 2;5 geben ‘to give’; ich geb – gib; 2;7 sein ‘to be’: ich bin – er ist, gehen ‘to go’: ich geh – er geht) – paradigm extension towards plural forms occurs later (e.g. 2;8 geben ‘to give’: ich geb – gib! – gebt; 2;10 haben ‘to have’: ich hab – er hat – wir ha(b)m; sein ‘to be’: er ist – die sind; 2;11 gehen ‘to go’: er geht – geht).

\(^{15}\) A miniparadigm, as defined for the purposes of this paper, consists of at least 2 morphotactically different types of the same lemma uttered within one month of recordings.
3.1.2. Distribution of verb forms with regard to verb classes

The tables 5a and 5b present the distribution of Katharina's lemmas and tokens in the present indicative and imperative with regard to the verb classes defined in section 1.1. Most frequent in terms of lemma frequency are verbs of class 1\(^{16}\) (37 of 73 lemmas), most frequent in terms of token frequency are suppletive auxiliaries as main verbs (106 of 328 tokens). For class 1 to 5 the following order of emergence can be observed: class 1 (e.g. 2;1 schauen 'to look') > class 2 (e.g. 2;3 gehen 'to go') > class 3, class 4 (e.g. 2;4 halten 'to hold', geben 'to give') > class 5 (e.g. 3;0 nehmen 'to take'). The order is the same for the total sum of lemmas and tokens: class 1 (37 lemmas / 66 tokens) > class 2 (9/24) > class 3 (8/20) > class 4 (4/15) > class 5 (1/1). Modals (class 6) start to emerge rather early (at 2;3) and have high token frequency. The first example of suppletive auxiliaries as main verbs (class 7) was found at 1;8, auxiliaries (class 7) are attested from 2;5 onwards.

Verb-class conditioned erroneous forms were found in class 3 (2;7 ich *schläf < schlafen '1 sleep'). In the 3. Sg. of class 3 verbs, Katharina varies between standard and colloquial forms, i.e. with and without umlaut (e.g. 2;7 fallt raus 'falls out', 2;8 fällt runter 'falls down').

As can be seen in the following figures (fig. 1-3), the distribution of tokens is not the same for different subcategories of the present indicative and imperative. Thus, in the 1. Sg. Pres.Ind. (fig. 1a) modal verbs constitute 31% of all tokens. 1. Sg. forms of all verb classes occur in Katharina's data. In the 3. Sg. Pres.Ind. (fig. 2a) suppletive auxiliaries as main verbs dominate (47%). No examples of verbs of class 4 and 5 have been found in this subcategory. In the 2. Sg. Imp. (fig. 3a), verbs of class 1 have the highest token frequency (59%). There are imperatives of class 1 to 4 in Katharina’s data. As far as frequency is concerned (fig. 1b, 2b, 3b), class 1 verbs are most frequent in all three subcategories.

---

\(^{16}\) No examples for verbs of the subclass 1' have been found in Katharina's data.
3.2. French

3.2.1. Production of verb forms in the present indicative and imperative

Table 6 lists the number of types and tokens in the present indicative and imperative observed in Pauline’s data. With Pauline, the first occurrences of verbs are attested at the age of 1;2. The first verb forms to emerge are 3. Sg. and 1. Sg. in the present indicative (1;2 est ‘is’, 1;3 veut ‘want’) and 2. Sg. in the imperative (1;2 donne! ‘give!’), tiers! ‘tiers! ’told!’). The first example of 2. Sg. present indicative is attested at 1;7 (entiens ‘hears’) - from 2;1 on, 2. Sg. forms occur more regularly in the data. First occurrences of 3. Sg. (on) and 3. Pl. are found at 1;11 (on met ‘one puts / we put’) and 1;9 (sont ‘are’) respectively – but only at 2;2 and 2;5 Pauline starts to use these forms more productively. No examples of 1st person and 2nd person plural indicatives and imperatives have been found in Pauline’s data.
Throughout the whole period of observation Pauline produces most frequently verb forms of the 3. Sg. (47 types / 446 tokens), followed by verb forms of the 1. Sg. (44/256). Less frequent are 2. Sg. present indicative (21/54), imperative (13/63), and the morphotactic 3. Sg. (on) (10/38). Verbs of the 3. Pl. occur far less frequently (4/12).

In the French data, no erroneous replacements have been found. With Pauline, paradigmatic oppositions in the present indicative and imperative start to emerge at the age of 2;3 (e.g. 2;3 regarder ‘to look’: m garde bébé là ‘he looks at the baby here’ – regarder, c’est pareil ‘look, it’s the same!’; 2;4 faire ‘to do’: voir comment fais moi ‘you will see how I do’ – elle, fais voir! ‘let me see her!’). These oppositions, however, are based only on semantic, not on formal criteria. Real ‘mini-paradigms’ in terms of formal differences (see footnote 15) are attested for the first time at the age of 2;5 (e.g. aller ‘to go’: je vais – on va; avoir ‘to have’: j’ai – il a; être ‘to be’: il est – ils sont).

3.2.2. Distribution of verb forms with regard to verb classes

The next tables (7a, 7b) give an overview of the distribution of Pauline’s verbs (lemmas and tokens) in the present indicative and imperative according to the verb classes defined in section 1.1. As far as lemma frequency is concerned, verbs of class 1 are most frequent in Pauline’s data (45 of 81 lemmas) – as to token frequency, suppletive auxiliaries as main verbs dominate (320 of 869 tokens).

There is no clear descending ranking from class 1 to class 5 in the French data. Thus, with Pauline, the following order of emergence can be observed: class1\textsuperscript{13}, class 5 (e.g. 1;2 regarder ‘to look’, tenir ‘to hold’) > class 4 (e.g. 1;7 entendre ‘to hear’) > class 2 (e.g. 2;2 courir ‘to run’) > class 3 (e.g. 2;3 réfléchir ‘to think’). The order is different for the total sum of lemmas and tokens: class 1 (45 lemmas) > class 4 (9 lemmas) > class 3 (4 lemmas) > class 2, class 5 (3 lemmas); class 1 (125 tokens) > class 4 (50 tokens) > class 3 (27 tokens) > class 5 (25 tokens) > class 2 (7 tokens). Both modalis (class 6) and suppletive auxiliaries as main verbs (class 7) appear very early (i.e. at 1;3 and 1;2 respectively) and have high token frequency; auxiliaries (class 7') are attested from 2;0 onwards.

\footnote{Note that the subclasses of class 1 emerge later: subclass 1\textsuperscript{'} (1;5), subclass 1\textsuperscript{''} (2;3).}
Figures 4 to 6 show the distribution of tokens and types for the subcategories of the 1. and 3. Sg. present indicative and 2. Sg. imperative. As can be seen in figure 4a, in the 1. Sg. Pres.Ind. modal verbs have the highest token frequency (34%) of all tokens. Examples of all verb classes have been found in this subcategory. In the 3. Sg. Pres.Ind. (fig. 5a) tokens of suppletive auxiliaries as main verbs are by far the most frequent (60%). 3. Sg. forms of all verb classes occur in Pauline’s data. In the 2. Sg. Imp. (fig. 6a) class 1 verbs dominate in terms of token frequency (45%). Imperatives of the classes 1, 1', 3, 4 and 5 have been found in Pauline’s data. As to type frequency (fig. 4b, 5b, 6b), verbs of class 1 are most frequent in all three subcategories.

### Figure 4a
Pauline: Distribution of 1. Sg. Pres.Ind. with regard to verb classes (tokens %)

<table>
<thead>
<tr>
<th>Class</th>
<th>Token %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (aux)</td>
<td>20%</td>
</tr>
<tr>
<td>1'</td>
<td>10%</td>
</tr>
<tr>
<td>2 (supp.aux)</td>
<td>1%</td>
</tr>
<tr>
<td>5</td>
<td>1%</td>
</tr>
<tr>
<td>6 (mod)</td>
<td>9%</td>
</tr>
<tr>
<td>7 (aux)</td>
<td>9%</td>
</tr>
</tbody>
</table>

### Figure 4b
Pauline: Distribution of 1. Sg. Pres.Ind. with regard to verb classes (types %)

<table>
<thead>
<tr>
<th>Class</th>
<th>Type %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (aux)</td>
<td>7%</td>
</tr>
<tr>
<td>1'</td>
<td>7%</td>
</tr>
<tr>
<td>2 (supp.aux)</td>
<td>5%</td>
</tr>
<tr>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td>6 (mod)</td>
<td>4%</td>
</tr>
<tr>
<td>7 (aux)</td>
<td>6%</td>
</tr>
</tbody>
</table>

### Figure 5a
Pauline: Distribution of 3. Sg. Pres.Ind. with regard to verb classes (tokens %)

<table>
<thead>
<tr>
<th>Class</th>
<th>Token %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (aux)</td>
<td>10%</td>
</tr>
<tr>
<td>1'</td>
<td>1%</td>
</tr>
<tr>
<td>2 (supp.aux)</td>
<td>3%</td>
</tr>
<tr>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>5</td>
<td>6%</td>
</tr>
<tr>
<td>6 (mod)</td>
<td>6%</td>
</tr>
<tr>
<td>7 (aux)</td>
<td>50%</td>
</tr>
</tbody>
</table>

### Figure 5b
Pauline: Distribution of 3. Sg. Pres.Ind. with regard to verb classes (types %)

<table>
<thead>
<tr>
<th>Class</th>
<th>Type %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (aux)</td>
<td>6%</td>
</tr>
<tr>
<td>1'</td>
<td>6%</td>
</tr>
<tr>
<td>2 (supp.aux)</td>
<td>8%</td>
</tr>
<tr>
<td>4</td>
<td>4%</td>
</tr>
<tr>
<td>5</td>
<td>100%</td>
</tr>
<tr>
<td>6 (mod)</td>
<td>0%</td>
</tr>
<tr>
<td>7 (aux)</td>
<td>0%</td>
</tr>
</tbody>
</table>

### Figure 6a
Pauline: Distribution of 2. Sg. Imp. with regard to verb classes (tokens %)

<table>
<thead>
<tr>
<th>Class</th>
<th>Token %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (aux)</td>
<td>0%</td>
</tr>
<tr>
<td>1'</td>
<td>0%</td>
</tr>
<tr>
<td>2 (supp.aux)</td>
<td>5%</td>
</tr>
<tr>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>5</td>
<td>35%</td>
</tr>
<tr>
<td>6 (mod)</td>
<td>0%</td>
</tr>
<tr>
<td>7 (aux)</td>
<td>6%</td>
</tr>
</tbody>
</table>

### Figure 6b
Pauline: Distribution of 2. Sg. Imp. with regard to verb classes (types %)

<table>
<thead>
<tr>
<th>Class</th>
<th>Type %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (aux)</td>
<td>0%</td>
</tr>
<tr>
<td>1'</td>
<td>0%</td>
</tr>
<tr>
<td>2 (supp.aux)</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>3%</td>
</tr>
<tr>
<td>5</td>
<td>8%</td>
</tr>
<tr>
<td>6 (mod)</td>
<td>0%</td>
</tr>
<tr>
<td>7 (aux)</td>
<td>0%</td>
</tr>
</tbody>
</table>

### 4. Discussion

The results presented in section 3 allow us to make the following statements about the relevance of our assumptions on acquisition (see section 1.2.):

**HYP 1: yes**

Hypothesis 1 is corroborated by both German and French results. With the Austrian child Katharina, the subcategories of person and number were observed to emerge in the following order:

- Imp.: 2.Sg. > (1.Pl., 2.Pl.)

Within the category of number, the unmarked singular emerged before the marked plural. Within the category of person, in the present indicative, the less marked 1st and 3rd persons emerged before the marked 2nd person, in the imperative the 2nd person emerged first (markedness reversal). The same order of emergence holds true for the French child Pauline, with the only exception of the 1. Pl. (nous), which does not occur at all in Pauline’s data:

- Imp.: 2.Sg. > (1.Pl., 2.Pl.)

In accordance with the spoken French input the morphosemantic 1. Pl.\(^{20}\) (but morphotactic 3. Sg.) on-form replaces the much less used standard 1. Pl. nous-form. In this way, the order of emergence is identical in French and German.

With both children, the total number of verb forms in the present indicative and imperative (output token frequency) parallels the above sequences (compare tables 4 and 6). Additional investigations of the confounding variable ‘input frequency’\(^{21}\) (see section 1.2.2.) showed that this result is not directly input-related. As can be seen below, in contrast to the child, the Austrian mother used verb forms of the 2. Sg. more often than verb forms of the 1. Sg:

- Imp.: 2.Sg. (784) > 1.Pl. (41) > 2.Pl. (15)

As a consequence of the order of emergence and of output token frequency, paradigmatic oppositions were first observed within the unmarked singular.

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\(^{19}\) Parentheses indicate that the respective subcategories do not occur at all in the analyzed data.

\(^{20}\) Most of the examples of ‘on + V’ found in Pauline’s data were morphosemantically plural, only a few were impersonal.

\(^{21}\) For input frequency we have analyzed all child-directed utterances of Katharina’s mother during the recording sessions analyzed for this paper, yielding the total sum of 4294 verb tokens in the present indicative and imperative.
Further evidence for HYP 1 is provided by the errors found in the German data: Marked subcategories were replaced by less marked subcategories rather than vV (e.g. substitution of 3. Pl. by 3. Sg. forms: 2 tokens, substitution of 3. Sg. by 3. Pl. forms: 0 tokens), and marked (rather than unmarked) subcategories were replaced by pure stem forms (e.g. substitution of 2. Sg. by stem forms: 3 tokens, substitution of 3. Sg. by stem forms: 1 token).

HYP 2

a) Constructional iconicity: ?
As far as number is concerned, our hypothesis on diagrammatic iconicity cannot be tested, since there are too few plural forms in the data to allow clear comparisons between more and less iconic symbolization. As to person, one could argue that the diagrammatic German 2. Sg. suffix -sr should emerge relatively earlier than the non-iconic French 2. Sg. -2, but this prediction is in conflict with the predictions of the typological hypothesis (HYP 3) and with the effects of homophony (HYP 6).

b) Morphotactic transparency: yes
In the German verb classes 1 to 5 morphotactically opaque person and number marking (umlaut) is obligatory with the 2. / 3. Sg. Pres.Ind., the 2. Sg. Imp. of class 4 and 5 and facultative with the 2. / 3. Sg. Pres.Ind. of class 3 (see section 1.1.). In these five classes, transparent verb forms emerged earlier with Katharina than comparable opaque ones: 2. Sg. machst du 'you do' (2;7) vs. sehst du 'you see' (2;9); 3. Sg. spielt 'play' (2;4) vs. gefällt mir 'it is to my taste' (2;8); Imp. 2. Sg. schau! 'look' (2;1) vs. gib her! 'give me!' (2;5) (cf. infinitives mach-en, seh-en, spiel-en, gefäll-en, schau-en, geb-en). Analysis of the total output frequency of 1. / 3. Sg. Pres.Ind. and 2. Sg. Imp. forms (see figures 1-3) showed that the overall transparent 1. Sg. forms (fig. 1) occur in verb classes 1 to 5, whereas 3. Sg. forms (fig. 2) are restricted to verb classes 1 to 3, i.e. to those verb classes which do not have obligatory opacifying umlaut. In the 2. Sg. Imp., opaque forms with umlaut are restricted to one pragmatically salient type, namely gib! 'give!'. With the French child Pauline, opaque forms of the verb classes 1 to 5 have not emerged yet.

With modals and with opaque persons and number marking emerges early and is very frequent in Katharina's and Pauline's data ( - but for these two classes there do not exist comparable transparent counterparts). In the case of modals the confounding variable 'pragmatic salience' (see section 1.2.2.) seems to play an important rule: both children use modals predominantly in the 1. Sg. (compare fig. 1a, 4a) in order to express their own intentions, desires and abilities ('dynamic modality' cf. Bassano 1996: 78). A similar phenomenon was observed with regard to the children's use of auxiliaries: it is predominantly 'demonstrative' and thus restricted to the 3. Sg. (compare fig. 2a, 5a). Another confounding variable involved here is 'input frequency' (see section 1.2.2.): in the input data analyzed for this paper (see footnote 21), modals and auxiliaries constitute 46% of all verb tokens in the present indicative and imperative.22

22 Of these, modals make up 13% (554/4294), suppletive auxiliaries as main verbs 26% (1110/4294) and auxiliaries 7% (295/4294).

The biuniqueness prediction is superseded by the effects of homophony (see HYP 6).

HYP 3: yes

Our results seem to be compatible with the prediction of our typological hypothesis: Verb forms in the present indicative and imperative emerged much earlier in the more isolating language French (first spontaneous use at 1;2) than in German (first spontaneous use at 2;0). Even if one considers that Katharina, in comparison to Pauline, is a 'late-beginner' - her onset of speech is to be dated six months later than Pauline's (see section 2.1.) and she reaches an MLU (words) of 2 four months later than Pauline (see tables A, B in the appendix) - the distance in time between Pauline's and Katharina's first verbs is relatively big (ten months).

Instead of verbs, Katharina first used isolated verb particles (separable stressed verb prefixes) such as weg 'gone' (1;8), aus 'out' (1;10), her 'here' (2;0) to code verbal meanings. This strategy is typical of German speaking children (cf. Dressler, Bassano, Klampfer, Maillochon & Sedlak 1999; Vollmann et al. 1997) - in French verb particles of this type do not exist.

HYP 4: (yes)

Present indicative and imperative forms of the productive verb class 1 emerged very early in both languages (e.g. Katharina: 2;1 schau! 'look!', Pauline: 1;2 donne! 'give!'; see also tables 5 and 7), but simultaneously, or in close succession, also first occurrences of unproductive verb forms such as modals (Katharina: 2;3 weiß ich 'I know'; Pauline: 1;3 veux 'want') and other pragmatically salient verb types (e.g. Pauline 1;2 tiens! 'hold!') were observed. Structurally similar, but unproductive subclasses of class 1 did not occur at all in Katharina's data, and emerged later in Pauline's data.

As to output frequency, productive verbs are by far the most frequent in terms of lemma frequency, but not with regard to token frequency (Katharina: 37 of 73 lemmas; Pauline: 45 of 81 lemmas; see tables 5a and 7a). In contrast, class 1 verbs have also the highest frequency both in adult language and in the input of Katharina (29%23 of all verb tokens in the present indicative and imperative).

HYP 5: yes / ?

As has already been laid out under HYP 2b 'morphotactic transparency', with the exception of modals and auxiliaries (classes 6 and 7), person and number marking emerges earlier in German verb classes with less morphologically complex present tense and imperative formation, yielding the following order of emergence:

class 1 > class 2 > class 3, class 4 > class 5

23 1262/4294.
Morphotactically less complex verb classes also occur more frequently in Katharina’s data (output token frequency; see table 5b).

For the French child Pauline, no such ranking from class 1 to 5, i.e. from less to more complex, was observed. A closer look at the French data shows that, until the end of recordings, Pauline’s use of verb forms is limited to the 1./2./3. Sg. and the morphotactic 3. Pl. (on), which are equally complex within all five verb classes. The distinction more/less morphotactically complex is thus not yet of relevance for her.

Exceptions in both languages are the morphologically complex, but pragmatically salient and very frequent verb classes 6 and 7 (see also HYP 2b).

HYP 6: no but...

Neither the German nor the French data analyzed for this paper support the hypothesis that person and number marking should emerge earlier in verb classes with a higher number of possible homophonous forms. But, especially for French, another effect of homophony has been detected: Pauline starts to use multifunctional, homophonous ‘passe-partout’ forms of the type je/tu/ils/on [zwa]gard] ‘you/he/we look(s)’ and [zwa]gard] ‘look!’ earlier than comparable bimorphous ones such as je [ve] ‘I go’ vs. tu/ils [va] ‘you/he/go(es), [va] ‘go!’ (Dressler et al. 1999). This conflicts with the factor ‘bimorphousness’ (HYP 2c), and contradicts Slobin’s Universal E3 ‘If there are homonymous forms in an inflectional system, those forms will tend not to be the earliest inflections acquired by the child: i.e. the child tends to select phonologically unique forms, when available, as the first realization of inflections’ (Slobin 1973: 203).

5. Conclusion

This study has been the first contrastive analysis of monolingual verb acquisition by (Austrian) German and French speaking children done within the same theoretical stance (functionalism, Natural Morphology) and with the same methodology.

For the range of this study, emergence of person and number marking, our framework allowed the formulation of a series of hypothetically relevant linguistic factors. At least the following have been supported by our data: in reference to universal markedness (first subtheory of NM), the semantically less marked character of singular within number, and the diverse markedness relations in indicative and imperative proved to be relevant. Furthermore, relative morphotactic transparency favoured earlier emergence. In reference to typological adequacy (second subtheory of NM), characteristic elements of the isolating language type (verb particles in German; unchangeable, autonomous, monosyllabic base in French) emerged earlier. In reference to language-specific system adequacy (third subtheory of NM), high productivity favoured early emergence in terms of lemma frequency. The role of morphological complexity appeared to be relevant in German, that of homophony in French.

24 The only exceptions are the 3. Pl. forms ils mangent ‘they eat’ and ils font ‘they do’.

Finally, the role of psycholinguistic factors such as input frequency and pragmatic saliency that were not the focus of this study must not be neglected. These factors certainly contribute to phenomena such as the late emergence of plural forms which - in addition to being cognitively and semantically complex - are relatively scarce in standard communication. Moreover, they could explain phenomena that defy theoretical predictions: in particular, the early emergence and high token frequency of the morphologically complex modal verbs and of the verb sein/être ‘to be’ observed in both languages might be due to the fact that they are frequent in the child’s input; furthermore, these verbs are crucial in the child’s first communicative attempts, the 1. Sg. of modals serving the expression of the self-person (desires, refusals), the 3. Sg. of the verb sein/être serving the description of states of the world.

Abbreviations

A ablaut
Imp imperative
Ind indicative
PP past participle
Pl plural
Pres present
Sing singular
U umlaut
Inf infinitive

References


Kilian-Soch, Marianne & Wolfgang U. Dressler. in prep. French verb inflection. ms.


### Appendix

#### Table A: Katharina’s longitudinal corpus: characteristics of analyzed sessions from 1;6 to 3;0

<table>
<thead>
<tr>
<th>Session</th>
<th>Age</th>
<th>Duration</th>
<th>Productions</th>
<th>Utterances</th>
<th>Analyzed utterances</th>
<th>MLU[^25] /120[^25]</th>
</tr>
</thead>
<tbody>
<tr>
<td>kat01</td>
<td>1;06.03</td>
<td>14 min.</td>
<td>11</td>
<td>7</td>
<td>7</td>
<td>1.000</td>
</tr>
<tr>
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<td>1;06.24</td>
<td>22 min.</td>
<td>14</td>
<td>10</td>
<td>10</td>
<td>1.000</td>
</tr>
<tr>
<td>kat03</td>
<td>1;08.12</td>
<td>33 min.</td>
<td>48</td>
<td>42</td>
<td>42</td>
<td>1.000</td>
</tr>
<tr>
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<td>2 min.</td>
<td>21</td>
<td>20</td>
<td>20</td>
<td>1.000</td>
</tr>
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<td>38</td>
<td>38</td>
<td>1.056</td>
</tr>
<tr>
<td>kat08</td>
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<td>61</td>
<td>53</td>
<td>50</td>
<td>1.100</td>
</tr>
<tr>
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<td>12.5 min.</td>
<td>87</td>
<td>75</td>
<td>70</td>
<td>1.000</td>
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<td>17 min.</td>
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<td>124</td>
<td>100</td>
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</tr>
<tr>
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<td>10 min.</td>
<td>29</td>
<td>27</td>
<td>20</td>
<td>1.367</td>
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<tr>
<td>kat15</td>
<td>2:01.04</td>
<td>10 min.</td>
<td>98</td>
<td>92</td>
<td>70</td>
<td>1.367</td>
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<td>kat16</td>
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<td>6 min.</td>
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<td>25 min.</td>
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<td>205</td>
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<tr>
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[^25]: For MLU, repetitions and retractions have been included.

[^26]: For MLU, repetitions and retractions have been included.