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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 project¹ 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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1. 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 patterns² (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 fairytales) the preterite was not taken into consideration for this classification. The forms given are Inf., 3. Sg. Pres.Ind., 1. Pl. Pres.Ind., 2. Sg. Imp., PP.

(1) Suffixation, PP³ = 3sg

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

spielen 'to play': *er spielt, wir spielen, spiel!*, (ge)spielt

(1') Suffixation, PP + A

ex. *brennen, senden*

brennen 'to burn': *es brennt, wir brennen, brenn!*, (ge)brannt

² Productivity of inflectional patterns is the ability to use inflectional rules with new words. These 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 PPs do not have the prefix *ge-* before occlusives (ex. *gebracht* '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': *er bleibt, wir bleiben, bleib!*, (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, lies!*, (ge)lesen

(5) Suffixation +2U, PP + A

ex. *brechen, schmelzen, stehlen, sterben*

brechen 'to break': *er bricht, wir brechen, brich!*, (ge)brochen

(6) Modals

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

können 'can': 1.Sg.Pres.Ind. *ich kann, er kann, wir können, (ge)konnt*

(7) Suppletive auxiliaries as main verbs

i.e. *sein, haben, werden; tun*

sein 'to be': 1.Sg.Pres.Ind. *ich bin, er ist, wir sind, (ge)wesen*

(7') Auxiliaries (same)

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

	PRES. INDICATIVE		IMPERATIVE	
	Sg.	Pl.	Sg.	Pl.
1 st Pers.	spiel-(e)	spiel-(e)n ⁴		spiel-(e)n wir! / ~ma!
2 nd Pers.	spiel-st	spiel-t / -ts	spiel-Ø!	spiel-t! / -ts!
3 rd Pers.	spiel-t	spiel-(e)n		

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. & 3. Sg. Pres.Ind. (ex. *schlafen* 'to sleep': *du schläfst, er schläft*). In colloquial speech, however, this umlaut may be levelled (→ *du schlafst, er schlaft*). In class (4) and (5) umlaut is also used in the 2. Sg. Imp. (ex. *lesen* 'to read': *du liest, er liest, lies!*). Modal verbs and *wissen* 'to know' (class 6) end in zero in the 1. & 3. Sg. Pres.Ind. (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.

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, 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 = Pres3pl)
- (7) 4 (*sein*: Pres2pl = Imp2pl, Pres1pl = Imp1pl)
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 base⁵
ex. *dormir, rendre*
dormir 'to sleep': il dort, nous dormons, dors!, dormi

⁵ Here the base is amplified by adding a consonant.

- (5) Suffixation + amplified base⁵ + 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'.

	PRES. INDICATIVE		IMPERATIVE	
	Sg.	Pl.	Sg.	Pl.
1 st Pers.	[3u]	[3u-ô]		[3u-ô]!
2 nd Pers.	[3u]	[3u-e]	[3u]!	[3u-e]!
3 rd Pers.	[3u]	[3u]		

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, Pres1pl = Imp1pl)
- (3) 9 (Pres1sg = Pres2sg = Pres3sg = Imp2sg = PP, Pres2pl = Imp2pl, Pres1pl = Imp1pl)
- (4) 8 (Pres1sg = Pres2sg = Pres3sg = Imp2sg, Pres2pl = Imp2pl, Pres1pl = Imp1pl)
- (5) 8 (Pres1sg = Pres2sg = Pres3sg = Imp2sg, Pres2pl = Imp2pl, 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 be 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):

	GERMAN		FRENCH	
	Sg.	Pl.	Sg.	Pl.
1 st Pers.	ich spiel-(e)	wir spiel-(e)n	[ʒə ʒu]	[nu ʒu-ō]
2 nd Pers.	du spiel-st	ihr spiel-t	[ty ʒu]	[vu ʒu-e]
3 rd Pers.	er spiel-t	sie spiel-(e)n	[i(l) ʒu / ɔ ʒu ⁶]	[i(l) ʒu]

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; Skalička 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 (Zribi-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' (Mayerthaler 1981: 10f; 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 imperative less than other persons (Croft 1990: 98, 149; Dressler, Dążyk, Dążyk, Dziubalska-Kołaczyk & Jagła 1996: 3). This 'markedness reversal' in the imperative is due to the 'appellative' or 'addressing' nature of both 2nd person and imperative. 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: 61f., Wiese 1994: 178-184). On the other hand, one might say that the 3rd person as 'NON-PERSON' is

⁶ 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.

characterized by the absence of features being typical of the 1st and 2nd person and thus should be less marked (Benveniste 1966: 228-231).⁷

b) For markedness of symbolization, let us consider the parameters of constructional iconicity (cf. Mayerthaler 1987: 48f.), morphotactic transparency and biuniqueness (Dressler 1996, 1999; Dressler & Merlini Barbaresi 1994: 46f.).

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 anti-iconic modificatory 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 morphosemantic 1. Pl. (*on joue*). If there is an additional segmental marker, however, it is always diagrammatic in the plural: *je/tu/il* [ʒu, fini], *nous* [ʒu-ō, fini-s-ō], *vous* [ʒu-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 German, the past participle is always diagrammatically marked by a suffix (-t or (e)n), in French often only by weakly iconic modification or substitution (e.g. *prend* – *pris, met* – *mis, 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: 316f.) 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, morphosemantic distinctions are symbolized morphotactically more distinctively in German than in French.

⁷ Sign languages often differ from verbal languages in that they have just a binary distinction between 'EGO' and 'NON-EGO' (cf. Fabris 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) biunique 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 homophonic forms (see section 1.1.).⁸ 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, Sanderl & 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'.

⁸ 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 1st 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 Katharina⁹, 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 Menn (1993: 745), her approach to language can be characterized as 'formulaic': i.e. she initially focusses 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 Pauline¹⁰, 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.

⁹ Katharina: Data collection and transcription was made by Brigitta Müller (and Maria Sedlak) within the FWF-project P10250SPR.

¹⁰ Pauline: Data were collected and transcribed by Isabelle Maillochon.

The analyses are based on specific morphological codings¹¹ of the transcribed data. For quantitative analyses of the Austrian data, the CLAN programs of the CHILDES system were used. Within frequency counts, we have distinguished between a) lemma frequency (i.e. number of different verbs as 'lexical entries'), b) type frequency (i.e. number of different verb forms per lemma), and c) token frequency (i.e. number of occurrences for each specific verb form).

3. Results

We have performed two different types of analyses for each language: a general analysis of the child's production of verb forms in the present indicative and imperative, and an analysis of the distribution of these verb forms with regard to verb classes.

3.1. German

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

Table 4 gives an overview of the type and token frequency of correct verb forms in the present indicative and imperative produced by Katharina in the data analyzed for this paper. The first spontaneously produced forms to emerge are 1. Sg. in the present indicative (2;0 *brauch ich* 'I need') and 2. Sg. in the imperative (2;1 *schau!* 'look'). At 1;8 one 3. Sg. form occurs, but it is directly imitated (1;8 *is(t)* 'is'). From the age of 2;4 onwards the use of 1. and 3. Sg. Pres.Ind. increases.¹² At the same age the first example for 2. Sg. Pres.Ind. is attested (2;4 *has(t) du?* 'do you have?')¹³, but only from 2;7 on, 2. Sg. forms occur more regularly in the data.

¹¹ Morphological coding of the French data was done by Isabelle Maillochon and Dominique Bassano, with assistance of Madeleine Léveillé 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.

Age	PRESENT INDICATIVE SG			PRESENT INDICATIVE PL			IMPERATIVE SG
	1. Pers.	2. Pers.	3. Pers.	1. Pers.	2. Pers.	3. Pers.	
	Sum	Sum	Sum	Sum	Sum	Sum	
1;08			1/1				
1;09							
1;10							
1;11							
2;00	1/2						
2;01							
2;02							1/2
2;03	1/3						
2;04	5/12	1/2	2/3				1/1
2;05	11/13		4/8				1/1
2;06	4/6		9/21				2/2
2;07	13/21	3/6	10/17	2/2			1/1
2;08	7/11	1/1	11/12	1/2			2/3
2;09	12/24	3/3	7/13	2/2	1/2		2/3
2;10	4/5	1/1	12/35	2/3	2/2	1/6	1/1
2;11	5/7	1/1	8/24	2/2	2/2	4/4	2/2
3;00	5/7	1/1	14/28	3/3	1/1	4/4	
Sum	33/111	8/15	42/162	83/288	2/9	10/23	7/17

Table 4: Katharina's production of verb forms in the present indicative and imperative: Types/Tokens*

* Citations (e.g. poems, songs), ambiguous and incorrect forms have been excluded.

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)

*MUT: das is(t) rosa .
 %mor: PRO:dem|das V:S|sein-3S ADJ:pred|rosa .
 %eng: this is pink .
 *KAT: rosa moecht\$ du ?
 %mor: N|rosa V:mod|moecht\$STEM PRO|du ?
 %eng: do you want the pink one ?
 *MUT: nein gruen !
 %mor: ?|nein N|gruen !
 %eng: no, the green one !
 *KAT: gruen gefaellt mir so gut .
 %mor: N|gruen V:07|gefall-3S PRO|mir ?|so ADV|gut .
 %eng: I like green so much .

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 (*s*)*pieln 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):

(2) Child's age: 2;10.22

*KAT: nein das is(t) meine staebe !
 %mor: ?|nein PRO:dem|das V:S|sein-3P*agr
 DET:pro:poss|meine N|stab-PL4 !
 %eng: no, this is my sticks !

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'¹⁵) 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!* – *gebma*; 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* – *gehma*).

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.

Class / Age	1;08	1;09	1;10	1;11	2;00	2;01	2;02	2;03	2;04	2;05	2;06	2;07	2;08	2;09	2;10	2;11	3;00	Sum
1					1	1			2	7	6	7	5	6	6	5	6	37
1'								1		1	2	3	1	3	3	2	3	9
2									2	1	1	3	3	1		2	1	8
3									1	2		1	3	2			2	4
4																		
5																		
6 (mod)								1	2	3	3	2	4	4	2	2	4	6
7 (supp.aux)									1	2	2	4	2	2	2	2	2	5
7' (aux)										1	2	2	1	2	2		2	3
Sum					1	1		2	8	17	16	22	19	20	15	13	21	73

Table 5a: Katharina: Distribution of verb lemmas in the present indicative and imperative with regard to verb classes

Class / Age	1;08	1;09	1;10	1;11	2;00	2;01	2;02	2;03	2;04	2;05	2;06	2;07	2;08	2;09	2;10	2;11	3;00	Sum
1					2	2			4	7	7	8	6	9	6	8	7	66
1'																		
2								1		1	2	3	3	4	4	3	3	24
3									2	2	3	5	3	1		2	2	20
4									1	2		3	5	2			2	15
5																	1	1
6 (mod)								3	6	5	6	5	4	11	6	3	6	55
7 (supp.aux)									5	5	8	13	5	9	26	20	14	106
7' (aux)										1	4	10	3	7	9		7	41
Sum					2	2		4	18	23	30	47	29	43	51	36	42	328

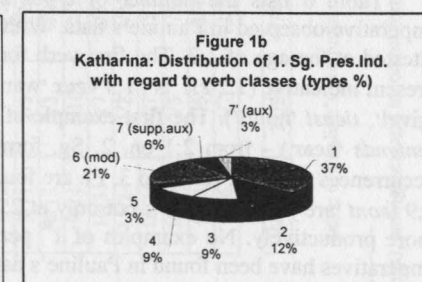
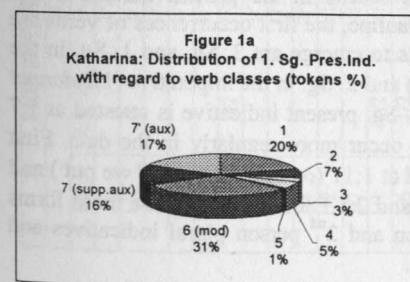
Table 5b: Katharina: Distribution of verb tokens in the present indicative and imperative with regard to verb classes

3.1.2. Distribution of verb forms with regard to verb classes

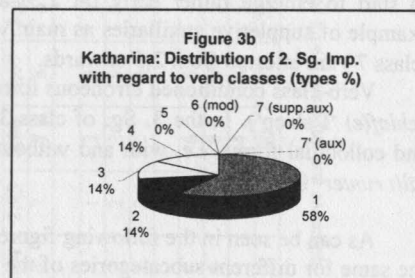
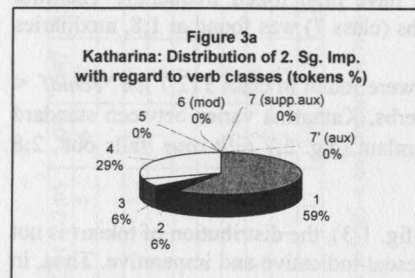
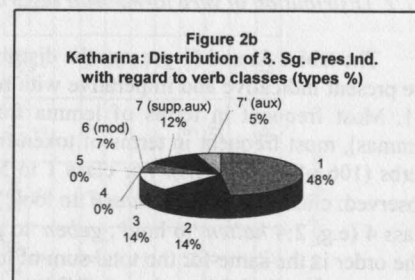
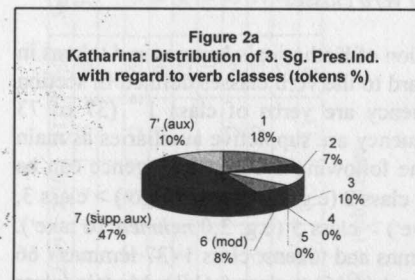
The tables 5a and 5b present the distribution of Katharina's lemmas and tokens in the present indicative and imperative with regard to the verb classes defined in section 1.1. Most frequent in terms of lemma frequency are verbs of class 1¹⁶ (37 of 73 lemmas), most frequent in terms of token frequency 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 *schlāf* < *schlaf(e)* 'I 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 *fällt 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 type 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 *veux* 'want') and 2. Sg. in the imperative (1;2 *donne!* 'give!', *tiens!* 'hold!'). The first example of 2. Sg. present indicative is attested at 1;7 (*entends* 'hear') - 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.

Age	PRESENT INDICATIVE				PRESENT INDICATIVE				IMPERATIVE	
	SG				PL				SG	
	1. Pers.	2. Pers.	3. Pers. il/on	Sum	1. Pers.	2. Pers.	3. Pers.	Sum	2. Pers.	
1;02			1/2	1/2					2/11	
1;03	1/3		1/1	2/4					2/3	
1;04	1/2		1/2	2/4					1/3	
1;05	2/3		1/1	3/4						
1;06	2/6		1/5	3/11					1/5	
1;07	1/4	1/2	1/8	3/14					1/1	
1;08	6/9		1/7	7/16			1/2	1/2	2/2	
1;09	1/1		1/7	2/8					1/2	
1;10	3/8		2/7	5/15						
1;11	1/2		4/10	6/13						
2;00	3/7		3/19	6/26					2/3	
2;01	1/1	1/2	4/19	6/22					2/5	
2;02	3/6	1/2	2/12	6/21					4/5	
2;03	6/12		8/25	16/39					1/1	
2;04	8/11	2/3	6/26	15/42					2/5	
2;05	6/13	3/3	9/29	16/49			2/3	2/3	1/1	
2;06	9/14	3/10	12/39	18/65			1/1	1/1	2/2	
2;07	10/31	3/7	8/33	17/72					2/2	
2;08	15/24	1/2	8/32	23/68					2/5	
2;09	16/35	6/7	10/29	23/74			2/3	2/3	1/2	
2;10	13/36	2/3	7/38	19/81			1/1	1/1	1/1	
2;11	9/12	4/6	15/40	26/64			1/2	1/2	2/2	
3;00	9/16	4/7	12/55	18/80						

Table 6: Pauline's production of verb forms in the present indicative and imperative: Types/Tokens

* Citations (e.g. poems, songs), ambiguous and incorrect forms have been excluded.



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' – *regarde, 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 'miniparadigms' 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: class 1¹⁸, 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 modals (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.

¹⁸ Note that the subclasses of class 1 emerge later: subclass 1' (1;5), subclass 1'' (2;3).

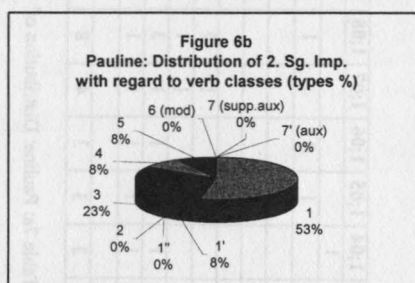
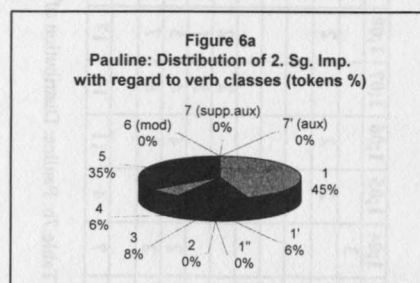
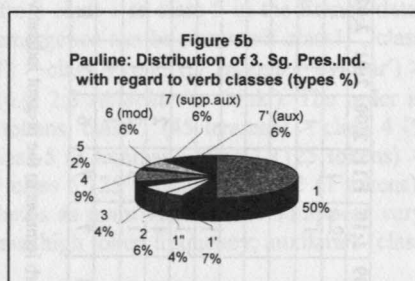
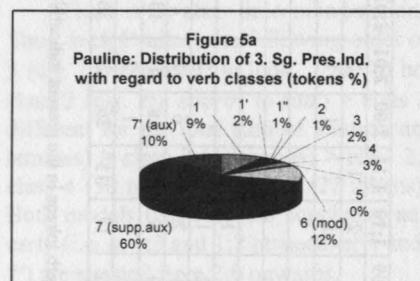
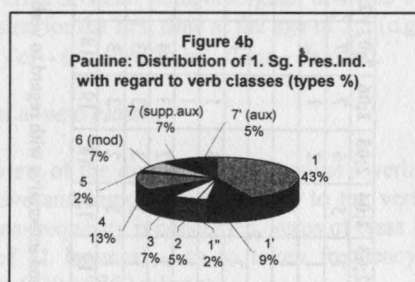
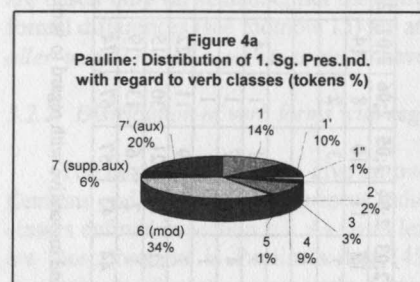
Class / Age	1;02	1;03	1;04	1;05	1;06	1;07	1;08	1;09	1;10	1;11	2;00	2;01	2;02	2;03	2;04	2;05	2;06	2;07	2;08	2;09	2;10	2;11	3;00	Sum
1	1	1	1						2	1		3	2	7	5	6	7	7	10	7	3	8	4	45
1'				1	1		1		1		1	1	1	1		2	1		1	4	1	1	1	5
1''																				1	1			2
2																								
3																								
4																								
5	1	1					2		1	2				2	1			1	1	1	1	3		3
6 (mod)							1	1	1			1	1		2	3	1		3	2	2	3	1	9
7 (supp.aux)							1	1	1	1	2	1	1	3	2	2	3	4	4	4	4	4	4	4
7' (aux)											1	1	2	1	3	3	3	3	2	2	3	2	3	3
Sum	3	4	3	3	3	4	8	3	7	7	6	8	8	19	15	18	19	18	25	25	20	26	18	81

Table 7a: Pauline: Distribution of verb lemmas in the present indicative and imperative with regard to verb classes

Class / Age	1;02	1;03	1;04	1;05	1;06	1;07	1;08	1;09	1;10	1;11	2;00	2;01	2;02	2;03	2;04	2;05	2;06	2;07	2;08	2;09	2;10	2;11	3;00	Sum
1	9	1	3						2	1		5	3	12	11	10	8	14	12	11	6	12	5	125
1'				2	2		2		5		1	1	1	2		3	2		2	9	2	3	6	43
1''														1						2	2			5
2													3								1	3		7
3																								
4						2	2		1	3				5	2	1	1	4	1	1	7	2	3	27
5	2	2				5	1	2	1			2	4	4	3	7	1		9	4	8	5	1	50
6 (mod)																								
7 (supp.aux)	2	1	2	1	4	4	5	1	2	2	6	2	2	7	6	9	11	22	14	15	13	12	11	154
7' (aux)					5	8	7	9	6	9	18	13	13	11	19	21	30	15	22	17	33	19	39	320
Sum	13	7	7	4	11	19	17	12	17	15	26	25	26	44	43	57	67	74	70	82	84	67	82	869

Table 7b: Pauline: Distribution of verb tokens in the present indicative and imperative with regard to verb classes

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.



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:

Pres.Ind.: 1.Sg., 3.Sg. > 2.Sg. > 1.Pl., 3.Pl. > (2.Pl.)¹⁹
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:

Pres.Ind.: 1.Sg., 3.Sg. > 2.Sg. > 1.Pl. (on), 3.Pl. > (1.Pl. (nous), 2.Pl.)
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:

Pres.Ind.: 3.Sg. (1830) > 2.Sg. (831) > 1.Sg. (337) > 1.Pl. (276) > 3.Pl. (151) > 2.Pl. (29)
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.

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 *-st* should emerge relatively earlier than the non-iconic French 2. Sg. *-Ø*, 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. *siehst du* 'you see' (2;9); 3. Sg. *spielt* 'plays' (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*, *gefall-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 auxiliaries (classes 6 and 7), opaque person 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 saliency' (see section 1.2.2.) seems to play an important role: 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).

c) Biuniqueness: no

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 limited²⁴ to the 1./2./3. Sg. and the morphotactic 3. Sg. (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 homophonic forms. But, especially for French, another effect of homophony has been detected: Pauline starts to use multifunctional, homophonic 'passe-partout' forms of the type *je/tu/il/on* [(kə)gəʁd], 'I/you/he/we look(s)' and [(kə)gəʁd]! 'look!' earlier than comparable biunique ones such as *je* [vɛ] 'I go' vs. *tu/il* [va] 'you/he go(es), [va]! 'go!' (Dressler et al. 1999). This conflicts with the factor 'biuniqueness' (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 earliest. 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
Sg	singular
U	umlaut
Inf	infinitive

References

- Bassano, Dominique. 1996. Functional and formal constraints on the emergence of epistemic modality: a longitudinal study on French. *First Language* 16; 77-113.
- Bassano, Dominique. 1998a. L'élaboration du lexique précoce chez l'enfant français: structure et variabilité. *Enfance* 4/1998; 123-153.
- Bassano, Dominique. 1998b. Sémantique et syntaxe dans l'acquisition des classes de mots: l'exemple des noms et des verbes en français. *Langue Française* 118; 26-48.
- Bassano, Dominique. 1999. Lexique et grammaire avant deux ans. *Actes des Journées scientifiques 1998*, Presses Universitaires de Reims; 229-250.
- Bassano, Dominique. to appear. Early development of nouns and verbs in French: Exploring the interface between lexicon and grammar. *Journal of Child Language*.
- Bassano, Dominique & Isabelle Maillochon. 1994. Early grammatical and prosodic marking of utterance modality in French: a longitudinal case study. *Journal of Child Language* 21; 649-675.
- Bassano, Dominique, Isabelle Maillochon & Elsa Eme. 1998. Developmental changes and variability in the early lexicon: a study of French children's naturalistic productions. *Journal of Child Language* 25; 493-531.
- Bates, Elizabeth, Virginia Marchman, Donna Thal, Larry Fenson, Philip Dale, J. Steven Reznick, Judy Reilly & Jeff Hartung. 1994. Developmental and stylistic variation in the composition of early vocabulary. *Journal of Child Language* 21; 85-123.
- Benveniste, Emile. 1966. Structure des relations de personne dans le verbe. In: E. Benveniste. *Problèmes de linguistique générale*. Paris: Gallimard; 225-236.
- Bittner, Andreas. 1996. Starke "schwache" und schwache "starke" Verben. Tübingen: Narr.
- Caselli, Cristina, Elizabeth Bates, Paola Casadio, Judi Fenson, Larry Fenson, Lisa Sanderl & Judy Weir. 1995. A cross-linguistic study of early lexical development. *Cognitive Development* 10; 159-199.
- Caselli, Cristina, Paola Casadio & Elizabeth Bates. 1999. A comparison of the transition from first words to grammar in English and Italian. *Journal of Child Language* 26; 69-111.

- Champaud, Christian. 1994. The development of verbs forms in French children around two years of age. Paper presented at the First Lisbon Meeting on Child Language, Lisbon, June 14-17, 1994.
- Clahsen, Harald, Martina Penke & Teresa Parodi. 1993. Functional categories in early child German. *Language Acquisition* 3 (4): 395-429.
- Croft, William. 1990. *Typology and universals*. Cambridge: Cambridge University Press.
- Dressler, Wolfgang U. 1985a. *Morphonology*. Ann Arbor: Karoma.
- Dressler, Wolfgang U. 1985b. Typological aspects of Natural Morphology. *Wiener Linguistische Gazette* 35-36; 3-26.
- Dressler, Wolfgang U. 1996. Comment on Wurzel's 'On similarities and differences between inflectional and derivational morphology'. *STUF* 49: 280-285.
- Dressler, Wolfgang U. 1997. ed. *Studies in Pre- and Protomorphology*. Wien: Verlag der Österreich. Akademie der Wissenschaften.
- Dressler, Wolfgang U. 1997a. On productivity and potentiality in inflectional morphology. *CLASNET Working Papers (Montréal)* 7; 3-22.
- Dressler, Wolfgang U. 1997b. Universals, typology, and modularity in Natural Morphology. In: R. Hickey & S. Puppel. eds. *Language history and language modelling*. Fs. J. Fisiak. Berlin: de Gruyter; 1399-1421.
- Dressler, Wolfgang U. 1999. On a semiotic theory of preferences in language. *The Peirce Seminar Papers*. Vol. IV. New York: Berghahn Books; 389-415.
- Dressler, Wolfgang U., Dominique Bassano, Sabine Klampfer, Isabelle Maillochon & Maria Sedlak. 1999. in print. Vergleich des Erstspracherwerbs des französischen und österreichisch-deutschen Verbalsystems. *Anzeiger der phil.-histor. Klasse der Österr. Akademie der Wissenschaften*.
- Dressler, Wolfgang U., Robert & Danuta Dążyk, Katarzyna Dziubalska-Kolaczyk & Ewa Jagła. 1996. On the earliest stages of acquisition of Polish declension. *Wiener Linguistische Gazette* 53-54; 1-21.
- Dressler, Wolfgang U., Willi Mayerthaler, Oswald Panagl & Wolfgang U. Wurzel. 1987. *Leitmotive in Natural Morphology*. Amsterdam: Benjamins.
- Dressler, Wolfgang U. & Lavinia Merlini Barbaresi. 1994. *Morphopragmatics*. Berlin: de Gruyter.
- Engel, Sabine. 1998. Die grammatische Kategorie der Verbalperson. In: K. Terzan – Kopecky ed. *Sammelband des II. Internationalen Symposions zur Natürlichkeitstheorie, 23. bis 25. Mai 1996*. Maribor: Pedagoška Fakulteta; 57-67.
- Fabris, Michael. 1998. Models of person in sign language. *Lingua Posnaniensis* 40; 47-59.
- Geckeler, Horst. 1984. Le français est-il une langue isolante? – V. Skalička et la typologie du français. In: Oroz Arizcuren F.J. ed. *Navicula Tubingensis*. Fs. A. Tovar. Tübingen: Narr; 145-159.
- Gentner, Dedre. 1982. Why nouns are learned before verbs: linguistic relativity versus natural partitioning. In: S. Kuczaj ed. *Language development*. Vol. II. Hillsdale: Erlbaum; 301-334.
- Gopnik, Alison, Soonja Choi & Therese Baumberger. 1996. Cross-linguistic evidence in early semantic and cognitive development. *Cognitive Development* 11; 197-227.
- Kilani-Schoch, Marianne & Wolfgang U. Dressler. in prep. French verb inflection. ms.
- Köhler, Katharina & Sabine Bruyère. 1996. Finiteness and verb placement in the L1 acquisition of German. *Wiener Linguistische Gazette* 53-54; 63-86.
- Le Goffic, Pierre. 1997. *Les formes conjuguées du verbe français oral et écrit*. Paris: Ophrys.
- MacWhinney, Brian. 1995. *The CHILDES Project: tools for analyzing talk*. Hillsdale: Erlbaum.
- Mayerthaler, Willi. 1981. *Morphologische Natürlichkeit*. Wiesbaden: Athenaion.
- Mayerthaler, Willi. 1987. System-independent morphological naturalness. In: Dressler et al.; 25-58.
- Müller, Brigitta. 1997. The acquisition of early morphology: a case study. In: Dressler ed.; 63-74.
- Naigles, Letitia R. & Erika Hoff-Ginsberg. 1998. Why are some verbs learned before other verbs? Effects of input frequency and structure on children's early verb use. *Journal of Child Language* 25; 95-120.
- Nelson, Katherine. 1973. Structure and strategy in learning to talk. *Monographs of the Society for Research in Child Development* 38/1-2.
- Peters, Ann M. & Lise Menn. 1993. False starts and filler syllables: ways to learn grammatical morphemes. *Language* 69/4; 742-777.
- Sabeau-Jouannet, Emilie. 1973. L'expression de modalités aspectivo-temporelles et son évolution chez des enfants de deux à quatre ans. *Etudes de Linguistique Appliquée* 9; 91-100.
- Skalička, Vladimír. 1979. *Typologische Studien*. Braunschweig: Vieweg.
- Slobin, Dan I. 1973. Cognitive prerequisites for the development of grammar. In: Ch. A. Ferguson & D. I. Slobin eds. *Studies of child language development*. New York: Holt; 175-208.
- Slobin, Dan I. 1985-1997. ed. *The crosslinguistic study of language acquisition*. Vol. I-V. Hillsdale: Erlbaum.
- Slobin, Dan I. 1985. Crosslinguistic evidence for the language-making capacity. In: D. I. Slobin ed. Vol. II; 1157-1256.
- Tardif, Twila, Marilyn Shatz & Letitia Naigles. 1997. Caregiver speech and children's use of nouns versus verbs: a comparison of English, Italian, and Mandarin. *Journal of Child Language* 24; 535-565.
- Tomasello, Michael. 1992. *First verbs: a case study of early grammatical development*. Cambridge: Cambridge University Press.

- Tomasello, Michael. 1995. Pragmatic contexts for early verb learning. In: M. Tomasello & W. E. Merriman. eds. *Beyond names for things: young children's acquisition of verbs*. Hillsdale: Erlbaum; 115-146.
- Vollmann, Ralf, Maria Sedlak, Brigitta Müller & Maria Vassilakou. 1997. Early verb inflection and noun plural formation in four Austrian children. *Papers and Studies in Contrastive Linguistics* 33; 59-78.
- Wiese, Bernd. 1994. Die Personal- und Numerusendungen der deutschen Verbformen. In: K.-M. Köpcke ed. *Untersuchungen zur deutschen Nominal- und Verbalmorphologie*; 161-191.
- Wurzel, Wolfgang U. 1984. *Flexionsmorphologie und Natürlichkeit*. Berlin: Akademie-Verlag.
- Zribi-Hertz, Anne. 1994. La syntaxe des clitics nominatifs en français standard et en français avancé. *Travaux de linguistique et de philologie* 32; 131-147.

Zusammenfassung

Der vorliegende Beitrag präsentiert Ergebnisse einer im funktionalistischen theoretischen Rahmen der Natürlichen Morphologie (NM) durchgeführten kontrastiven Studie zum frühen Erwerb von Verbalmorphologie im (Österreichischen) Deutsch und im Französischen. Im Zentrum dieses Beitrags steht die Emergenz von Personen- und Numerusmarkierung. Durch die hier analysierten Daten konnte die Relevanz von folgenden, im Rahmen der NM formulierten, linguistischen Faktoren bestätigt werden: Bezüglich universeller Markiertheit (erste Subtheorie der NM), erwiesen sich die relative Unmarkiertheit des Singulars sowie die verschiedenen Markiertheitsrelationen im Indikativ und Imperativ als relevant; weiters förderte morphotaktische Transparenz die frühe Emergenz von Personen- und Numerusmarkierung. Hinsichtlich typologischer Adäquatheit (zweite Subtheorie der NM) konnte die frühe Emergenz von charakteristischen Elementen des isolierenden Sprachtyps (dt. Verbpartikel; frz. invariable Grundform) beobachtet werden. Innerhalb sprachspezifischer Systemadäquatheit (dritte Subtheorie der NM) begünstigte hohe Produktivität die frühe Emergenz von Verblemmata; morphologische Komplexität erwies sich als relevanter Faktor für das Deutsche, Homophonie als relevanter Faktor für das Französische. Schließlich konnte auch ein (mitunter mit den linguistischen Faktoren konfligierender) Einfluß von psycholinguistischen Faktoren wie Inputfrequenz und pragmatischer Salienz auf die Emergenz von Personen- und Numerusmarkierung festgestellt werden.

Appendix

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

Session	Age	Duration	Productions	Utterances	Analyzed utterances	MLU ²⁵ /120/
kat01	1;06.03	14 min.	11	7	7	1.000
kat02	1;06.24*	22 min.	14	10	10	1.000
kat03	1;08.12	33 min.	48	42	42	1.000
kat06	1;09.29	2 min.	21	20	20	1.000
kat07	1;10.13	28 min.	63	38	38	1.026
kat08	1;11.03	12 min.	61	53	50	1.100
kat09	1;11.17	12,5 min.	87	75	70	1.333
kat11	2;00.18	17 min.	135	124	100	
kat12	2;00.21	10 min.	29	27	20	
kat15	2;01.04	10 min.	98	92	70	1.367
kat16	2;01.18	6 min.	78	74	50	1.517
kat18	2;02.05	25 min.	96	82	70	
kat19	2;02.11	7 min.	58	52	50	
kat20	2;03.07	32 min.	177	163	60	1.283
kat21	2;03.12	30 min.	205	175	60	1.883
kat23	2;04.10	30 min.	203	185	60	
kat24	2;04.22	30 min.	186	173	60	
kat25	2;05.00	30 min.	117	108	60	2.092
kat26	2;05.20	30 min.	170	155	60	2.317
kat27	2;06.00	30 min.	182	160	60	
kat29	2;06.20	30 min.	182	161	60	
kat30	2;08.03**	30 min.	270	238	120	3.208
kat31	2;08.22	30 min.	200	170	120	2.542
kat32	2;09.05	30 min.	128	100	60	2.733
kat33	2;09.17	30 min.	154	141	60	2.967
kat34	2;10.22	38 min.	369	338	120	
kat35	2;11.11	29 min.	158	144	120	
kat36	3;00.17	30 min.	190	149	120	2.783

²⁵ For MLU, repetitions and retracings have been included.

* = 1;07

** = 2;07

Table B: Pauline's longitudinal corpus: characteristics of analyzed sessions from 1;2 to 3;0

Session	Age	Duration	Productions	Utterances	Analyzed utterances	MLU ²⁶ /120/
Paul14a	1;02.20	30 min.	98	74	60	1.12
Paul14b	1;02.20	16 min.	97	63	60	
Paul15a	1;03.00	30 min.	94	63	60	1.15
Paul15b	1;03.20	26 min.	89	71	60	
Paul16a	1;04.00	23 min.	84	69	60	1.21
Paul16b	1;04.20	22 min.	64	60	60	
Paul17a	1;04.30	28 min.	110	93	60	1.19
Paul17b	1;05.20	32 min.	102	93	60	
Paul18a	1;06.08	16 min.	100	90	60	1.29
Paul18b	1;06.22	13 min.	96	76	60	
Paul19a	1;07.03	20 min.	170	132	60	1.42
Paul19b	1;07.27	20 min.	136	97	60	
Paul20a	1;08.05	15 min.	128	114	60	1.46
Paul20b	1;08.19	18 min.	138	121	60	
Paul21a	1;09.03	17 min.	156	133	60	1.33
Paul21b	1;09.24	15 min.	144	124	60	
Paul22a	1;10.07	37 min.	221	200	60	1.5
Paul22b	1;10.20	30 min.	207	186	60	
Paul23a	1;11.05	29 min.	229	205	60	1.83
Paul23b	1;11.21	11 min.	145	134	60	
Paul24a	2;00.03	17 min.	204	196	60	1.93
Paul24b	2;00.20	13 min.	204	187	60	
Paul25a	2;01.17	17 min.	202	189	60	2.00
Paul25b	2;01.22	31 min.	211	197	60	
Paul26a	2;02.05	24 min.	200	192	60	2.27
Paul26b	2;02.19	19 min.	208	198	60	
Paul27a	2;02.29	21 min.	205	202	60	2.47
Paul27b	2;03.20	20 min.	232	222	60	
Paul28a	2;04.03	34 min.	210	206	60	3.39
Paul28b	2;04.17	24 min.	200	192	60	
Paul29a	2;05.07	23 min.	212	212	60	3.36
Paul29b	2;05.20	27 min.	203	197	60	
Paul30	2;06.13	50 min.	364	359	120	4.61
Paul31	2;07.10	48 min.	330	323	120	4.42
Paul32	2;08.03	40 min.	252	247	120	3.86
Paul33	2;09.08	45 min.	365	359	120	5.38
Paul34	2;10.05	51 min.	308	305	120	4.87
Paul35	2;11.03	46 min.	310	299	120	4.81
Paul36	3;00.07	51 min.	292	282	120	4.65

²⁶ For MLU, repetitions and retracings have been included.