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## SOME THOUGHTS ON LANGUAGE DEVELOPMENT IN CZECH-SPEAKING CHILDREN

The intention of our research is to study the process of speech development in Czech children from their first utterances to the complete series of contrasts which make up their eventual adult speech.

The present article is based on the speech of children from the Brno area in an attempt to find out the degree of completeness of their phonemic system in relation to a general target system. Recordings were made of 35 children between two and three in one of the Brno's day nurseries and further recordings of either these or of other children in their homes. To fulfill its claim of illustrating the complete development of the Czech-speaking child's phonemic system more recorded material would have been needed where, together with the age of the child, also his motor ability, intelligence and socio-economic background would have been taken into consideration. As the age proved to be irrelevant—some of the children start speaking earlier and master their language more rapidly than others—this study will be concerned foremost with the features and trends of development of the sounds and their relative order rather than the exact timing of the first appearance of these features in a child.

The material was recorded partly by direct transcription, partly on tapes. Connected speech was used almost exclusively and children under observation were mostly left talking in free-play activities. Another procedure was that the nurse—or the mother if at home—and the child discussed together one of the child's favourite topics, e.g. toys, animals, picture books, Christmas presents etc. The third kind of recorded material comes from the children's naming of objects as presented in pictures and slides and from their recitation of nursery rhymes. This method, alongside testwords, was a useful source of information on the degree of completeness of the children's phonemic system, its phonetic accuracy, as well as common sound substitutes and omissions. It also proved useful as a check on, and means of comparison with the formal interview material.

From the data recorded it was hoped to make assessment of:

1. the trend of development of the Czech phonemes and their distribution in child speech:

2. the comparison of the child's phonemic system with that of adults:

3. the typical features of speech in children between two and three.

What follows will consist of the treatment of each phoneme, vocalic and consonantal, its stability in the phonemic system, its phonetic allophones as well as its common sound substitutes.

## a) Vowels

The vowels recorded in our data are arranged in the following table

	Front	Central	Back
high	/i/		/u/
	[i, Y, i:, i:, i::, y:]		[u, u., u:, u::]
mid	/e/		/o/
	[e, œ, é, ê, ê:, é::, Ø:]		[o, ø, ø, ø, ø, o., ø:, ø:, ø::]
low		/a/	
		[a, a., a:, a::]	

A comparison of the vowel system in the observed children with that of Standard Czech points out these differences; in distinction to Standard Czech we find a large number of phonetic allophones used in free variation in the child's speech; there are *open* and *close* vowels while all Standard Czech vowels are *neutral*. *Labialization* appears with the *front vowels* as well, while—in phonemic norm—only *back vowels* are rounded. As for the quantity, four grades of length are to be noticed in children at this stage of speech development; *short*, *semi-long*, *long*, *extra-long*, in distinction to binary contrast *short/long* in the Standard language. *Reduced* vowels were recorded in children though they have no equivalents in Standard Czech.

Phonetically, the child's vocalic system, compared to Standard Czech, is far more rich. Functionally, on the other hand, it is reduced, as none of the qualitative or quantitative allophones mentioned above is used contrastively.

Following is the analysis of vocalic phonemes, as they were presented by the children under observation.

## The Vowel /a/

It is frequently noted in studies on linguistic development that the vowel /a/ is one of the earliest sounds mastered by a child whatever language he is learning. This observation is also consistent with our investigation. The phonetic accomplishment of the vowel phoneme /a/ was mastered well by all observed children and, as far as quality was concerned reached the character of a central low vowel, typical of Standard Czech, in most of the cases. As for the quantity, however, four allophones were noticed, namely short [a], semi-long [a.], long [a:] and extra-long [a::]. All of them were used promiscuously, the contrast of *short versus long* being completely ignored. Apart from these, there are no allophones which would indicate the phonetic non-mastery of this phoneme. Its stability in the child's system is further illustrated by the fact that not only is this vocalic phoneme itself never replaced but, quite to the contrary, it often acts as substitution for other vowels, mostly for the diphthong [au].

Besides the stability, the striking distribution is another typical characteristic of the phoneme /a/. In explaining this we are confronted with the question of whether vocabulary selection accounts for this or whether the vocabulary is selected in order to use this vowel phoneme so frequently. When analysing the fundamental stock of

words in children of this age, we see that most of the expressions are—to use R. Jakobson's terminology<sup>1</sup>—the nursery forms. They are adapted to the child's phonemic system as well as to his creative ability. The most typical of them are the so called "parental terms" *mama*, *papa*, *baba*, *tata*, formed by means of an iteration of one and the same syllable whose bearer is the phoneme /a/. The early establishment of this vowel phoneme as well as its frequent occurrence in our findings, might be confirmation of Jakobson's theory on the development of the phonemic system in children where the first dichotomy learned is that of *consonant versus vowel*, the consonant being a stop and the vowel being the low central /a/.

#### The Vowel /e/

In contrast to /a/, the phonetic accomplishment of /e/ is far from being stable in children between 2 and 3. As shown in the table above, this front unrounded vowel phoneme appeared in the following allophones: neutral short [e], rounded short [ø], open and close short [e], open and close long [e:] and rounded long [Ø:]. The existence as well as the mutual overlapping of these allophones, most of them untypical of Standard Czech, clearly indicates the instability of the phonetic accomplishment of this phoneme, underlined further by the fact that it is often replaced by other vocalic phonemes—mostly /i/—in children with a less mature stage of speech development. The most frequent of the mentioned allophones are the open ones, both short and long. In the same way as they occur in the emphatic speech of adults, are they often explained as resulting from emphasis in children as well. In our opinion, however, the presentation of all existing allophones of /e/ in children should be ascribed to inconsistency in the tongue/hard palate approximations and the degree and kind of lip-rounding, though emphasis—as one of the typical feature of child speech—may play a certain role, too.

Side by side with the variable quality of /e/ goes the instability of its quantity. At least four variants were presented without utilizing the feature of *short versus semi-long, long or extra-long* contrastively.

Though unstable, the phoneme /e/ acts as a substitute for the, as yet, missing syllabic [ɾ]. Besides /e/, however, the phoneme /u/ and—in children of a more mature stage of speech development—syllabic [ʃ] performs this substitutive function as well.

In distinction to /a/, the vowel phoneme /e/ is far less widespread. Its infrequent occurrence is no doubt due to the fact that /e/ does not occur in the nursery forms and its functional load in the interjections<sup>2</sup>—another frequent category in the child's vocabulary of the investigated developmental stage—is minimal.

#### The Vowel /i/

This front high unrounded vowel might be considered as mastered by most of the children in this developmental stage. In view of the fact that its phonetic implementation—due to the high position and the tension of the tongue—is generally classified as a difficult one, it is rather surprising to find the comparatively early stabilization of this vocalic phoneme. Guided by the general conception of the language learning process, presented by Jakobson and experienced by other scholars working in this

<sup>1</sup> Cf. R. Jakobson, *Why "Mama" and "Papa"?* Selected Writings I, The Hague 1962, p. 538 ff.

<sup>2</sup> Cf. J. Vachek's statistical countings in interjections and emotinal words; See J. Vachek, *Fonologie lexika* [On the Phonology of the Czech Lexicon] p. 400 ff.

field,<sup>3</sup> however, we may assume that in mastering the vocalic phonemes the most important factor is the relation of the phoneme in question to the fundamental vocalic phoneme /a/, rather than its easy or difficult phonetic realization. The child learns to distinguish the *low vowels* from the *high ones*, i.e., the maximum contrasts first, then come the *mid vowels* and, eventually, the more refined subdivisions.

As with all vocalic phonemes also with /i/ the quantity remains an imperfectly learned feature. Short, semi-long, long and extra-long allophones are used in free variations, not utilizing the contrast *short/long* functionally.

*Labialization*, however, should be mentioned here as an additional feature with some of the observed children. In view of the fact that it appeared alongside extra-length, mostly in interjections and emotional words, we may suppose that strong emphasis is responsible for the rise of labialized allophones, untypical of Standard Czech, but appearing in the emphatic speech of adults.

As already noted, the phoneme /i/ acts as a substitute for another vocalic phoneme, namely /e/.

Besides /a/, /i/ is another vocalic phoneme which has a wide distribution in child speech. The explanation again lies in the fact that it is fairly frequent both in the nursery forms and interjections.

#### The Vowel /o/

As with the front mid unrounded vowel phoneme /e/, so too the phonetic implementation of the back mid rounded phoneme /o/ is not yet mastered in all distinctive and redundant features. Fluctuation of neutral, open, close, extralabialized allophones, short and long is common to most children. As these allophones are not restricted to interjections and emotional words but freely fluctuate in all word-categories, emphasis seems to be only secondary while the primary feature is the imperfectly learned tongue—and lip—position. The reduced allophone [ə] appeared in the onomatopoeic expression “kokokodák”—a commonly used interjection for a hen cackling. The rapid pronunciation, the syllabic length of the word, the stress on the last syllable and the child's effort to produce in the best way the sounds that resemble those associated with the object to be named, might be a plausible explanation for the rise of the reduced allophone, unknown to Standard Czech.

Also, the quantity of the vocalic phoneme /o/ is very unstable. The short allophone fluctuates with the long and the long allophones—especially in the final position—are emphatically lengthened.

Though unstable in its proper places, the phoneme /o:/ acts as a substitute for the diphthong [ou] which was thus monophthongized in most of the children at this stage of speech development.

The distribution of /o/ is considerably more limited than that of /a/ and /i/. The structure of the fundamental stock of words, i.e., the predilection for the nursery forms and interjections—where /o/ is rarely distributed—is the explanation here.

#### The Vowel /u/

This high back rounded vocalic phoneme is implemented correctly with no outstanding deviations as compared to Standard Czech. To account for the early stabili-

<sup>3</sup> Cf. R. Jakobson, *Child Language, Aphasia and Phonological Universals*, The Hague 1968, p. 47 ff. See also W. F. Leopold, *Patterning in Children's Language*, Language Learning 5, 1-14, 1953-54.

zation of this high back rounded vocalic phoneme we cannot but repeat what has been said about the early acquisition of its front counterpart /i/. The most important factor in acquiring the vowel phonemes is their relation to the fundamental phoneme /a/. As the relation /a/—/i/, so too the relation /a/—/u/ represents the maximum contrast *low versus high*, which is, as a rule, mastered early by the children.

The quantity remains unstable with /u/ as was the case with all other vocalic phonemes. Alongside the short /u/ the semi-long, long and extra-long variants occur, none of them, however, having the phonemic value.

The phoneme /u/ is not replaced in its proper position. On the contrary, it often substitutes—in fluctuation with /e/ and /l/ the syllabic variant of the phoneme /r/.

The fact of its being one of the leading vocalic phonemes in interjections in Czech accounts for the high frequency of /u/ in child speech.

### b) Consonants

The analysis of our material reveals consonantal phonemes and allophones in the children's consonantal system as presented in the table below.

The characteristics of consonantal phonemes will be given in similar manner to the vowel phonemes. To introduce the chapter on consonants, a brief outline is included to compare those of Standard Czech consonantal phonemes which appear in children with those which are still missing.

	Labials		Alveolars		Palatals	Velo-glottals	
	bi-labials	labio-dentals	prae-alveolars	post-alveolars		velars	laryngeals
Stops	p [pʰ]		t d		t̪ [t̪ʰ] d̪ [d̪ʰ]	k g	
Nasals	m		n		ɲ [ɲʰ]	[ŋ]	
Affricates			tʃ [ʃ]	ʃ [ʃ]	[tʃ], [dʃ]		
Fricatives	[ɸ] [w]	f v	s z	ʃ ž	[sʰ, sʰʰ, zʰ, žʰ]	x	h
Laterals			l		[lʰ]		
Vibrants	[R]					[R]	

**Stops:** As the table indicates, there are voiceless and voiced stop phonemes at the bilabial, alveolar, palatal and velar points of articulation, i.e., /p/—/b/, /t/—/d/, /t̪/—/d̪/, /k/—/g/ in the child's consonantal system. Compared to Standard Czech, the two systems are identical.

**Nasals:** The nasals appear at the bilabial, alveolar, palatal and velar points of articulation and are represented by the phonemes /m/, /n/ and /ɲ/. Of these, the phoneme /n/ has two allophones, an alveolar [n] and velar [ŋ]. As with the stop phonemes, so too with nasals, the two systems are identical.

**Affricates:** Two phonemes represent this group in the children's consonantal system, viz. the prae-alveolar /c/ and the post-alveolar /č/: their voiced allophones, used in complementary distribution in Standard Czech, appear, however, only in children with a more mature stage of speech development, i.e., in the stage containing consonantal clusters.

**Fricatives:** The fricatives exist at these points of articulation; labial /f/—/v/, alveolar /s/—/z/, /š/—/ž/, palatal /j/, velar /x/ and laryngeal /h/. As compared to Standard Czech, the children have all consonants belonging to this group.

**Laterals:** In accordance with Czech, the children have one lateral phoneme at the alveolar point of articulation.

**Vibrants:** Neither of the two representatives of the alveolar trilled phonemes in Standard Czech, i.e., /r/ and /ř/, appeared with the observed children in the given stage of speech development. Bilabial or uvular [R], however, was noticed in several children in interjections.

From what has been said follows that, with the exception of the vibrants /r/ and /ř/, the children have all consonantal phonemes that build up the adult system in Standard Czech. Nevertheless, as will be shown in their characteristics, not all of them were mastered equally well and great differences are marked in their distribution.

#### The Plosive /p/

This voiceless bilabial stop phoneme was stable in all children investigated and may therefore be considered as a perfectly mastered consonant. No deviations were observed, with the exception of a few cases where /p/ was slightly aspirated. The most plausible explanation for the rise of such an allophone is emphatic pronunciation where the aspiration is applied as one of the means of expressing emotional stress.<sup>4</sup> As a rule, the phoneme /p/ is never replaced by other phonemes. Its distributional field is, on the other hand, increased by the fact that it often replaces other consonants, namely /b/ and /β/. While the former substitute suggests the instability of the distinction of voice, the latter speaks for the as yet imperfectly learned feature of fricativity.

The stable character of the phoneme /p/ in the very first words of any child is common to most observations in baby talk. In explanation of why /p/—and, analogously, other bilabials /b/ and /m/—appear very early in children and precede velars in stabilization, the relation between the labial articulation and sucking action, as well as strong visual support has been offered. Neither the hypothesis regarding sucking nor the visual support explains, however, why the children are able to differentiate between /p/ and /m/ when the difference is not visible and hardly has any importance in sucking. Last but not least, we cannot but mention the experience of some of the scholars that in the babbling period, which is connected with sucking most closely, the children produce the velar sounds more often than the labial ones.<sup>5</sup> To explain satisfactorily the early appearance and stability of /p/ in children's pronunciation, once again Jakobson's law of the maximum contrasts should be repeated.

<sup>4</sup> On the question regarding the means of expressing emotional stress cf. V. Machek, *Studie o tvoření výrazů expresivních* [A Study on the Formation of Expressive Formulations] Praha 1930, p. 5.

<sup>5</sup> Cf. e.g. V. Příhoda, *Ontogeneze lidské psychiky* [The Ontogenesis of the Human Psychic] Praha 1963, p. 133—134; similarly O. C. Irwin, *Phonetical Description of Speech Development in Childhood*, in L. Kaiser (ed.) *Manual of Phonetics*, Amsterdam 1967, cf. p. 403 ff.

When viewing the acquisition of the phonemes in a complex way, /p/ does undoubtedly belong among those phonemes which create the early maximal contrasts, it being the optimal close counterpart to the optimal open vowel /a/. Hence the explanation why the phoneme /p/ is widely distributed in nursery forms and is therefore very frequent in child speech.

#### The Plosive /b/

As with the phoneme /p/, so too the phonetic implementation of /b/ was mastered well by all children in regard to point and manner of articulation. Its voiced character, however, remains unstable, thus revealing that the distinction of voice is not yet fully acknowledged in this developmental stage. This shows especially in frequent fluctuation of the phoneme /b/ and /p/ where /b/ is replaced by /p/ in most cases. The data illustrating the unstable character of the voiced consonants as well as the fact that the children are satisfied with implementation of the voiceless phonemes at an early stage of speech development, are to be found in most children not only Czech but of other nationalities as well.<sup>6</sup>

Because of its wide distribution both in the nursery forms and interjections, especially those of an onomatopoeic character, /b/ belongs among the most frequent consonantal phonemes in children.

#### The Plosive /t/

Like /p/ and /b/, also /t/ may be justly considered as one of the consonantal phonemes whose phonemic norm is well established, though within a wider range of normality than would apply in adult speech. The more or less palatalized allophones are a frequent phenomenon of this age group<sup>7</sup> and have—most probably—the function of strongly emotional variants<sup>8</sup> adopted for two reasons: first, demanding the fulfillment of strong desire or comeback to earlier stages of speech development in imitating younger babies. In some situations the palatalization reached such a degree that there was almost neutralization of the phonemes /t/ and /tʃ/. In most cases, /t/ was used in its proper place. Not exceptional are, however, examples where this voiceless alveolar consonant performs the function of a substitute for some other consonantal phoneme the phonetic implementation of which was not yet stable in all distinctive and redundant features. The phonemes /k/ and /d/ are the most frequently affected, suggesting the lesser stability of the feature of velarity and that of voice. With /k/, however, another factor must be taken into consideration; /t/ and /k/ are definitely those phonemes which are subject to overlap in any child speech. Neutralizations caused by difficulties of perception may well have something to do with the frequently observed use of /t/ by the child to expound adult /t/ and /k/. Possible support for this comes from the fact that the distinction between /t/ and /k/ are among the most difficult for listeners to hear and it seems likely that in most natural situations the

<sup>6</sup> Cf. J. Pačesová, *The Development of Vocabulary in the Child*, Brno 1968, p. 46, where this question is dealt with in detail.

<sup>7</sup> The palatalization of the alveolar stops appears at a certain stage of speech development perhaps with every child and the palatalized allophones are often maintained even in later stages, when the phonetic realization of both alveolar and palatal stops are perfectly mastered. —Nearly all investigators notice the feature of palatalization regardless of whether this feature is realized in languages the children are learning. To exemplify this, the works of A. Grégoire, S. Phanhauser, I. A. Sikorakiy, P. Smoczyński, A. H. Gvozdev and K. Ohnesorg might be consulted. For particulars see K. Ohnesorg, *Druhá fonetická studie o dětské řeči* [Another Study in Pedophonetics] Brno 1959, p. 56.

<sup>8</sup> Cf. note 4.



differentiation depends more on verbal context than it does on the acoustic differences.

As for the character of words in which this phoneme is used most frequently, nursery forms and interjections again show predominance, though other word-categories are not excluded.

#### The Plosive /d/

In regard to place and manner of articulation the phonetic implementation of this voiced alveolar stop is fairly stable. Characteristic is, however, the instability of the feature of voicing which results in overlapping /t/ and /d/ with most children. As with /t/, so too with /d/ the emotional speech gave rise to palatalized allophones. As a substitute, it sometimes acts in the function of replacing the phoneme /z/ in children for whom fricativity remains still an un-mastered feature.

#### The Plosive /t/

Except for the right degree of palatalization, the phonetic implementation of this voiceless palatal stop is well established. The ignorance of the correct point of articulation, the proper tongue position<sup>9</sup> and varying amount of energy to the occlusion accounts for the fluctuation between [t̟] and [tʲ] and—with children whose articulation is somewhat below the standard of their age group—the neutralization of the two phoneme /t/ and /t̟/ may occur. The comparatively high frequency of this palatal stop phoneme is given by the fact that, besides its proper positions, /t̟/ often functions as a substitute for other consonantal phonemes, the phonetic implementation of which is unstable as yet. Of these, /t̟/ most frequently replaces the affricate /č/. Not so common, but still considerable, is the substitute of /t̟/ for the velar /k/ and palatal /ď/. The instability of the feature of semi-occlusivity accounts for /č/—/t̟/ overlapping. The imperfectly mastered feature of velarity and that of voicing explains the substitutes /t̟/—/k/ and /t̟/—/ď/ respectively. In emotionally pronunciation the phoneme /t̟/ functions as an expressive variant of /t/.

#### The Plosive /ď/ \*

In spite of the fact that this voiced palatal stop phoneme has minimal functional load in Czech, children having thus but very few models for imitation, its phonetic implementation is comparatively stable. There are, of course, deviations as to the degree of palatalization and—as is the case with all voiced consonants—with the feature of voicing. The former accounts for the [ď]—[ďʲ] and in some cases also [ď] overlapping, the latter for the voiceless /t̟/ replacing voiced /ď/. In emotional speech, /ď/ fairly often replaces /d/. Beside this, /ď/ functions as a substitute for the sibilant /ž/ and voiced allophone of the trilled phoneme /ʃ/ in children who did not master well the fricative articulation.

#### The Plosive /k/

Most of the observed children have this voiceless velar stop in their phonemic repertory. Fairly often, however, it fluctuates with the voiceless alveolar stop<sup>10</sup> thus

<sup>9</sup> The tip of the tongue is leaning against the lower teeth for the palatal [t̟] and against the upper teeth for palatalized [tʲ].

<sup>10</sup> The unstable character of the velar stops and their confusion with their alveolar counterparts is common to all children in the first developmental stage and was mentioned as early as by Quintilian. In Ohnesorg's *Druhá fonetická studie o dětské řeči* [Another Study in Pedolinguistics] p. 25, a list of investigators in this field who either deal with these problems, or have comprehensive data in their findings, is to be found.

signalizing that the velar point of articulation has not been well learned. Besides this, the vast majority of occurrences of /k/ were those in interjections, mostly of onomatopoeic origin. It is generally acknowledged in defectology that children with defective pronunciation either know from the beginning how to pronounce the proper consonant in interjections, or at least succeed in mastering it easily in these words, while in other word-categories they cling to various substitutive sounds. The same experience might be observed in the speech development of any child.<sup>11</sup> Examples, illustrating the opposite process, i.e., the replacing of proper /t/ by /k/, however, have also been recorded. This might suggest that the child has attained the phonetic mastery of the phoneme /k/, is not, however, aware as yet of its correct distribution, or fails to perceive the difference between the two phonemes in question.

### The Plosive /g/

As was presupposed in view of the distributional use of the phoneme /g/ in Czech,<sup>12</sup> its appearance in the child's vocabulary is minimal. As an independent phoneme it is distributed only in loanwords which are naturally very rare in child idiolect. In non-loans [g] has only the status of a voiced allophone of the phoneme /k/ and occurs in the consonantal clusters in the voiced surroundings due to the assimilation of voice. As most of the consonantal clusters are simplified by the children of this age group, assimilation does not operate and such allophones which would arise under such conditions, are not found in the child's phonemic repertory. Apart from a few cases of loan-words [g] appeared in sandhi relation. Though assimilations across word boundaries are not as frequent as they are in the more fluent speech of older children and adults, there are situations in which this is likely to arise, e.g. in reciting nursery rhymes.

As for the phonetic implementation of the phoneme /g/ it might be said that in those children who have /g/ in their phonemic repertory, the stop articulation was mastered well. The lack of comparable minimal pairs, however, makes it difficult to generalize about potential overlapping of the phonemes /g/—/k/ to illustrate the lesser stability of the voiced counterpart as well as the overlapping of the phonemes /g/—/d/ which would indicate the priority of the front consonants as compared to the back ones.

### The Nasal /m/

As with the phonetic implementation of the oral bilabial stop /p/, so too the phonetic implementation of its nasal counterpart /m/ is fairly stable in all observed children. This is consistent with the findings of the vast majority of investigators in child's speech and bears out Jakobson in his theory on the development of the phonemic system in the child when establishing as the first consonantal contrast that of *oral*

<sup>11</sup> Cf. e.g. M. Pavlović, *Le langage enfantin*, Paris 1920, p. 70, A. Grégoire, *L'apprentissage du langage*, 1937, p. 89, Cl. u. W. Stern, *Die Kindersprache*, Leipzig 1928, pp. 173 and 374, St. Phanhauser, *Rozvoj mluvy dítěte*, Warszawa 1930, p. 290, J. Feyeux, *L'acquisition du langage et ses retards*, Trévoux, 1932, p. 279.

<sup>12</sup> The special status of /g/ is discussed in detail most lately by J. Vachek, *Dynamika fonologického systému současně epizodně českiny* [The Dynamism of the Phonological Systems of Present Day Standard Czech], Praha 1968, cf. p. 61—63.—See also H. Kušera, *The Phonology of Czech*, The Hague 1961, p. 36—38 and the same author's *Inquiry into Coexistent Phonemic System in Slavic Languages*, American Contributions to the Fourth International Congress of Slavists, The Hague 1958, p. 170 ff.

*versus nasal.* As there is no overlapping between the oral and nasal counterparts in children in general, nasality proves to be one of the most clearly observed and well learned feature. To explain the early stability as well as the wide distribution of /m/ in the child's speech we may repeat what has been said with /p/: because of easiness of its phonetic implementation /m/ is one of the most widespread consonantal phonemes in the nursery forms of which the parental term "mama" is especially frequent. More than that, the functional load of /m/ is considerably high also in the interjections, another frequent word-category of children between two and three. No deviations from the phonemic norm were recorded and also the distribution was almost perfect. In contrast to other consonants /m/ was hardly ever dropped, on the contrary, it was fairly stable even in the final positions where all other consonants were likely to be dropped most often. Because of this, /m/ may be considered as the first consonant which forms the close syllables.

#### The Nasal /n/

This nasal alveolar plosive is another well established consonantal phoneme in children. Slight deviations were recorded in connection with the accuracy of the point of articulation, resulting in the rise of more or less palatalized allophones. The overlapping of the phonemes /n/ and /ɲ/ occurred, however, only under strong emotion.

The existence of the velar allophone of the phoneme /n/ is dependent on two factors: first, the establishment of the velar point of articulation, second, command of the consonantal clusters. Though these two factors are by no means mastered by all children of this age group, it might be said that the allophone [ŋ] appears in children at the very moment when the velar consonants /k/ and /g/ are established in their phonemic system and when the children begin mastering the consonantal clusters. In the older forms where /t/ still functions as a substitute for /k/, [n] is naturally produced at the alveolar point of articulation. No instance has been recorded to illustrate that the child would implement the alveolar [n] in the velar environment.

#### The Nasal /ɲ/

As with the oral palatal plosive /t/, so too with the palatal nasal, a certain developmental process concerns the mastering of the proper point of articulation, proper tongue position and proper amount of energy to the occlusion. This is shown in the rise of the allophones of lesser degree of palatalization or—in some cases—even in the substituting of /ɲ/ by completely depalatalized /n/. Not exceptional, on the other hand, are instances where the palatal /ɲ/ has the function of a substitute for /n/. This occurs foremost in emotional speech, [ɲ] performing thus the function of an expressive variant.

#### The Fricative /f/

Though this labiodental fricative consonantal phoneme does exist in the children's phonemic repertory, its phonetic implementation is far from being stable. The fluctuation between bilabial [ɸ] and labiodental [f] bears evidence of the instability of the correct point of articulation: the fact that /f/ is frequently replaced by /p/

<sup>13</sup> Similar experience may be found in R. W. and J. B. Albright, *The Phonology of a Two-year-old Child*, Word 12, 1956, p. 38, R. Weir, *Language in the Crib*, The Hague 1962, p. 51 and K. Ohnesorg, l.c. p. 29.

betrays then the instability as far as the feature of fricativity is concerned.<sup>13</sup> Viewed from the angle that the functional centre of gravity of /f/ lies in words synchronically foreign and in interjections<sup>14</sup> its comparatively high frequency in children's idiolect is rather surprising. We have mentioned before, however, that interjections form the main stock of the child's vocabulary at a certain stage of speech development: this might help in explaining the discrepancy. Secondly, however unstable, /f/ appears in the place of other consonantal phonemes, mostly /v/.

#### The Fricative /v/

Like the voiceless /f/ its voiced counterpart /v/ displays a rather complicated learning process. The fluctuation of bilabial fricative [w], labiodental fricative [v] and bilabial plosive [b] illustrates that neither the feature of labiodentality nor that of fricativity has been fully acknowledged. More than that, because of the imperfectly mastered feature of voice, /v/ is often replaced by /f/. Its occurrence is therefore very rare in children at this stage of speech development.

#### The Fricatives /s/, /š/, /z/, /ž/

Most of the findings on speech development agree on the late acquisition of the sibilants. Considerably more overlap occurs in this group of phonemes. The term "overlap" here in fact includes the possibility of complete neutralization among hissing and hushing sibilants, or at least the reduction of the number of features distinguishing two or more phonemes. In establishing the phonemes /s/ and /š/ children have to master a complex of differences in the friction characteristics of each of the phonemes. These differences stem from variations in the tongue/hard palate approximations and the degree and kind of lip-rounding. In our data the theory on the late mastering of the sibilants is once again confirmed. The tongue position does not correspond to that required in phonemic norm and the pouted lip-rounding is often absent in the observed children. In /z/ and /ž/ the distinction of voice makes the situation still more complicated. In summary then, not even one of the four Czech sibilants might be considered as established. The phonetic implementation is very unstable and it would be hardly possible to express the differences either in description or in phonetic transcription. Roughly, they might be characterized as palatalized fricatives whose articulation sphere varies between prae-alveolar, post-alveolar and palatal points of articulation. In voiced sibilants, moreover, not even the feature of fricativity might be considered as acquired. This shows in the fact that they are often replaced by the voiced stops, namely /d/ and /đ/.

However unstable, the sibilants, too, perform the substitutive function. Thus the phoneme /s/—mostly in its palatalized allophones—replaces the affricate /c/ and the fricatives /x/ and /z/. The phoneme /š/ appears mostly as a substitute for /č/, /ž/ and /ʃ/, but also for /c/ and /s/. From the voiced sibilants, only /ž/ stands in the substitutive function, namely, for the voiced allophone of the alveolar trill phoneme /ʒ/.

#### The Fricative /j/

The articulation of this voiced-unpaired palatal fricative phoneme has been stabilized in most children between 2 and 3. No deviations from the phonemic norm were

<sup>14</sup> On the question of phonological evaluation of the phoneme (j) in Czech cf. J. Vačoch's monograph, l.c. note 12, p. 63—68. See also his study *On Peripheral Phonemes of Modern English*, Brno Studies in English, 1964, p. 8; cf. also M. Romportl, *K českému souhláskovému systému* [On Czech Consonantal System], SaS 1958, p. 265—277.

recorded and -unlike other fricative phonemes—/j/ has neither been dropped nor replaced by other consonants. On the other hand, it is used as a full-phoneme substitute, nearly always for /r/, fairly often for /l/ and there are examples illustrating even the /j/—/ž/ substitutes.

### The Fricative /x/

As with most fricative phonemes, so too this voiceless velar fricative phoneme /x/ has not been established in all distinctive and redundant features. Deviations concern the point of articulation, resulting in the rise of palatalized allophones. Also the distribution is far from being perfect. In this proper place it occurs mostly in interjections while elsewhere it is either dropped or in fluctuation with [s']. As a voiceless phoneme, however, it often acts as a substitute for the voiced phoneme /h/.

### The Fricative /h/

In view of the fact that the phonetic implementation of this voiced laryngeal fricative phoneme is by no means easy, it is rather surprising to find that most of the children seem to have no or little difficulty in mastering it. But for the loss of the feature of voice, no deviations in pronunciation were recorded. /h/ has a wide distribution in the nursery forms and interjections and that is, perhaps, one of the reasons why it is established as early. Besides this, it appears as a prothetic consonants in words beginning in a vowel. As this function of /h/ is fairly common at certain stage of speech development and corresponding examples can be found even in works based on an analysis of non-Czech children, an explanation is required. Not very convincing, however, is the opinion proclaimed by Pasch and supported by Nadoleczny and Berendes<sup>15</sup> who tries to account for the existence of prothetic /h/ on the basis of a defective pronunciation of the initial vowel. A comparison of the use of /h/ word-initially in child speech with its prothetic or possibly hiatic function in colloquial and dialectal pronunciation might throw some light on this question.

### The Lateral /l/

As with the majority of the fricative phonemes, so too the learning process of the phonetic implementation of the lateral /l/ has not been fully accomplished. Instability is shown above all in the point of articulation where the area varies between the alveolar and palatal points. Concomitantly, the more or less palatalized allophones of the phoneme /l/ arise. As Standard Czech has no such allophones in the consonantal system, the lack of accuracy in the tongue articulation, alongside with the emotive approach, seems to be the only explanation for their existence in children. The instability of the feature of laterality is best manifested in frequent overlapping between the phonemes /l/ and /j/. Besides the proper occurrences /l/—once again in fluctuation with /j/—takes the function of a substitute for the vibrant /r/. In addition, the syllabic allophone of the phoneme /l/ appears in those children whose articulation is somewhat above the standard of their age group. The occurrence of such an allophone in the phonemic system suggests that the children start being aware of the contrast *liquid versus consonant*. As the other liquid /r/ is still absent from children's phonemic repertory, [ʃ] takes over also the vocalic function of [r].

<sup>15</sup> On this question see K. Ohnesorg, *Druhý jazykovedný studie o dětské řeči* [Another Study in Pedolinguistics], pp. 19, 20.

### The Vibrants /r/ and /ʀ/

As was expected in view of other findings on speech development, both the vibrants are missing in the consonantal system in most children between 2 and 3. Though many of the fricative consonants may not be classified as fully acknowledged, their phonetic implementation being far from perfect, they do exist in the vocabulary and their more or less imperfect phonetic mastery is being gradually refined. As for /r/ and /ʀ/, however, the learning processes have not even started as far as the proper phonetic implementation is concerned.

As for /r/, the sporadic occurrence of bilabial or uvular [R] does not signalize the beginning of the stage when the child comes to master the vibrant articulation for the following reasons: both of the mentioned allophones represent but two of the large number of sound types which are produced either in the babbling period or as purely imitative sounds in interjections and are not required for adult language. Naturally, they may not be identified with the phonemes. Furthermore, both the point and manner of articulation differs markedly: while [R] in the children's pronunciation is produced at the bilabial—or velar—area and the lips—or the uvula—perform the vibration, the Standard Czech /r/ is produced at the alveolar point and the tip of tongue is responsible for the vibration. None of the children observed had such a phoneme in his repertory. They either dropped or replaced it by the lateral /l/ or the fricative /ʃ/. As for the syllabic allophone of the phoneme /r/, it was also substituted in all instances. The liquid [ʀ] or the vowels [u] or [e] performed the function.

Before dealing with the other trilled consonant, viz. /ʀ/ as reproduced by children in the period when they have not yet mastered the feature of vibrativity, a few comments will be made on this consonantal phoneme in Standard Czech.

The phoneme /ʀ/ has two allophones, the voiced [ʀ] and the voiceless [ʀ̥] which occur in complementary distribution. In distinction to other consonants, the quality of /ʀ/ is determined not by the consonant which follows but by that which precedes, in other words, the regressive assimilation, typical of Czech, is here replaced by the progressive type. The special status of the two allophones of /ʀ/ is best shown in their comparison with other pairs of consonants. Here is a rough outline:

In the pairs *p/b*, *t/d*, *t̃/d̃*, *s/z*, *š/ž*, *f/v*, *x/h* assimilation accounts for the neutralization of the contrast *voiced versus voiceless*. In *k/g*, *c/z* and *č/ž* the operation of voice assimilation results in complementary distribution of the two allophones of one and the same phoneme. The sonants /r, l, m, n, j/, on the other hand, are not capable of active assimilation and their being assimilated in a passive way is excluded, as none of the sonants has a voiceless counterpart in Czech. The vibrant /ʀ/ is outside the system. It has active capability to assimilate only in sandhi relation and even then only potentially. In other words, in this position /ʀ/ behaves like a sonant: in word-final position, on the other hand, the voiceless [ʀ̥] is replaced by the voiced [ʀ] when the voiced paired consonant follows in the next word. In other words, in the final position /ʀ/ behaves like a paired consonant; within the word /ʀ/ has only passive assimilative capability. In this position then, together with /v/ and /h/ which are assimilated in the same way in the dialectal pronunciation, the phoneme /ʀ/ forms a special group in the Czech consonantal system, ranking between the sonants and paired consonants.<sup>16</sup>

<sup>16</sup> For particulars cf. P. Zima, *Souhláska ʀ v českém systému znělostní asimilace* (The Consonant ʀ in Czech system of Voice Assimilation) Sb. Slavistických prací věnovaných IV. mezinárodnímu sjezdu slavistů, Praha 1958, pp. 36—43; See also J. Vaček's monograph, cited in note 12, pp. 92—102.

After having displayed the characteristics of /ʃ/ in adult speech we will turn attention to the question of how this phoneme is dealt with by children. The fact that it did not occur in its proper phonetic implementation in the children under observation, has been mentioned before. The question remains whether the children, in substituting this phoneme, observe a difference between its voiced and voiceless allophone. On the ground of detailed analysis of our data it might be said that they do. All voiceless allophones are replaced by the voiceless fricative /s/ while the voiced allophones by the voiced fricative /ž/ or, in children of a less mature stage of speech development, by the voiced stop /d/. This bears evidence of the children's awareness of the contrast *voiced versus voiceless* within the phoneme /ʃ/ and that already at the stage of simplified consonantal clusters, i.e., in the period where no assimilation, active or passive, has its *raison d'être*. Later on, the children imitate the assimilative capability of /ʃ/ according to the adult model, though two phonemes, viz. /š/ and /ž/ act as its substitute.

### The Affricates /c/ and /č/

The affricate /c/ is to be ranked among those consonants whose phonetic implementation undergoes a complicated learning process. Though the proper semioclusive articulation appears in some of the observed children, it is not consistent and the replacement by the fricative /s/ or even by the stop /t/ is not exceptional. Instability is shown too, as far as the accurate point of articulation is concerned, as the existence of the palatalized allophone illustrate.

What has been said about the affricate /c/, holds good also for /č/. The semi-occlusivity is not a perfectly learned feature, as the fricative and occlusive substitutes /š/ and /t/ indicate.

After characterizing each of the phoneme, conclusions will be drawn in order to point out the characteristic features of the speech of children between 2 and 3, to compare the phonemic system of the children with the system of adults and, last but not least, to compare the trends of speech development in children with the general tendencies observed in the historical development of languages of the world.

From the foregoing it follows that children in this age group have all Czech vowels, short and long, which build up the vocalic system in Standard Czech. Not all of them, however, are equally well established as far as all distinctive and redundant features are concerned. The vowels /a/—/i/—/u/ may be considered as fully mastered phonemes. They are *neutral*, based on opposition *front versus back* and *high versus low*. Their phonetic implementation is fairly stable, they are used in their proper places, are not replaced by other vocalic phonemes, on the contrary, they themselves function as substitutive sounds for other phonemes whose phonetic realization has not yet been perfectly acquired in the phonemic system of the observed children. Their early stabilization backs Jakobson's theory on minimal vocalism as well as in his placing the three vocalic phonemes among those that constitute the first vocalic contrasts. The situation is rather more complicated with the *mid vowels* /e/ and /o/. Though they do exist in all the children under observation, their as yet imperfectly mastered phonetic realization is reflected in a number of non-Standard allophones and their mutual overlapping.

The long vowels /a:/, /i:/, /u:/, /e:/, /o:/ represent a less mature stage of development as compared with their short counterparts. Instability shows foremost in *length* where the duration of the long vowels does not correspond to the demand in Standard

Czech in their being roughly twice as long as the corresponding short vowels. Neither is their quality stabilized. They are rarely neutral, an additional feature of open and close being attributed especially to the mid vowels /e:/ and /o:/.

The implementation of the vocalic chains has not been mastered either. As for *diphthongs*, they are monophthongized in most cases and long vowel is then their substitute. The diphthongal pronunciation occurs only in children whose articulation is somewhat above the standard of their group or in interjections. As in diphthongs, so too in mastery of the *hiatus* children find difficulties. In most cases they avoid it by inserting the hiatic consonant. As /v/ appears in this function in Colloquial Czech in sandhi relation the children probably chose these "easier" forms for imitation. Beside this, however, the children employ /v/ and other hiatic consonants even within the word, namely, between the prefix and stem, though such examples do not exist either in Standard or Colloquial Czech. They must therefore be considered as the children's own formations which help them to avoid the uncomfortable vocalic chain.

To summarize the role of articulatory features in the children's vowel system, our findings indicate the following:

The contrast *high versus low* has been learned well and so have the contrasts *front versus back* and *wide versus narrow*. The three-fold opposition *low-mid-high*, on the other hand, remains an imperfectly learned feature in most of the observed children. Similarly, the feature of *rounding* shows certain instability both as far as the degree is concerned and in being attributed, besides the back vowels, also to the front /i/ and /e/, whereas only back vowels have labialization in Standard pronunciation.—The feature of *length* is another distinction the children have not yet acquired well. Instability is shown in the existence of the semi-long, long and extra-long allophones which appear in free variation, while the phonemic value is not attributed to any of them. The children, however, do perceive the length. This shows especially in their replacing the diphthongal chain by means of a long vowel. Were they not be able to perceive the feature of length in them, they would—most probably—in simplifying them, drop one of the vowels analogously as they do in simplifying the consonantal clusters.

As for consonants, there is, in accordance with Standard Czech, a 4-term voiced/voiceless system of *oral stops*, viz. /p|—|b|, |t|—|d|, |t̥|—|d̥|, |k|—|k̥|, accompanied by 3 *nasals*, viz. /m|, |n|, |ŋ|. In terms of features, the *stop articulation* has been learned well. So has the feature of *nasality*. The contrasts based on the point of articulation may be considered but imperfectly mastered. The *front stops* exhibit greater stability as compared to the *back ones*. This is shown in the fact that the velar stops are often replaced by the alveolar ones, thus neutralizing the feature *front versus back*. This, however, does not hold good for the nasals. Though the velar nasal [ŋ] is later in appearance, as its existence presupposes not only mastering the velar articulation but also consonantal clusters, there are no documents in our material which would illustrate the usage of the alveolar allophone instead of the velar one with the Czech-speaking child in that developmental stage when he has the velar stops and consonantal clusters in his phonemic inventory.<sup>17</sup>—It is, however, the *feature of voicing* which shows greatest instability. The fluctuation of voiced and voiceless stops took place

<sup>17</sup> This is rather at odds with R. Jakobson who presupposes the alveolar substitutions for the velar consonants not only for stops but for nasals as well, cf. *Child Language, Aphasia and Phonological Universals*, The Hague 1968, p. 54.



at bilabial, alveolar and palatal points of articulation,<sup>10</sup> word-initially and word-medially. The neutralization of the feature of voice in the final position, obligatory for Standard Czech, is perhaps the explanation why the fluctuation *voiced versus voiceless* does not occur word-finally. In most of the cases the voiced stops were replaced by their voiceless counterparts. On this basis the predominance of the voiceless stops as compared to the voiced, might be explained. As with vowels, so too with stops, few additional sound differences, unknown in Standard Czech, appeared in children. One of these, *aspiration*, was spoken about in the analysis of the plosive /p/. As the next, the contrast *palatalized versus non-palatalized* adopted to express the difference between emotive and non-emotive approach might be mentioned.

Of the existing *fricative phonemes* in the Czech consonantal system the phonemes /r/ and /ʃ/ are absent from the children's system at this stage of speech development. Except for /j/ and /h/ the learning process of the phonetic implementation of none of the fricatives has been accomplished. The number of occurrences of fricatives is, compared to stops, considerably lower. Unlike stops, the fricatives are very often dropped—mostly in consonantal clusters, while in single consonants there is frequent overlapping between the fricative and the corresponding stop phoneme.—In terms of features, the *fricative articulation* is to be considered as an imperfectly mastered feature as yet. The fluctuation between the stop and the fricative—more frequent in voiced fricatives as compared to voiceless—reveals the instability. Similarly, the as yet unstable feature of *laterality* is shown in the overlapping of the phonemes /l/—/j/. *Vibrativity* remains a non-mastered feature.—The contrast *front versus back* might be considered as established in fricative consonants. *The point of articulation*, however, still shows certain instability. Its misuse gives rise to a number of allophones, untypical of Standard Czech, e.g., bilabial [ɸ], bilabial [w], palatal [ʎ], palatalized [s', š', z', ž']. Unstable also is the *feature of voicing*. This is shown in the fact that the voiced fricatives are fairly often replaced by their voiceless counterparts, or by the corresponding stops. Also their occurrences are less frequent as compared to other consonants.

As for the *affricates*, the children have two in their consonantal system, viz. /c/ and /č/. Neither of the two phonemes, however, might be considered as well mastered. Instability shows both in *manner* and *point of articulation*. The former accounts for the fluctuation between the proper *semi-occlusive* and *fricative consonants*, viz. /c/, /č/ and /s/, /š/ respectively, the latter for the rise of non-Standard palatalized allophones. The older developmental stage is reflected in some children in their substituting the proper affricates by the corresponding stops, viz. /t/ and /tʃ/. — The voiced allophones of the phonemes /c/ and /č/ appear automatically as soon as the children begin mastering consonantal clusters. Both of the voiced allophones, viz. [ʒ] and [ʒ̣] are used in complementary distribution with [c] and [č] where the *voiced versus voiceless* feature is predictable. Besides this, the voiced allophone [ʒ̣] appears as a substitute for the as yet un-mastered consonantal cluster [dʃ].

In summary then, from the six manners of articulation upon which the phonemically relevant distinctions of consonantal phonemes in Czech are based, the children have mastered well *the occlusivity* and *nasality*. *Fricativity*, *laterality* and *semi-occlusivity*, on the other hand, are to be classified as but imperfectly learned features and no examples which would illustrate the children's mastering the last of the features, viz.

<sup>10</sup> Because of the special status of /g/ in Czech, the fluctuation at the velar point of articulation is not as typical.

the vibrativity, were recorded in our data. From all consonants which represent the five distinctions, the stops clearly show predominance.

As regard the distinctions based upon the points of articulation, the children have mastered—with minor exceptions—all which have phonemic relevance in Standard Czech, viz. *labiality*, *alveolarity*, *palatality* and *velo-glottality*. The manner of articulation then accounts for a further breakdown into the following spheres; *bilabial* and *labio-dental*, *prae-* and *post-alveolar*, *velar* and *laryngeal*. The front consonants, i.e., the labials and alveolars, predominate over the back both in stability and distribution. The less mature stage of fricatives and affricates shows in the less well-established point of articulation, in contradistinction to stops and nasals.

*The presence or absence of voice* is another relevant feature in Standard Czech and most of the observed children seem to be aware of it in all consonants. Nevertheless, as in distinctions based on point of articulation, so too in the distinctions based on presence or absence of voice, the stops present a more mature stage of speech development compared to fricatives and affricates. In general, the voiceless consonants are more stable and, concomitantly, more frequent in children.

From what has been said about appearance and gradual mastering of sounds in children, follows that the order of phonemic development processes—as was suggested in the theses of R. Jakobson—on the ground of principle of maximum contrast, and starts off by mastering the simple and un-marked features while the differentiated and marked features appear later. The first stage of speech development is initiated by the child differentiating between a consonant and a vowel. This contrast finds its optimal expression when a consonant with a complete lip-closure is opposed to a vowel with a wide frontal opening. As the unmarked features precede the marked ones, the voiceless consonant and the short vowel are expected in this connection. In particular, the consonant /p/ and the vowel /a/ prove to be the optimal pair. Hence follows the early stability and wide distribution of the two phonemes in children.

The principle of maximum contrast shows also in the successive mastering of the vocalic phonemes. The fundamental low /a/, stable in all children, forms the first vocalic contrast with high vowels /i/ and /u/, while the mastering of the vowels in the mid positions comes later. Hence follows the earlier stability and the obvious preponderance of the three vocalic phonemes /a|—|i|—|u| in the first words of the child, regardless of their frequency in the adult speech.<sup>19</sup> The earlier stability of the short vowels as compared to the long ones, demonstrates the priority of the former group. Similarly, the realization of the simple vowel represents a more mature stage as compared to the realization of the vowel chain, regardless of whether the chain is diphthongal or hiatic.

The consonantal sphere is, in Jakobson's observation, broken up into *oral versus nasal*. Here too, we may find confirmation in our material in the feature of nasality well established in all the observed children as well as in the wide distribution of the nasals in the first words of the child. Fairly stable also is the contrast *labial versus alveolar* which, again Jakobson ranks as the next established in the consonantal phonemes in general. The contrast *front versus back* or, in particular, *alveolar versus velar* and *alveolar versus palatal*, evidently belongs to the later stages of language

<sup>19</sup> There are differences, as far as the distribution of most of the phonemes is concerned. The number of occurrences in the child's speech, does not, as a rule, correspond to that of adults. Due to the special content of the child's vocabulary, in which nursery words and interjections, especially those of onomatopoeic character, whose phonological structure is not identical with that of other word-categories form a considerable proportion, the data are hardly comparable.

acquisition. The lesser stability of velar articulation, the mutual overlapping of the consonants [t]—[k] and [t]—[t']—[t] and high preponderance of the phonemes produced in the front of the mouth cavity provide clear evidence for the priority of the front consonants as compared to the back ones.

As regards the contrasts based on the manner of articulation, the *stop phonemes* clearly predominate both with regard to their phonetic implementation and their distribution and stability in the first words of the child as single phonemes and in consonantal clusters. *The fricatives*, on the other hand, represent the less mature stage and appear, and are gradually stabilized, in the points of articulation where the corresponding stops are already firmly established. The lesser stability of a fricative as compared to a stop, shows moreover in the consonantal clusters. It is almost exclusively the stop, which is preserved in simplifying, while the fricative is dropped. Similarly, *the affricates* as the representatives of the semi-occlusive articulation, appear and are stabilized only after the corresponding fricatives are well learned. In the earliest stage they are replaced by stops, later on by fricatives before they reach the proper semi-occlusive implementation. The succession of phonological acquisitions *stops—fricatives—affricates* is here clearly manifested.

The non-existence of the *vibrants* in children between two and three is in agreement with Jakobson's statement, that the distinctive features comparatively rare in the languages of the world are among the latest phonological acquisitions of the child.

The priority of un-marked features is manifested in the earlier stability and wider distribution of *the voiceless consonants* in the child's vocabulary as it is in languages in general.

Of the vast problematics which child language offers, we have summarized what we have found most characteristic in the children investigated. Many observations found in relevant literature in this field are confirmed in our material, some are not. It is hoped, however, that the present article brings further evidence of the fact the speech of children and, above all, their approach to the mother tongue they are mastering, progresses in accordance with the tendencies observed in the languages of the world in general.

## K OTÁZCE MLUVNÍHO VÝVOJE U ČESKÝCH DĚTÍ

Cílem autorčiny práce je výzkum mluvního vývoje od prvních dětských slůvek do doby, kdy děti zvládnou fonematičnou strukturu svého mateřského jazyka. Předložená studie je pak dílčím úkolem tohoto výzkumu a autorka v ní sleduje stav fonematičného systému u brněnských dětí v posledním oddělení jeslí, tj. děti ve věku 2—3 roky. Hlavní pozornost věnuje především těmto otázkám: 1. trendu vývoje českých fonémů a jejich funkčnímu využívání v dětské řeči, 2. srovnání fonematičného systému dětí se systémem spisovné češtiny, 3. typickým rysům dětské řeči ve vřstvě fonemické v daném vývojovém období.

Ve vokalizmu konstatuje autorka, že zkoumané děti mají ve svém repertoáru všechny české samohlásky, nejstabilnější a nejčastěji používaná je samohláska /a/, dále pak /i/ a /u/. Fonetická realizace těchto tří vokaličkých fonémů vcelku odpovídá požadavkům spisovné normy. U středových samohlásek /e/, /o/ přistupuje k základním fonémům řada variant, které nemají ve spisovné češtině ekvivalenty. Jde především o varianty otevřené a zavřené a varianty více nebo méně labializované. Jejich existenci u dětí vysvětluje autorka jako důsledek nedostačité zvládnuté *pozice středové* a nestabilitost graduálního protikladu *nízký/středový/vysoký*, zatímco binární protiklad *nízký/vysoký* je u všech zkoumaných dětí poměrně stabilní, stejně jako protiklad *přední/zadní*. — Dětský vokaličký systém obsahuje i dlouhé samohlásky ve stejném repertoáru, jako systém spisovné češtiny. Ani jejich kvantita, ani kvalita však neodpovídá požadované normě. Nestabilitost se projevuje především v trvání dlouhých samohlásek. Polodlouhé,

dlouhé i nadměrně prodlužované samohlásky kolísají a protikladu *krátký/dlouhý* není dosud využíváno funkčně. Neuvládnutý zůstávají i realizace samohláskových spojení, jak dvojhláskových tak hiatických.

V repertoáru souhláskovém pak dospívá autorka k těmto závěrům: Ze 6 způsobů artikulace, na nichž jsou založeny fonologické protiklady v konsonantickém systému spisovné češtiny, uplatňují zkoumané děti distinkci pět, tj. *závěrnost, nazálnost, úžínovost, laterálnost a polozávěrovost*, které jsou vyjádřeny v těchto druzích konsonantů: *okluzivny-nazálny-frikativny-laterála-afrikáty*. Zatímco u prvních dvou distinkcí lze považovat vývojový proces za skončený, úžínovost, laterálnost a polozávěrovost vykazují dosud značnou nestabilitu u většiny zkoumaných dětí. Úplně pak chybí distinkce *vibrantnost* a jí odpovídající konsonanty, *vibranty* (*r*) a (*ʃ*). Z existujících konsonantů největší stabilitu a nejvyšší procento využití mají okluzivny, orální i nazální, nejmenší stabilitu a nejnižší procento využití pak laterála a afrikáty.

U protikladů založených na místě artikulace byla zjištěna tato fakta: k realizaci konsonantických fonémů dochází u dětí v oblasti *labiální, alveolární, palatální a velo-glottální*, při čemž způsob artikulace pak dokreualuje další vymezení místa v těchto artikulačních oblastech. Ve srovnání se spisovnou češtinou jsou tedy u dětí zastoupeny všechny artikulační oblasti; v nich pak dochází ke tvoření těchto konsonantů: *bilabidl, alveolár, palatál, velár a laryngály*. Souhlásky přední převládají nad zadními jak v dokonalosti fonetické realizace, tak v distribuci. Nižší vývojový stupeň frikativ a afrikát se projevuje také ve větší nebo menší nepřesnosti co do artikulačního místa, zatímco u okluziv a nazál je toto v podstatě fixováno.

Protiklad *znělost/neznělost* je dalším relevantním rysem ve spisovné češtině. Přesto, že si děti tuto distinkci zřejmě uvědomují a mají ve svém repertoáru zastoupeny zpravidla jak konsonant *znělý*, tak jeho *znělý párový protějšek*, souhlásky *neznělé* jsou daleko stabilnější a jejich funkční využití podstatně vyšší.

Z toho, co bylo řečeno vyplývá, že většina autorčiných pozorování je potvrzením tézí, které pro vývoj fonémů stanovil R. Jakobson. Osvojování se děje na základě maximálních kontrastů a jde od jednoduchého a bezpříznakového k odstupňovanému a příznakovému, a to v souladu s obecnými zákonitostmi jazykového vývoje. První stupeň mluvního vývoje začíná vydělením *konsonantu a vokálu*, tj. uplatnění protikladu *zavřený/otevřený*, při čemž optimálním konsonantem je */p/* a optimálním vokálem */a/*. Odtud plyne časná stabilita a vysoké funkční zatížení těchto fonémů v prvních vývojových stadiích. Potvrzením druhého protikladu, tj. *orální/nazální* je pak stabilita i značná frekvence nezál. — Vznik souhlásky *úžínové* předpokládá již existenci jí odpovídající souhlásky *závěrové, afrikáta* se pak objevuje teprve po ustálení frikativy stejné řady. Odtud plyne stabilita okluziv, zatímco frikativy a zejména afrikáty neodpovídají požadované normě a jsou často substituovány okluzivami, v konsonantických skupinách jsou pak — na úkor okluziv — vypouštěny. Jako poslední se fixují ty protiklady, které jsou v jazycích méně běžné. Tak např. *roziřené likvidy* */l/—/r/* patří k později osvojeným protikladům. Fakt, že děti vystačí v prvních vývojových stadiích s realizací jediné likvidy */l/* je v souladu s faktem, že spousta jazyků obsahuje pouze jedinou likvidu. Vibrantu */ʃ/* si většinou děti osvojují až jako poslední z vývojové řady, což odpovídá její vzácnosti v jazycích. — Stabilní je protiklad *labiální/alveolární*, který Jakobson řadí mezi první osvojené konsonantické protiklady. Protiklad *přední/zadní* již zřejmě představuje vyšší vývojové stadium: nestabilitou palatál a velár, fluktuace mezi */t/* a */k/* a *[t, t', ʔ]* spolu s vysokou převahou konsonantů tvořených v oblasti labiální a alveolární signalizuje primárnost konsonantů předních. — Zákon maximálních kontrastů je patrný také v postupném osvojování vokalikých fonémů: základní *nízká* samohláska */a/* vytváří první vokaliké protiklady s *vysokými* samohláskami */i/* a */u/*, zatímco samohlásky *středové* */e/* a */o/* se ustalují později.

Sledujeme-li prioritu jednotlivých faktů, je možno konstatovat, že v řeči dětí — stejně jako v jazycích obecně — *rys bezpříznakový* je *primární* a má větší výskytovou frekvenci než jemu odpovídající fakt příznakový. Ve vokalismu je výrazným potvrzením primárnosti i převahy faktu bezpříznakového kolísání *kvantity*. *Krátká* samohláska se stabilizuje jako první, zatímco její *douhý protějšek* si dítě — jako jev v jazycích méně běžný — osvojuje teprve na určitém stupni jazykového vývoje. V konsonantismu lze pak spatřovat primárnost i převahu faktu bezpříznakového v časné stabilizaci a vysokém funkčním využití konsonantů *neznělých*.

