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SPEECH DEVELOPMENT
OF
A BILINGUAL CHILD
A LINGUIST'S RECORD

Volume I

VOCABULARY GROWTH
IN THE FIRST TWO YEARS

BY

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Preface

Klar ist die Seele des Kindes;
sie zeigt sich immer natürlich.
Doch, unergründlich zugleich,
bleibt sie das grösste Problem.¹

Many studies have been published on child language; few on the learning of two languages by small children. Most investigations in both fields were made by psychologists and educators; the share of linguists (philologists) in this research has been surprisingly small. Yet since both of these problems are undeniably linguistic in nature, they must be of interest to the science of linguistics. Philological books make frequent reference both to child language and to bilingualism; but to the expert it is obvious that the data on which these references are based are inadequate. The linguist can no more afford to neglect child language than the psychologist and the educator. The reason why linguists up to now have paid little attention to the exact study of child language is to be found in the history of their science.² The interest was at first concentrated on the older stages of Indo-European literary languages and on the principles operative in language development.³ It took time until descriptive linguistics was recognized to be as scientific as historical linguistics. Languages of "primitive" peoples, regional aspects (dialects, linguistic geography) and social layers of language (group languages, colloquial, slang) have more recently come to the foreground of attention. Spoken language as distinct from its precipitates in written form is just beginning to be studied. It appears reasonable to assume that the time has now come for analyses of child language from the linguist's point of view.

The present study is intended to be primarily a contribution to the linguistic investigation of child language. Bilingualism is of secondary importance for it; but since the child whose speech it records actually learned two languages, English and German, concurrently, the adjective "bilingual" could not very well be spared in the title. The contribution is definitely monographic in character. From wide reading in the enormous literature on child language I have come to the firm conviction that it is too early to attempt generalizations on this subject, at least from the linguistic point of view. To be sure, such generalizations have been tried time and again, but in my opinion they are all unsatisfactory because they are premature. There are not enough exact records of individual cases to serve as the basis for a comprehensive study.

¹ Preyer, quoted from G. Lindner, *Aus dem Naturgarten der Kindersprache*, Leipzig, 1898, pp. 1-2.

² Cf. Stern, p. 6.

³ Cf., for instance, H. Pedersen, *Sprogvidenskaben i det nittende aarhundrede* [Copenhagen], 1924. English by J. W. Spargo: *Linguistic science in the nineteenth century*, Cambridge, Mass., 1931.

Consequently I decided to restrict my efforts to a careful record of one child's speech development, much more detailed than has ever been attempted before. Only when we have a number of such individual records, will the time have come for a really authoritative summary.⁴ I range myself in this respect with such scholars as Preyer and Deville, who have the insight and restraint to supply accurate documents of individual cases instead of yielding to the temptation of generalizing. Like Deville (vol. 23, p. 330) I limit myself to the task of recording, "sans en tirer de conclusions, les observations recueillies. Ce sont des documents consciencieux que j'apporte, et pas autre chose." The situation is parallel to the study of dialects; L. Bloomfield⁵ deplores the scarcity of accurate records in this field; "yet without the protocol, there is little value in scientific pretensions." This methodic principle applies to the investigation of bilingualism in small children as well as to that of child language. E. Cassirer⁶ goes so far as to say: "Il n'y a pas de 'langage enfantin' en général, mais chaque enfant parle *sa propre* langue." I think this is exaggerated. I believe that enough features will eventually be found which the language of all or many children has in common. But undoubtedly there are very considerable individual variations, and only on the basis of a sufficient number of monographic studies will it be possible to determine which features are individual and which are general.

Thus this record is intended to be a primary source for the study of child language (and bilingualism). References to other primary or secondary literature are therefore not essential to it. Footnotes are devoted largely to significant parallels and deviations in the speech development of my second child, thus adding a very fragmentary record of another case. But occasionally comparative notes are given which coördinate some observations of other investigators with my own, with no ambition to anticipate future comprehensive studies.

The special contribution of this investigation is thought to be the emphasis on the phonetics of the infant, which heretofore has found scant attention, but should be of special value to linguists. The systematic analysis of sounds and the discovery of rules of sound substitution, together with an examination of the grammar of the first two years and a discussion of general linguistic problems including bilingualism, is reserved for the second volume, the preparations for which are completed. The present volume, which contains the vocabulary analysis, presents all words used in the first two years in their exact phonetic form, with a detailed discussion of the transformations through which each word went phonetically and semantically during this period. Most previous studies

⁴ Cf. Preyer, p. 186f.: "systematic, thorough-going investigation requires the combined labor of many. . . . Such observations are necessary, from the physiological, the psychological, the linguistic, and the pedagogic point of view, and nothing can supply their place."

⁵ *Language* 14 (1938), p. 182, note 3.

⁶ *Journal de Psychologie* 30 (1933), p. 34

are phonetically inadequate, and very few give any indication of the phonetic development of words from their first crude form toward the goal of faithfully reproducing the standard. The unphonetic thinking of some investigators goes so far that one of them⁷ records as one of the most frequent infant sounds "*Ngrrr* (which the reader may read silently)"! Practically all observers use standard spelling to indicate child forms, which, especially for English, cannot possibly give a satisfactory idea of the child's pronunciation. The phonetic transcriptions of this book doubtless make it less easy to read; but the requirements of scientific accuracy make this sacrifice imperative. In addition, lack of phonetic training makes the observations of most recorders untrustworthy, a defect of which some of them are conscious. The layman's phonetic perception is unavoidably more or less vitiated by the psychological interference of the standard pronunciation and even, again especially in English, of the standard spelling.

As far as bilingualism is concerned, surprisingly little, in view of the obvious theoretical and practical importance of it, has been written about it. Most of what has been published was written not by linguistic scholars, but by educators. It is rather natural that the objects of these investigations were usually school children, especially in America, India, Wales, Belgium, and Luxemburg. But bilingual conditions in schools are a problem entirely different from that of the simultaneous acquisition of two languages by a small child. On this topic I have not been able to find any significant investigations except those of Ronjat and Pavlovitch;⁸ in the latter, bilingualism also plays a subordinate rôle.

At this point a word is necessary about the definition of bilingualism. Its ideal form is "native-like control of two languages."⁹ I want to make clear from the outset that the child studied here (now 9 years old) never achieved an approximation to bilingualism in this strict sense. During the first two years she learned to understand both languages, but her active speech consisted of a mixture of German and English words. German prevailed at first, but gradually gave way to English, which at the end far outweighed German. In the following years, not covered in this part of the record, she spoke English and had only a very limited ability of expressing herself in German. At the age of 5, during a half-year's sojourn in Germany, she unlearned English and spoke only German, but not with native-like perfection. Thereafter she continued to use both languages, but she had "native-like control" only of English. In German she was (and is) able to express herself on most topics within her range, and does so every day, but not with full facility nor with grammatical accuracy. At all times, however, she has understood both

⁷ A. Gesell, *The mental growth of the pre-school child*, New York, 1925 (1930), p. 216.

⁸ Cf. also Geissler.

⁹ Bloomfield, p. 56.

languages perfectly, which in itself is already a form of bilingualism. "Of course, one cannot define a degree of perfection at which a good foreign speaker becomes a bilingual: the distinction is relative."¹⁰ "No hay un bilingüismo, sino hay muchos."¹¹ D. J. Saer¹² distinguishes three chief classes of bilinguals, between which many intermediate stages are of course possible. My child is bilingual in the sense that she was constantly exposed to two languages, learned to understand both early, drew her active speech from both, and eventually used both media separately every day for all purposes of communication within her range of experience and interest; she has also begun to read German and will undoubtedly learn to write it.

Apart from general deliberations concerning the need for records of the present type, it can easily be documented by demands frequently expressed in the literature.

Grammont (p. 62) says, "ce qui est utile pour le linguiste c'est de savoir exactement et sûrement que tel mot est devenu tel autre mot, que tel son, telle formation, telle construction ont été remplacés par tel autre son, telle autre formation, telle autre construction." The educator McCarthy is very critical of psychologists' contributions to the study of child language: "The psychologist's contribution is almost nil"! This statement is an exaggeration due to the fact that she does not know all the international psychological literature; her bibliography does not contain Stern, *Die Kindersprache*, by far the most important book on child language. But she is not so far wrong, from the linguist's point of view, when she says (p. 5) about the papers on the language of individual children that "very little material that may be considered of scientific value has been contributed by these studies."

Sometimes a special call for more material on the first and second year is issued. "Too much attention has been paid to the acquisition of vocabularies, and too little to the study of the pre-verbal stage of random articulation in infants."¹³ This is certainly true. The great majority of extant studies are concerned with vocabulary. My chapter on the first year is an answer to this call. Liljegren¹⁴ criticizes Jespersen for using as much "free invention" as the scholars he censures when speaking about infant language; but Liljegren's contentions are to the expert less well founded than Jespersen's, which all goes to prove that we need more exact observations. Preyer (p. 261) called for more documentary records, without generalizations, as early as 1882: "New comprehensive diaries concerning the actions of children in the first years of life are

¹⁰ Bloomfield, p. 56.

¹¹ A. Gali in *El bilingüismo y la educación*, Trabajos de la conferencia internacional . . . en Luxemburgo . . . 1928, Madrid, 1932 (also issued in French), p. 129.

¹² P. 56f. of the same symposium; cf. also *British Journal of Psychology* 14 (1923), p. 26.

¹³ F. H. Allport, *Social psychology*, New York, (1924), p. 182.

¹⁴ *Anglia* 62 (1938), p. 7-8.

urgently to be desired. They should contain nothing but well established *facts*, no hypotheses, and no repetitions of the statements of others."¹⁵ But this advice has not often been heeded; many authors were driven by ill-considered ambition to premature generalizations. I disagree with Preyer in the question of method; it would have been much easier for me to publish my diary; but I think the systematic treatment (with full documentation, to be sure) is preferable as a basis for later comparative studies; it also gives a much clearer picture of the phonetic development of words. Grégoire (p. 375) also complains of the dearth of exact observations on the first two years (even Stern having only two pages on each child for the first two years) and deplors the vague generalizations prevailing on this topic: "le caractère de difficulté que revêt l'examen de l'éducation linguistique de l'enfant nous astreint d'autant plus à multiplier les observations. C'est précisément l'étude des deux premières années de l'enfance qui en éprouve le besoin; celle de la première année surtout est la plus déshéritée."

This statement (of 1933!) discloses the chief reason for the lack of more documentary material: only those who have attempted it can appreciate the enormous difficulty of the task and the sustained effort required over a period of years to complete it. A number of authors emphasize this aspect. "J'ai peu observé ou plutôt peu noté le langage de la première année et des première (sic!) mois de la seconde. Non seulement l'audition et la notation des sons émis sont très difficiles, mais l'interprétation en est des plus délicates," says Bloch¹⁶ resignedly. "S'abstenir de descriptions successives, complètes, et noter seulement les faits remarquables est une démarche habituelle des observateurs," complains Cohen;¹⁷ "il faut avouer que le procédé contraire se heurte, par complication et faute de temps, à une quasi impossibilité."

The regret that most observers of child language have not had phonetic training is expressed by the phonetician Ripman:¹⁸ "For determining . . . questions of child speech we unfortunately have very little material. Few observers of children have had any phonetic training, and they usually represent their speech by means of ordinary spelling, which is quite inadequate for the purpose." Compayré (p. 284f.), among others, formulates the demand for more such exact records as Preyer's (which, however, is also weak on the phonetic side): "Quizá algún día sea posible, cuando se hayan repetido muchas veces observaciones del mismo género y se confronten unas con otras, determinar exactamente cuál es, respecto de la facilidad material en la emisión de tal ó cual sonido, el orden de

¹⁵ Cf. Kirkpatrick's directions, *Science* 18 (1891), p. 175.

¹⁶ O. Bloch, "Les premiers stades du langage de l'enfant," *Journal de Psychologie* 18 (1921), p. 694.

¹⁷ M. Cohen, "Observations sur les dernières persistances du langage enfantin," same journal 30 (1933), p. 390.

¹⁸ W. Ripman, *The sounds of spoken English*, New York², 1914 (1927), p. 139.

sucesión de las variadas articulaciones en el lenguaje natural del niño." Phonetic exactness is desirable not only for what the child says, but also for what the child hears. I take this to be the meaning of Bloomfield's remark (p. 512, note 2.5) concerning the child's learning of language: "Almost nothing is known because observers report what the child says, but not what it has heard; so Stern; Preyer; Bühler." There is reason for this sweeping condemnation. Ament, for instance, gives standard German equivalents for child forms, but from internal evidence it appears that the child did not hear standard German, but a South German dialectal variety. In this study the pronunciation of the English and German words on which the child forms are based is only exceptionally indicated in order to save space. But the sound-form presented will appear in exact detail in the second volume, during the examination of the child's sound-substitutions. For this volume a general statement must suffice: the German was presented in a nearly standard form (close to stage pronunciation), with a slight North German tinge; the English was the midwestern American standard, mostly of educated speakers.¹⁹

Strangely enough, records of the phonetic growth of vocabulary, of the gradual development of sounds and word-forms, have not been demanded often, although there are only a few sketchy investigations which include this aspect.²⁰ The "historical" treatment of a child's language is much more revealing than the recording of single word-forms and sound-substitutions, because both are not stable; they change, in some cases through many stages. Mrs. Fenton (p. 143f.) says: "The continuous record has the great advantage, however, of giving a picture of the *growth* of vocabulary." I try to give a complete picture of lexical and phonetic growth in combination with a systematic (rather than diary) treatment.

As to the method of presenting a documentary record rather than a summary of opinions, I add to previous quotations Cohen's plaint²¹ that students of child language as well as linguists who try to utilize child language for theorizing about the origin of language prefer the construction of sweeping syntheses to accurate detail studies: "Quelques articulations enfantines sont interprétées beaucoup plus par raisonnement que par véritable observation . . . de ce langage lui-même. . . ." My method is careful observation and systematic presentation of its results in mono-

¹⁹ It would of course be impossible to record all language a child has ever heard. That cannot be the intention of Bloomfield's remark, because it would eliminate any possibility of ever studying child language. To strike out this study completely is inconceivable, because "learning to speak is the greatest feat in one's life" (Bloomfield, in the same note; cf. also text, 2.5).

²⁰ Bateman, *Journal of Educational Psychology* 5 (1914), p. 319, makes a strange statement about his case: "Only one word has a history of several changes," namely "book."

²¹ *Bulletin de la Société de Linguistique de Paris* 37 (1936), p. 19.

graph form; I resorted neither to experiment, nor to teaching,²² nor to the question and answer method. This implies that the linguistic development of the child was not forced in any way.²³

The devotee of pure science is not required to be interested in the application of his findings. But this principle can be overstressed. Pure science with no applicability is in danger of finding no audience. A word about the usefulness of exact studies on child language and bilingualism may not be superfluous. Psychologists and educators have long recognized the importance of child language for their fields. They need, deserve, and want²⁴ the collaboration of linguists to establish a trustworthy basis. But linguists need such studies as well. They cannot afford to neglect any manifestation of language. We have learned to be cautious about using child language to understand the origin of language. The conditions are different; but a good deal of parallelism remains, especially in transformations which have been thoroughly studied in the history of standard languages. These find their replicas in child language, adding to the illustrative material and frequently clarifying principles of linguistic change. "Toutes les modifications fonétiques, morphologiques ou syntaxiques qui caractérisent la vie des langues apparaissent dans le parler des enfants."²⁵ Notably for the change of meaning, which takes place in child language more readily, but according to the same principles as elsewhere, the following pages on vocabulary will yield a rich collection of examples. Processes which in the development of languages extend over long periods of time are here condensed into the brief space of a few months or years and can be observed in the making.

Bilingualism, which, to be sure, is only fragmentary or incipient in the present case, is bound to find greater attention in linguistics, not only because as a clearly linguistic problem it cannot permanently be neglected, but also because it is intimately linked with the problems of language-mixtures and of substrata. The influence of the latter upon known languages has too often been assumed purely as a theory; only a start has been made toward a more exact treatment of the conditions under which such an influence is possible and the ways it would work. No less a linguist than Meillet²⁶ urges studies of the following kind: "Comment se comporterait un enfant mis en présence de deux langues distinctes qu'on lui parlerait également? . . . La linguistique et la psychologie en profiteraient à la fois. Il faut espérer qu'on entreprendra un

²² For an interesting experimental study of infant learning, see P. Schäfer *Zeitschrift für pädagogische Psychologie* 23 (1922), p. 269-289.—For the method of pure observation Piaget has the pretentious term, "clinical method."

²³ Cf. Mrs. Fenton's suspicion about the vocabulary of children whose language is being studied, p. 134

²⁴ Cf. *e.g.* Stern, p. 6.

²⁵ Grammont, p. 61.

²⁶ *Bulletin de la Société de Linguistique de Paris* 16, p. LXVI.

jour des recherches de ce genre." Schuchardt²⁷ is still more emphatic and specific: "Das Problem der Sprachmischung, welches mit dem der Bilingualität aufs innigste zusammenhängt, ist ein ziemlich verwickeltes. . . . Unter allen Problemen, mit denen sich heute die Sprachwissenschaft beschäftigt, ist wohl keines von grösserer Bedeutung, als das der Sprachmischung." Weisgerber expresses himself similarly.²⁸ "Es ist gewiss zuzugeben, dass die Vorgänge der Sprachmischung noch bei weitem nicht ausreichend untersucht sind."

Add to these scientific considerations the practical aspects of bilingualism, with which most previous studies have been concerned. Bilingualism of various kinds is very wide-spread and is a vital practical and political problem in many areas: border regions between two languages, linguistic islands, countries with heavy immigration.²⁹ Even more common is the simultaneous mastery of a standard language and a dialect, which is also bilingualism on a different plane.

This is the third monograph to take infant bilingualism into account; the two preceding ones deal with German-French and Serbian-French bilingualism. It is the first one on English-German bilingualism. It is the first phonetically thorough treatment of the problem.

Without endorsing the scathing condemnation by a non-linguist³⁰ of "the meaningless and arid tables" of "Anglo-Saxon" psychologists, I hope that this linguistic study will contribute to a strictly scientific and, at the same time, a thoroughly vital understanding of child language. I have not looked upon my child merely as a laboratory object. The exact observation of her language development has enhanced my enjoyment in watching her grow and unfold her personality.

The author expresses his sincere appreciation to Professor Leonard Bloomfield of the University of Chicago for reading the manuscript.

Evanston,
September 20, 1939

²⁷ *Hugo Schuchardt-Brevier*², ed. L. Spitzer, Halle, 1928, p. 151.

²⁸ *Wörter und Sachen* 16 (1934), p. 175. Cf. also Stern, p. 297f.

²⁹ Cf. Bloomfield, 3.8-3.10.

³⁰ C. Spearman as quoted in *Child Development Abstracts* 12 (1938), p. 80.

Transcription

Age is indicated by Stern's system, which has become widely accepted: 1;6 means, during the month following the completion of one year and six months, or when the child was one year and six months old. B, M, and E are frequently added for beginning, middle, and end of the month in question; thus M o;2 stands for middle of the third month. Age indications of other books have been translated into this system.

Phonetic symbols. A scientific study of the early stages of speech is impossible without the use of phonetic transcription, especially for English. The system followed here is that of the International Phonetic Association, with very slight modifications. Too narrow a transcription is not advisable because of the indefiniteness and instability of many early sounds. But it was necessary to distinguish between [i], [u] and [ɪ], [ʊ] and similar instances. The symbols present no difficulty if compared with the following explanatory list.

Vowels

- a "clear" front vowel as in French "ma," "page." Long or short.
- ɑ "dark" ("broad") back vowel as in French "pas," "âme"; long or short. The symbol is used for the vowel in American English "hot," "father" and German "hat," "haben."
- ɒ occasionally used for a slightly rounded variety of short [a] tending toward short [ɔ], as in one pronunciation of "hot," "water."
- ɐ occasionally used as a variant of [ə], like the second vowel in American "Martha."
- æ as in English "man"; generally short.
- e as in German "mehr." The same symbol is used for the vowel in English "age," which is only slightly diphthongal in American English. Generally long.
- ɛ as in German "Bett," "Bär"; short or long. The same symbol is used for the vowels in English "bear," "there," "Mary," and "men," "let."
- ə as the second vowel in English "pocket," "custom," German "Sonne"; generally short.
- i as in English "machine," "screen," German "wie," "hier"; generally long.
- ɪ as in German "bitte," English "bit"; generally short.
- o as in German "wohl," "Boot." The same symbol is used for the vowel in English "roll," "boat," which is only slightly diphthongal in American English. Generally long.
- ɔ as in German "rollen," "Onkel" and English "lost," "wash," "dog," "call," "water." Generally short in German, of varying length in English.

- ø as in German "schön"; generally long.
 œ as in German "zwölf"; generally short.
 u as in German "gut," "Buch," American English "who," "mood"; generally long.
 ʊ as in German "Butter," "Hund," English "good," "book"; generally short.
 ʌ as in English "sun," "butter"; generally short.
 ə: as in Southern British and Eastern U. S. "hurt," "bird"; corresponding to general American [ɹ]. Rare in Hildegard's speech.
 y as in German "Füsse," generally long.
 ʏ as in German "hübsch"; generally short.
Nasalization is indicated by [̃]; example: [ɔ̃] in French "bon."

Diphthongs are transcribed in simplified form as follows:

- aɪ as in standard Southern British "bite," "shine."
 aɪ as in general American "bite," "shine" and German "beissen," "scheinen."
 aʊ as in standard Southern British "loud," "house."
 aʊ as in general American "loud," "house" and German "laut," "Haus."
 ɔɪ as in English "boy," German "Beute," "Häuser."

Unless otherwise indicated, the elements of diphthongs are short and the first element bears the stress ("falling diphthongs").

Note to vowels and diphthongs. An attempt has been made to distinguish between two chief varieties of [a] as full vowels and as elements of diphthongs. Since the extreme forms of [a] and [ɑ] are not current in either standard American English or German and since a variety of intermediate articulations is possible, the differentiation is not thoroughly reliable. I frequently found it difficult to assign the vowel heard to either of the two transcriptions. Besides the difference was not phonemic, so that it would have been possible to use only one transcription for both vowel varieties. I decided to reproduce the transcription which I happened to choose in the diary in each case, for whatever phonetic interest the distinction might have. In the case of certain vowels, the representation of the standard sound was one of the two varieties of [a] with surprising consistency.

Length of vowels is indicated where necessary (mostly in the case of vowels which occur both short and long, and where regularly short vowels are lengthened exceptionally) by the sign [:]. Half-length is indicated by [ː], over-length by [ːː]. Length signs are occasionally also used after continuant consonants ([mː]).

Stress is marked only when it does not fall on the first syllable, as it usually does in English and German, unless the vowel of the first syllable is [ə], which is normally not stressed. The sign for main stress is

['], for secondary stress [l], both preceding the emphasized syllable; for example [l'ato:biə], *automobile*.

Intonation marks have not been employed in order to avoid annoying the reader who has no phonetic training. Where necessary, intonation is briefly described. The popular intonation marks [ʔ] and [!] are frequently sufficient. Description is also used for other features (like whispered vowels) which would have necessitated cumbersome diacritical marks.

Consonants

Only symbols which differ in form or sound value from standard English spelling are listed here.

- β bilabial voiced fricative, as in Spanish "haber."
- ɸ alveolar or palatal click, as in "tsk," a well-known English and German interjection of good-natured disapproval, which has no standard spelling; in this book alphabetized after [t].
- ç palatal voiceless fricative, as front "ch" in German "ich"; alphabetized after [h].
- ð voiced dental fricative, as English "soft" "th" in "then."
- ɸ voiceless bilabial fricative, as "f" in "helpful," "abfahren" (different from the ordinary labio-dental [f]; it is the "f" used in blowing).
- g voiced palatal or velar stop, as in "give," "go" ("g" in "genius" is [dʒ]).
- ɣ voiced velar fricative, as in Spanish "luego."
- ʔ aspiration after voiceless stops, for example [tʔ]. Even when the aspiration is quite strong, [h] is here not used to indicate it in order to avoid misunderstanding of [ph] and [th] as [f] and [θ].
- j voiced palatal fricative, as in German "ja"; also used for the first sound of English "yes" (English "j" is [dʒ]).
- l German and English "l." For the velarized English "ɫ" (articulated with a raised back tongue) no separate symbol is used, but its character is described where necessary.
- ŋ voiced velar nasal continuant, as "ng" in normal English "sing," "singer" and German "ng" in "singen," "Sänger," "Finger" ("ng" in English "finger" is normally [ŋg]).
- r American "r" in all positions, including [r] in syllabic function, as in "better" [bɛtr]; also for the stressed retroflex vowel in "bird" [brd], "fur" [fr], "heard" [hrd]. Most phoneticians agree that the sound of these examples which is represented in the standard spelling as vowel + "r," is now a single sound. The question of transcription is not settled. [r] is here chosen in spite of its awkwardness (a sound which is essentially a vowel being represented by a consonant symbol), in agreement with the prefer-

- ence of most European phoneticians, in order to avoid a special symbol which might present typographical difficulties and confuse the non-phonetician.—The syllabic character of a sound is, where necessary, indicated by the subscript [:] : e.g. [ɾ].
- r** German uvular “r,” including its uvular or velar fricative variant, which approaches [ɣ] or [χ].
- s** voiceless alveolar-dental tongue-point fricative, as in English “so,” “cent,” German “aus.” (English “rose,” German “Rose,” “so” have [z]).
- ʃ** voiceless palatal or alveolar tongue-blade fricative, like English “sh,” German “sch.”
- z** voiced alveolar-dental tongue-point fricative, the voiced counterpart of [s], like English “z” and German and English voiced (“soft”) “s” in “seit,” “Rose,” “rose” (not like German “z,” which is [ts]).
- ʒ** voiced palatal or alveolar tongue-blade spirant, the voiced counterpart of [ʃ], like “s” in “pleasure,” “j” in French-German “Journal.” (Do not confuse [z] and [ʒ]).
- θ** voiceless dental fricative, like English “sharp” “th” in “thin.”
- v** voiced labio-dental fricative, like English “v,” German “w,” and German “v” in foreign words like “Vase,” “November.” (“v” in genuine German words like “Vater” is [f]).
- w** like English “w” (German “w” is [v]).
- x** voiceless velar fricative, like back “ch” in German “ach,” Scotch “loch.” (The international phonetic symbol is [χ], which is misleading for non-phoneticians. [χ] is universally found in linguistic literature.) Alphabetized after [h].
- ʔ** glottal stop: a brief closure and sudden opening of the vocal cords in the larynx. It regularly precedes vowels at the beginning of German words without having a representation in ordinary spelling. It is also less rare in American English than commonly assumed, especially in emphatic pronunciation. It is always indicated where present in the transcriptions of this study, but disregarded in the alphabetical sequence. The observations as to its presence or absence before words beginning with vowels are not extremely accurate; it was judged to be generally present in such cases.

NOTE: [p-] means [p] in initial position; [-p] is [p] in final position; [-p-] is [p] in medial position, usually between vowels.

Linguistic Terms (*mostly phonetic*)

>, < Signs used to indicate chronological and genetic priority. The closed side of the sign always points toward the younger form. The open side faces either a standard form, from which a child form is derived, or an earlier stage in the child's speech. In examples not taken from child language, the signs are used in a similar manner.

Ablaut = vowel gradation, or internal modification of the vowel in a stem, which serves morphological purposes, as in English "sing-sang-sung," German "singen-sang-gesungen."

Affricate, a consonant combination consisting of a stop followed by a fricative articulated in the same place, like [pf], [ts], [tʃ], [dʒ].

Alveoles, the gums, or the bony ridge or root of the upper teeth. Alveolar articulation uses a position of the tip of the tongue intermediate between dental and palatal and may be included in the term "dental" used in a wider sense.

Aspiration, the audible breath stream following a voiceless stop, as in the usual articulation of [p], [t], [k] in German and English (not in Italian, French and Spanish!). It may be indicated in transcription by [h] if it is strong, by [ʔ] if it is faint. In this book [ʔ] is used uniformly.

Assimilation, the unconscious modification of the articulation of a sound, which makes it more similar to that of a neighboring sound, the result being an economy of articulatory effort. This assimilation may be "complete (total)," as in Italian "ditto" < Latin "dictum," or "partial," as in "helpful" with bilabial instead of labio-dental [f]. The common terms "progressive" and "regressive" assimilation are not used here because they are hopelessly confused; they have opposite meanings in different books. Instead "anticipatory" is said for cases in which the articulation of the first sound is modified by anticipation of that of the second, as in "income" when pronounced with [ŋ] instead of [n]; "persevering" for cases in which the second sound is modified by a lingering of the articulation of the first, as in "helpful." Anticipatory assimilation is far more frequent. Assimilation usually affects two sounds in contact, but "assimilation at a distance" also occurs, in child language quite frequently.

Bilabial, articulated by means of both lips, like [m], [b], [p], also [ɸ] representing the "f" in "helpful" (modified by continuing the bilabial articulation of the preceding [p]) and [β] in Spanish "haber."

Bilingual, speaking two languages interchangeably. The ideal form of bilingualism (bilinguism) is when both languages are spoken

equally well for all purposes of life. In practice only approximations to this ideal can be expected. Bilingualism is a fact even when one language is spoken much better and much more extensively than the other, as long as both are regularly employed as media of intercourse.

Buccal articulation is the opposite of nasal articulation. It refers to sounds using the mouth passage, the nose passage being closed, as the majority of sounds do. It is equivalent to "oral," which however has misleading popular connotations.

Click (German "Schnalzlaut"), a sound produced by suction and its release. The variety which occurs with meaning in this study is produced by suction between the tip or blade of the tongue and the alveoles or the hard palate. It is transcribed by [ɕ].

Continuant ("Dauerlaut"), any sound which can have more than momentary duration, or any sound except a stop. The term includes vowels, but is more commonly applied to continuant consonants, especially fricatives, nasals, and liquids.

Dental, a consonant produced with the help of the teeth, usually the upper teeth. In a wider sense the term includes alveolar articulation. Examples: [t], [d], [θ], [ð], [n].

Diphthong, a combination of two vowels in one syllable. In a "falling" diphthong as [aɪ] in "scheinen," "shine," the first vowel predominates, in a "rising" diphthong, as [ɪu] in "beauty," the second.

Dissimilation, modification of one of two neighboring identical or related sounds tending to produce a difference between them or increase it; a tendency opposite to assimilation, less frequent in occurrence. Examples: the pronunciation as [r] or its equivalent of the first "l" in English "colonel"; the modification of the second [m] and [r] in Latin "marmor" > English "marble."

Echo. "Echolaly" or "echolalia" is a technical term for mechanical repetition of words just heard. Since this kind of imitation played no part in Hildegard's speech, "echo" is used in this book for meaningful repetition of words just heard in a sentence but not for that of isolated words presented to her with the intention of teaching her to say them; "repeat," "repetition" are the terms used in such cases.

Emotive, a word in which the emotional, affective value is stronger than the logical, intellectual meaning. Interjections are usually emotives.

Etymology, the science of word history. An "etymon" is a word-form on which another one is based.

Expiratory, articulated while exhaling.

Fricative, a continuant consonant produced by friction of the breath stream in a narrow opening left between two organs of articula-

tion. [f], [θ], [ç], [x], [s], [ʃ], also [h] are voiceless fricatives; [v], [ð], [j], [ɣ], [z], [ʒ] are voiced fricatives. In an affricate, the second element is a fricative.

Glottis ("Stimmritze"), the opening between the vocal cords in the larynx. The "glottal stop" ("Kehlkopfverschlusslaut," "Knacklaut," Danish "stød") is produced by closing the glottis and then suddenly opening it. The phonetic symbol for it is [ʔ].

Hapology, the simplification of a word, or sequence of words, by the omission of a sound combination which originally occurred, or should occur, in exact or approximate repetition. Examples: "idolatry" instead of "idololatry"; "interpretive" instead of "interpretative."

Homonymy = *homophony*, or identity of sound, as applied to the phonetic convergence of two words of different origin. English "peace" and "piece" are homonymous, both being pronounced [pis].

Homorganic, produced by the same speech organs at the same place of articulation, but not in the same manner. Example: [ʧ], [ʃ], [p], [b], [m] are homorganic, because they are all bilabials.

Inspiratory, produced while inhaling.

Intonation, inflection of the voice, the rising and falling of the pitch or musical accent.

Labial, articulated with the aid of the lips: "bilabial," by means of both lips; "labio-dental," by means of the upper teeth and the lower lip, like normal [f], [v].

Larynx ("Kehlkopf"), the "Adam's apple," which encases the vocal cords ("Stimmbänder," "Stimmlippen"), the vibrations of which produce the "voice" of "voiced" sounds; these vibrations can be felt by touching the Adam's apple lightly. The only important laryngeal sound, in which the larynx functions as the place of articulation, is the glottal stop.

Liquid, a "rolling" sound, chiefly [l] and [r].

Metathesis, transposition of a sound from its etymologically correct place into another position in the same word, frequently on the basis of an exchange between two sounds, as [r] and [l] in Spanish "peligro" < Latin "periculum."

Model, see Presentation.

Morphology ("Formenlehre") = *Accidence*, the study of the means a language or speech form employs to indicate syntactical relation or the function of words within the texture of sentences. The term may include word-order and other "morphemes" indicating syntactical relationship, but is more commonly restricted to the study of inflections (such as endings), particularly in the declension of nouns and pronouns and the conjugation of verbs.

Nasal, articulated with resonance in the nose passage. Nasals may be vowels, as commonly in French, or consonants like [m], [n], [ŋ].

Nasalization of vowels is indicated by [̃] over the vowel symbol. Nasal articulation is produced with a relaxed, lowered position of the velum, which allows the breath stream to go through the nose as well as into or through the mouth.

Nexus, a term introduced by the Danish philologist Otto Jespersen, the use of which is spreading. It serves to determine the function of word combinations. In "I like cut flowers," the words "cut flowers" form a "junction"; in "I cut flowers" they form a "nexus." This distinction is of great importance in early child speech. "My dolly" may have the standard junction meaning; often, however, it is a nexus and means "I (want a) dolly"; "this door" may also mean "this (is a) door." The distinction is often not easy to make and is likely to escape the layman's attention altogether.

Onomatopoeia ("Lautmalerei"), sound imitation, especially of animal voices and of noises. Onomatopoeic terms must be carefully examined whether they are primary or secondary phenomena, that is, direct imitations of non-linguistic sounds, or else conventional linguistic adaptations learned from standard speakers.

Oral is in phonetic terminology not the opposite of "written," but of "nasal." It is used with reference to sounds articulated in the "oral" (mouth) cavity, the nasal passage being closed. "Buccal" is an alternative term for it.

Palate, the roof of the mouth, extending from the alveoles over the hard palate and the soft palate (velum) to the uvula. All sounds produced by contact of some part of the tongue with any point of the palate, or in the neighborhood of the palate, are sometimes called "palatal" (or "guttural," a term now discredited on account of the variety of meanings connected with it and its lack of a clear meaning in popular use; it is not used in this book). But more commonly it refers only to the hard palate, the other regions being indicated by alveolar, velar, and uvular; this is the usage followed in this book.—"Post-palatal" is occasionally used to designate the place of articulation more exactly, namely the back part of the hard palate, contiguous to the front part of the velum. It must be kept in mind that the terms "palatal" and "velar" are rough terms; the articulation is variable because both areas are fairly extensive and the tongue can take many slightly different positions on and underneath the hard and soft palates. Its position for consonants usually harmonizes with that for the following or preceding vowel. The same symbol ([k], [g]) is used for transcribing palatal and velar stops, whereas different symbols are used for the corresponding continuants [ç], [j], [x], [ɣ] on account of their greater acoustic divergence.—Vowels articulated in the neighborhood of the palatal area are called "front vowels."

Phonemes are bundles of similar sounds, between which the differences are not conspicuous enough that the users of a language become conscious of them. Variations within a phoneme can therefore not cause a difference in the meaning of a sound sequence. The boundaries between phonemes differ in different languages or speech forms. Different symbols in the accepted transcription do not always represent different phonemes. The purpose of the transcriptions used in this study is not the scientific one of establishing the phonemic pattern of the child's speech (which can however be deduced from them), but the practical one of giving as accurate an idea as possible of her sounds and word forms. A phonemic transcription, valuable as it is for the analysis of standard languages, would defeat some of the aims of a study of child language.

Phonetics, the description of sounds with scientific accuracy. It is different from:

Phonology ("Lautlehre"), the history of sounds. The term usually refers to the development of sounds in the history of a language or dialect. In a study of child language it assumes the modified meaning of the representation of standard sounds in the individual child's speech and their evolution toward the ideal of the standard language. The ending-point in phylogenetic phonology, namely the present-day sound, is both starting and ending-point in ontogenetic phonology. The difference between the phonological (historical) and the phonetic (descriptive) point of view is less precise in a study of child language than in that of languages with a long history.—Other meanings of the terms "phonetics" and "phonology" are not used in this book.

Presentation (not a technical term) is here used with reference to the standard languages spoken to the child, which served as "models" for her speech,¹ especially when words were spoken to her in emphatic isolation in order to help her to become familiar with standard designations, to understand them and eventually to pronounce them. The word "present" takes the place of German "vorsprechen," for which an equally short and precise equivalent is lacking in English.

Pretonic refers to the unstressed syllable or vowel immediately preceding a stressed syllable, which is usually that bearing the main stress, as the first syllable in "away," or the preposition in "at home."

Prothetic vowel, a vowel without etymological antecedent, added immediately before a consonant, like the "e" preceding "sp," "st" at the beginning of words in Romance languages: Latin "sperare" > French "espérer," Latin "stare" > Spanish "estar."

Prototype, the standard utterance (word) on which a child form is based.

¹ Major calls it "copy," e.g. "the copy which the child hears" (p. 307, note 1).

Variant term for "etymon"; equivalent also to "presentation" in some of its applications.

Reduplication, doubling of a word, like French "bonbon," English "goody-goody" or, more frequently, of part of a word, like Latin "tetendi," "pependi," "cucurri," as compared with "tendo," "pendo," "curro." Reduplication is important in child language, partly as genuine doubling of elements based on a single presentation, partly as the result of assimilation of the elements of one syllable to those of another in words which have two (or more) different syllables in the standard language.

Repetition, repeat (not technical terms) are used here as equivalents for German "nachsprechen," whenever the child imitated words which had been presented (vorgesprochen) to her with the intention of teaching her to say them. "Imitation, imitate" are variant terms for the same idea. Both are used for want of a more adequate term. Hildegard only repeated words the meaning of which she understood.

Retroflex describes the pronunciation of a sound with the tip of the tongue bent upward; here of importance only for the American (not Southern British) vowel in words like "bird," "fur," "heard," which is a result of the merger between a modified full vowel and the [r] which formerly followed it.

Semantic, referring to meaning (often contrasted with "phonetic," referring to sound).

Shifter, Otto Jespersen's useful term to designate words the referent of which changes with the context. Words like "I," "you," "father" refer to different persons depending on the speaker, etc. They present on that account a special difficulty to children learning to understand and to speak. (Cf. Jespersen, *Language*, p. 123.)

Sibilants, hissing sounds ("Zischlaute"), like [s], [z], [ʃ], [ʒ], which form a special group of fricatives.

Spirant, an older term for "fricative," still sometimes used.

Standard in this study refers not to the standard (written) language ("Schriftsprache," "Hochsprache"), but to the form of language presented to the child, *i.e.*, a colloquial form. The term is contrasted with "child language."

Stop = plosive ("Verschlusslaut"), a sound of normally brief duration, the decisive feature of which, the explosion, cannot be prolonged, as can the continuants. Voiceless: [p], [t], [k]; voiced: [b], [d], [g].

Uvula ("Zäpfchen"), the pointed end of the velum, which in its relaxed position hangs down in the back of the mouth. Its vibration produces the preferred [ʀ] of educated German speakers (except on the stage), although in colloquial speech it is often modified into a fricative produced between the back tongue and the uvula or even the adjoining part of the velum. The uvula can be raised

to the back wall of the throat (pharynx), closing off the nasal passage, as is done in the pronunciation of all non-nasal (purely oral, buccal) sounds.

Velum, the soft palate, of which the uvula is a part. But "velar" refers usually only to the main area of the velum, excluding the uvula ("uvular"). Compare the remarks under "Palate." Vowels articulated in the neighborhood of the velar area are called "back vowels."

Voice ("Stimmton"), the vibrations of the glottal cords, which accompany all normal vowels and the majority of consonants; they are therefore called "voiced" ("stimmhaft"). In "voiceless" ("breathed," "surd," "stimmlos") consonants the glottis is open; the vocal cords do not vibrate. In whispering, the glottis is closed; the cords do not vibrate; the breath finds its way through a by-pass. Popularly, "voiceless" fricatives are called "sharp," "voiced" ones "soft."

External Biography

Hildegard Rose Leopold was born on July 3, 1930, in Milwaukee, Wisconsin.

Her father, the author of this study, was born in 1896 in London, England, of German parents who resided in London for a few years. He was taught German primarily, which was the only language used in the family. When in 1900, at the age of 3 years and 10 months, he returned to Germany with his parents permanently, he was however able to say simple sentences in English; he regarded it as the language for strangers and tried at first to use it as such, with disappointing effect, in Germany. The family lived in Hamburg, moving only within that city. In Germany, under the influence of the environment, he lost his command of English completely except for a few words like "father" and "mother," and could not be induced by his parents to speak English even after he had begun to study it in school. He studied English thoroughly in school and university, showed more than average ability in the language (and in other languages as well) and was frequently singled out for an unusually good pronunciation, which may or may not have been an after-effect of early childhood impressions¹ (his parents had a noticeable German accent when speaking English). He received all of his formal education in Germany, terminating it in 1921 with the State Examination and the Ph.D. degree, English being his major subject. He spent almost three years in Costa Rica, Central America, as a private tutor, acquiring the ability to speak and write Spanish. He had been residing in the United States as a university professor of German for nearly 5 years (in Milwaukee, Wis., Evanston, Ill., and for one year in Williamstown, Mass.) when Hildegard was born; he has continued in the same occupation at Evanston in the years since.

Her mother had spent practically all her life in Milwaukee, from 1919 to 1929 as a grade school and high school teacher, with English as her major subject; she had a normal school and college education (Ph.B. degree). Her ancestry is purely German; on both sides her grandparents had come to the United States from Germany. German was not the regular home language, but she heard German occasionally, and studied it in grade school and high school, with inconsiderable effect partly due to World War prejudice, from which she was not exempt. The greater part of her none-too-perfect working knowledge of German is due to the association with her husband, who spoke German to her with increasing regularity, read German dramas and novels to her frequently, and took her to Germany during the summer of 1931 and the second half of 1935.

In October, 1930 (age: 0;3), Hildegard and her mother followed her father to Evanston, Illinois, where their residence has been ever since,

¹ Cf. Geissler, p. 52.

interrupted by frequent short visits, usually without her father, to English-speaking relatives in Milwaukee, by summer trips to Milwaukee and Northern Wisconsin with both parents and other relatives, and by two visits to Germany (June 11 to September 17, 1931, age 0;11-1;2, and June 24, 1935, to January 25, 1936, age 4;11-5;6). In Germany, the linguistic environment was entirely German; on the first occasion, even her mother became used to speaking only German to her; she had to continue this practice for two weeks after the return, and even after two months had to resort to German for explanations of any length.

Otherwise Hildegard was constantly exposed to both languages; her father spoke to her from the very beginning exclusively in German and adhered to this principle with rigidity; the mother spoke English always, but had somewhat of an inclination to use certain German words which the child had learned. The parents spoke to each other regularly each in his own language. The remaining environment, including servants, spoke English. German-speaking visitors, in spite of requests to speak German to her, would always fall into English as soon as the child's speech was predominantly English. Obviously, the position of English was under these circumstances much stronger than that of German.

The only other important incident of her early life was a removal of the household from an apartment to a house on May 4, 1932 (age 1;10), which meant a certain change of environment. She remained the only child until July 18, 1936 (age 6;0), when her sister Karla Helene was born in Evanston.

Her development was entirely normal. No striking deviations from the average were noticed. Inducement of precocity of any kind was avoided. Her early speaking development was average; many children speak sooner and better. She gives the impression of being a child of strong will, bright mind, considerable originality, and an ability for leadership in her group, coupled with much reserve and a moderate amount of shyness with strangers; she talks in a lively manner, but does not tell much of her experiences and her inner life. Her bent seems to be practical rather than intellectual. Her work in school is very good. She knows how to conform to rules of social behavior when among strangers, but likes to break them at home to assert her independence.

Methods of Procedure

A diary was kept uninterruptedly from the child's eighth week on, in great detail until the end of the seventh year; thereafter only striking features were recorded. The observations were written down as they were made, usually in daily entries. From 1;7 on they became too numerous for this procedure; they were then entered on slips in my pocket and transferred in systematic order into the diary at infrequent intervals, usually every Sunday. I relied almost exclusively on my own observations, because phonetic exactness was deemed essential, especially during the first two years, and her mother's ear was not sufficiently trained. Data not checked by my own observation were used very sparingly and with great caution. I had to make use of her mother's notes during a period of six weeks (first days of July to August 11, 1932; E 1;11-2;1) when I was away in New York to fill a summer teaching appointment. The notes were then entered from frequent reports by letter in their approximate phonetic form, but were eventually disregarded in the phonetic evaluation.

After the middle of January, 1932 (1;6), words which she repeated only on demand were no longer taken into consideration, but only such as had become an active part of her vocabulary. Otherwise every word was recorded through 2;0. After that, progress became so rapid that the entries had to be restricted to new acquisitions of typical importance, still rather detailed, but no longer complete. Comparative notes about the child's general (non-linguistic) development were occasionally inserted, but were not the main purpose of the investigation; however, a "baby book" was carefully kept by the mother and resorted to for the sketch of the general development given in the final chapter of this volume. The author realizes the importance of the general physical and psychological development as a setting for the unfolding of speech; but the difficulty of publishing a comprehensive study made limitations necessary. He consoles himself with the thought that his study will be no more defective on the psychological side than those of psychologists are on the linguistic side. The training which he has had in psychology as a student (G. E. Müller was one of his teachers), and extensive reading in psychology in four languages guarantee at least that he is not unaware of the psychological background.

Baby talk was not used by the adults speaking to the child—without pedantry, however; there were a few instances in which her "cute" forms became fixed for a time by adoption on the part of her environment. Her mother did use the third person in speaking of herself for a time subsequent to the first two years, a practice which, curiously enough, never took root in Hildegard's speech habits. As a rule, the child's language has been allowed to develop subconsciously; her utterances were not corrected formally.

We succeeded in keeping the fact that her speech was being studied from entering her consciousness. Her occasional question in later years, "What are you writing?" was easily answered, "I am taking notes for my work." She is so used to seeing her father write all the time that she has apparently never suspected that he was studying her speech. I have never noticed any self-consciousness produced by my taking notes.

The indexing of words and linguistic facts up to the end of the second year was begun and carried to an advanced stage immediately after the end of this period, during my sojourn in New York in the summer of 1932. That was important, because the distinction between words surviving to the end of that period and those inactive by that time could be made only at that time, since the diary did not show the continued use of a word after its initial appearance had been recorded, unless changes of its form, other phenomena of linguistic importance, or its occurrence in sentences warranted repetition. For other data, the diary remained a dependable source of information, which could be tapped again and again in the following years.

The speech of her sister Karla, born six years after Hildegard, was not recorded in the same detail; but I took many comparative notes on it, which are here given as footnotes. I was working on the text of this study particularly when Karla was 1;7-1;11 old, a stage of many new words. A good number of footnotes about Karla's speech could be added on that occasion. The bilingual procedure with Karla was the same as with Hildegard. But the English environment was still stronger in her case. The number of German words which Karla used was therefore much smaller. But she also understood nearly everything I said to her in German.

The First Year

During the first few weeks, the only sounds produced were cries of dissatisfaction. The crying consisted of front vowels between [æ] and [a], usually [a]. During the first week it was clearly [ʔa'ʔa:], later as a rule simple long [ʔa:].

The child also began early to stretch lustily upon awakening, holding her breath until her face turned red. She allowed the air to escape gradually, interrupted by laryngeal stops, usually with her mouth closed, therefore with nasal resonance.

0;1. The seventh and eighth weeks brought considerable progress: the forehead became visibly higher, the eyes had brilliancy and expression, and smiling as a sign of recognition developed, unmistakably from the third day of the eighth week (E 0;1). The development of a personality began.

At the same time, the sounds ceased to be purely incidental.¹ She uttered more arbitrary sounds of satisfaction, all of them formed in the back of the mouth — supposedly “difficult” sounds, but well known to be the property of all children at the beginning stage of their linguistic development. They were as a rule clearly expiratory fricatives produced preferably at the rear velum and at the uvula, sometimes so far back that they seemed to come from the larynx. Occasionally the fricative was introduced by the stop of the same position, resulting quite commonly in such “difficult” affricates as [kχ]; not infrequently they took the form of [ʀ].

Apparently, the front part of the tongue was not yet very flexible, although in crying the whole rim of the tongue was visibly turned up, the mouth forming almost a horizontal rectangle.

I imitated these sounds, partly in order to study them, partly in order to amuse the child. During the seventh week, she turned toward these sounds with a puzzled expression and a day or two later sometimes reacted with a happy smile. Her attention for acoustic impressions was at that stage still irregular, less general than for visual ones. It seemed that she preferred female voices, but that impression was not definite.

During the same (seventh) week, she also began to utter occasionally a new kind of vocalic sounds during rest stops while drinking, sounds resembling short [œ] or [ʌ]. Once, while she was lying on the dressing-stand, a two-syllable combination was heard consisting of a half-high front vowel with some velar timbre, followed by a strongly velar voiced stop or fricative and ending in back [ɑ], something like [æ'ʎɑ:] or [æ'gɑ:];² the velar timbre of the first vowel appeared to the ear as [l],

¹ The sixth to the ninth week is the normal time for the beginning of cooing. See the conspectus in Decroly, p. 26.

² Romanes (p. 122) reports that one of his children, a very late speaker, once said “Ego” very distinctly, M 1;2.

but it was not clearly an [l]. The quality of these early sounds is so indistinct and unconventional that they defy transcription and almost description. Similar combinations were repeated during the eighth week once or twice, always playfully and without any intention or consciousness of achievement.

Loud speaking in her immediate neighborhood still frightened her like other sharp noises. But low, friendly words, whether German or English, attracted her attention, which was presumably directed toward timbre and intonation.

On the last day of the second month, she repeatedly produced fully-voiced sounds in addition to the usual obtuse laryngeal and velar fricatives during her bath. As a rule the tongue was at rest, but once the tongue tip approached the gums, resulting in a combination which sounded very much like [hildə], the [ə] tending toward [a], as if she were saying her name, Hilda. That was pure accident, since she was not addressed by this form. Labial vibrating sounds appeared rarely. Once a palatal click was observed.³ But on the whole, back sounds still prevailed. On the same day, when she was in a specially good mood, also during her bath, a two-syllable combination was heard, the second part of which was clearly [ru:]. This was the first [u]; the back of the tongue was being lifted higher.

Cooing as an articulated expression of feelings of satisfaction was therefore well established by the end of the second month, having begun before the middle of it.

0;2. In the first days of the third month, both smiling and the production of articulated sounds increased. When fully awake and in a happy mood, especially during her bath and between 5 and 6 p.m., before her dinner, she liked to "speak" in monologues—a valuable exercise of the speech organs for the impending task. The basis was shifting toward the front; velar sounds no longer prevailed; labials became more frequent⁴—probably on account of a growing flexibility of the tongue and the lips rather than under the influence of speech sounds heard from those around her. But on the whole, sounds were still incoherent, interrupted by silent kicking and voiceless laryngeal panting. The combinations [uk^hxu:], with very strong rounding of the lips, and [ɛgəbw:] were observed, [bw:] being a vibrating labial with velar timbre.⁵ Clicks again occurred twice, with the mouth completely closed.⁶ Several times the upper lip showed very strong protrusion and rounding so as almost to reach up to the nose;⁷ the possibility of muscular modification of the lips

³ Grégoire (p. 387) observed palatal clicks at 0;8.

⁴ Karla had a game of smacking her lips at B 0;4.

⁵ Pavlovitch (§73) describes this "roulement" provoqué par les lèvres" (0;8) as a variety of [r], although he realizes that it is not an imitation of [r].

⁶ Karla the same way at the same time.

⁷ This was not observed with Karla.

had been discovered and was being practised.⁸ The vowels [ε], [ə], [Λ], [u], [ʊ] had been added to the [a] sounds. Most effective for her entertainment was the production of clicks and especially of velar affricates without a vowel.

0;3. In the following weeks, the development did not progress very much linguistically, but the unfolding of the intelligence showed itself in a more and more vivid attention for the environment. The existence of linguistic plateaus is well known⁹—periods in which the speech-development falls behind the physical or intellectual progress. But I have, on the other hand, observed other periods when striking progress in speech coincided with a rapid general development. It seems that at times the energy of acquisition must be restricted to one field, whereas at other times it is so great that it works in all fields equally, physical, intellectual, and linguistic. At any rate progress is clearly uneven; periods of rapid development alternate with periods of rest and consolidation.

At this stage her eyes and ears followed all happenings with untiring attention.¹⁰ Objects had evidently been recognized for weeks. In unaccustomed surroundings, she would restlessly look around and fix her attention on certain objects. Smiling was frequently supplemented by loud laughing.¹¹ She was now especially amused by funny sounds, more than by funny faces.¹² Velar fricatives still served best to entertain her; recognition of her own productions may have had something to do with her satisfaction. She did not yet play spontaneously at this stage. She would rattle her toy for a while when it was put into her hand; but that was probably only an accidental result of the violent movements of the arms which she made for exercise.¹³ The noise itself was interesting to her, but not agreeable; she winced, which meant that she was slightly afraid of it.

"Speaking" became often more continuous, without improvement of articulation. It occurred most commonly in the morning between 7 and 8, when she was in good humor¹⁴ after feeding and a good night's sleep; for more than two months she had been used to sleeping without disturbance from 6 to 6 o'clock. But she also babbled at other times without special motivation. Intentions of communication could not be assumed, although sometimes it looked as if she answered or meant to say something.¹⁵ Nor did she understand anything spoken to her in German or English as far as reactions are a test; but she was receptive for timbre of

⁸ Karla later, B 0;4, strikingly at M 0;4.

⁹ Stern, p. 163.

¹⁰ Pavlovitch (§34) describes a similar concentrated attention, but with no clear indication of time.

¹¹ Karla not until first half of 0;4.

¹² Karla by both, at the same time.

¹³ Karla rattled toys consciously at M 0;4.

¹⁴ Karla likewise babbled most when she was in good humor.

¹⁵ Same observation with Karla.

voices and strength of sounds. A vigorous [her!] would put a stop of surprise to her crying, unless her trouble was too great.¹⁶

0;6. For several months thereafter, progress was limited to physical and intellectual phenomena, every week bringing new observations. Linguistically the development seemed at a standstill, if not in actual retrogression. For months she babbled much less.¹⁷ Instead, she amused herself for a time by producing high screeching laryngeal sounds,¹⁸ which later alternated with "speaking" exercises.¹⁹ The screeching was then softened into very gentle, melodious and pleasing tones, for which I could find no designation. At this period the well-known expiratory bilabial vibrating sound [bw:]²⁰ became a favorite sound, which it remained for months. It was frequently an expression of protest and preceded crying; but even more often it was produced simply for amusement.

At the end of the seventh month, on January 27, 1931, she babbled more than usually, and both parents independently observed that the sounds were much clearer than before, a striking difference. Even in the course of the day, a development in this respect seemed noticeable. In especially good humor all day, she smiled and laughed surprisingly much and did not cry, except for a half-hour in the afternoon, when a lady of our acquaintance was visiting. Somehow she did not approve of this visitor and cried with an entirely new sound, which perhaps indicated fear, for an unknown reason; that was a new observation, too. The distinctive feature of progress was the appearance of more definite consonants. Up to that day her sounds had usually been vowels interrupted by rather indefinite movements of the tongue.²¹ Now the tongue began to move in a much more energetic manner in the front part of the mouth; some of these motions were clearly visible. They resulted in sounds between [d] and palatal [g]. On account of insufficient practice and the absence of teeth, the consonants were not always well defined in place and manner of articulation. The closure of stops was not complete in the beginning of the day, but improved in the course of the afternoon so as

¹⁶ Karla reacted in the same manner to any vigorous speaking and to singing, to which she was always very receptive.

¹⁷ Same observation with Karla.

¹⁸ During the whole fourth month and beyond, Karla produced high joyful sounds, in the beginning with inspiratory articulation, which could best be described by the German term "Jauchzen" (or "Krähen," which Ronjat however retains within his French text for a different purpose). This stage was much reduced with Hildegard. Alternation of these sounds with babbling exercises fell for Karla in the beginning of the fifth month. The softening into melodious tones was observed from M 0;4 to E 0;6, by that time predominantly with expiratory articulation.

¹⁹ Same observation with Karla.

²⁰ Preyer (p. 117) describes "the labial *brrrr*, the so-called 'coachman's R' " for 1;1.—Karla also liked labial sounds M 0;4; she used [bw:] constantly M 0;4, rarely 0;6, again E 0;6.

²¹ Karla had only vowel sounds to the second half of 0;3; consonants began E 0;3. But vowels also predominated decisively until E 0;6.

to result in some fairly accurate productions of the consonants [d] and palatal [g]. Once on the same day, a single syllable was produced perfectly distinctly, namely [sa], a short [a] preceded by normal voiceless [s], the first [s] that occurred and for a long time the only one.

During these days she often amused herself by producing repeated glottal stops (expiratory, like all her sounds).²² The effect was that of coughing, and may have been an imitation of it; but it was articulated intentionally.²³ After a few days, this practice disappeared. All games, including the linguistic ones, commanded her attention only for limited periods.²⁴

0;7. The eighth month brought little progress. On February 14 she said distinctly and repeatedly [dada] and [baba], with front [a]; but these "words" remained for a long time without meaning for the unprejudiced observer. Most babbling sounds continued to be vocalic, prevalently ranging from [a] to [ε], long, without many tongue movements. The consonants that did occur resembled [d] and [g].²⁵ [b] was heard only once before the day mentioned, except for the bilabial vibrating affricate [bw:], which maintained its amusement value for her and was developed to inimitable mastery. She liked to produce it while eating,²⁶ with malice toward none, but with disastrous effect. On the same day, [ʔæ:ʔæ:] and [hæ:hæ:] were heard, but these combinations were not new.

She reacted to speaking when she felt like it. Actual understanding was limited to her own name, Hildegard. At least from February 1 (E 0;6) it usually induced her to turn her head expectantly toward the speaker. There was no doubt that she referred these sounds in some way to herself.²⁷

0;8. The ninth month was important in Hildegard's linguistic development. In the first half, her physical progress was more marked than the intellectual growth. She learned few new sounds. Understanding was not visibly improved. The most frequent babbling-combinations were [dæ] and [di].²⁸ Every combination ended in a vowel.²⁹ For her own en-

²² Preyer (p. 106, 117) emphasizes the same fact for 0;5 and 1;1: "I have not once observed an attempt to form sounds while drawing in the breath."—Hildegard's clicks, suction sounds, can hardly be considered as inspiratory.—But cf. the note on Karla's inspiratory sounds, p. 19.—Grégoire reports the production of inspiratory vowels for several months from E 0;3 on, and playful inspiratory consonants until 1;0 (p. 386).

²³ Not observed with Karla.

²⁴ Same observation with Karla.

²⁵ Karla the same way 0;6; [g] more frequent than [d].

²⁶ Same observation with Karla.

²⁷ Pavlovitch (§24) records this stage of development at a much earlier period, 0;3. But cf. Stern p. 18 (0;10?) and p. 83 (M 0;11).—Karla, less certain, at E 0;6.

²⁸ It may well be a widely valid law of infant speech that every syllable should end in a vowel. The English nursery word "daddy" could be derived from babbling combinations, but "dad" is more likely an adult back-formation.—Hildegard never used either "daddy" or "dad" for her father up to 2;0. She must have heard these words frequently, but support for "papa" was much stronger. Karla also used "papa" regularly, but tried [dadi] at 1;7; [dæ:di] 1;8.

tertainment she often produced a vigorous click formed between the tongue and the upper lip.²⁹ She had two lower teeth at this stage, which did not affect pronunciation. While sucking her finger—an incurable habit defying all attempts at correction even to this day (age 9)—she would utter at that time a strong sound produced by vibration of the vocal cords, with a rhythmical increase and decrease in intensity;³⁰ it was possible to check on her habit at a distance by listening to this tone. The game of producing the labial vibrating sound had subsided; it occurred only occasionally. On March 13, she uttered an [r] sound, which resembled uvular [ʀ] so much that her mother, imitating it, succeeded for the first time in her life in pronouncing the German [ʀ]. Just the same, upon listening more closely, I discovered it to be a velar vibrant sound produced by forming a narrow opening between the back tongue and the velum with the aid of saliva. The sound remained ephemeral.³¹

In the second half of the ninth month she took a decisive step forward: both speaking and understanding began.³² It was speaking in a very rudimentary sense. She had a strong desire for receiving attention. She contrived a means for attaining this aim by uttering a short, sharp scream (first reported on March 13), especially when I was sitting at some distance from her.³³ This utterance was in form farther removed from standard speech than many of her babbling combinations. But it was distinguished from them by an important addition: the intention of communication, which must be considered the chief criterion of language.³⁴ Encouraged by the result, she used this sound very often during the following week, and it assumed the more articulate form [ʔa!], very short and vigorous. The intention of communication was beyond doubt, though its content varied. At the same time, a more primitive form of communication was used when she indicated dissatisfaction with the state of her diapers by crying.³⁵ Though this form of utterance is primarily self-expressive, it cannot be omitted, because it developed into communication by producing the desired reaction.

About March 19 or 20, her mother thought she noticed that the word "daddy" made her pay attention, stop crying, and look around. A simi-

²⁹ Karla rarely, accidentally.

³⁰ Not observed with Karla. She was also a finger-sucker, but a less determined one.

³¹ I observed it with Karla at E 0;6 and E 0;9 as palatal "spit-bubble" [r]. I have not found this sound described anywhere.

³² According to McCarthy, p. 6, O'Shea counts the babbling stage until E 0;7, Sully until second half of first year to first quarter of second year. Sully's description is better, because babbling stage and speaking stage overlap.

³³ Same observation with Karla, E 0;6. Karla had at this stage several sounds, which were strikingly short and controlled by her will. They were no longer purely sounds of self-expression, nor did they contain an objective communication as yet; but they were meant as a game of conversation with others—a preparatory stage for communicative speaking.

³⁴ Cf., among many others, E. Sapir, *Language*, New York, 1921, p. 17.

³⁵ Karla much earlier.

lar reaction to the standardized disapproval by "no, no!" was also observed; but the impression was not definite beyond doubt.³⁶ All doubt that understanding (apart from her name, which in the first half of 0;8 she understood even when it was spoken with ordinary voice, without emphasis³⁷) had begun was removed in the last days of March. On the wall there was a picture of herself which she liked very much, perhaps because the curved glass over it produced pleasant reflections. By repeatedly saying the word "baby" in front of it, her mother had succeeded in building up a strong association between the word and the object. Upon hearing the question, "Where is the baby?" she would turn all the way around in the high-chair to see the picture, and laugh with joy when she succeeded. The same reaction was achieved by the German question, "Wo ist das Baby?", because the association was clearly with the noun. On March 29, her chair was in a different place. Upon hearing the well-known question, she turned around to the right as she had learned to do. There her glance fell on a young colleague calling on us, much to the amusement of the company present. But she immediately corrected her mistake by turning around to the left. The association with the object was stronger than that with the motion. When the chair was placed back in the old position, the process of learning to change the motion repeated itself.

The question, "Where is daddy?" tended to produce the same reaction. The acoustic difference between "baby" and "daddy" was not great enough, and the question as a whole had been too strongly associated with a certain reaction. The term "daddy" was therefore abandoned by us and replaced by the bilingual "papa."

The diary at this point reveals my astonishment at the course which the development took. From the literature on child-language I had expected a stage of mechanical sound-imitation, with later induction of meanings for the words thus acquired.³⁸ Undoubtedly this stage plays a rôle with other children, although it is agreed that the understanding of words and sentences generally comes much earlier than speaking.³⁹ In Hildegard's case, the phase of mechanical imitation was completely lacking; meanings were always developed before sound-forms. The impulse for any kind of imitation was strikingly weak in this child.⁴⁰ At later stages, too, she avoided saying a word before she understood it.

³⁶ Similarly uncertain, E 0;6-M 0;8, with Karla, who however reacted definitely to the stimulus "patsch, patsch!" at 0;7.

³⁷ Not so Karla by M 0;8.

³⁸ Decroly (p. 97) cites Meumann, Compayré, Sully, and Stern as authorities for the opinion that sound-imitation precedes real speaking as a preparatory stage, with Preyer dissenting.

³⁹ Cf. for instance Decroly, p. 87. Preyer (pp. 93 and 215f.) also strongly believes in the priority of understanding over speaking.

⁴⁰ Karla was much more willing to imitate words from direct presentation and, especially at 1;8, learned many in fairly good phonetic form in this manner. But mechanical echolalia was not common with her either until 1;9, when it became quite conspicuous.

Her sounds had decreased rather than increased. She did not practise much. Perhaps the consonants had become clearer. [g] was no longer heard; [d] was less frequent; [bababa] was the most common combination.⁴¹ Voiceless consonants were absent, likewise [m] and [n]. That was again a surprise, as I had expected [mama] to be the first mechanical combination⁴² uttered by children.⁴³

0;9. During the tenth month, the number of sounds increased, and understanding progressed considerably. On the first day, the first voiceless consonant was heard in the combination [tæ tæ], which alternated with [dæ dæ].⁴⁴ [da da da] developed two meanings: in ordinary tone, it expressed satisfaction,⁴⁵ in a loud tone it was clearly scolding.⁴⁶ The click recurred in the [t] position after the "invention" of the [t], at the alveoles or front palate, and developed into a game. A few days later, new fricatives appeared: [baβa], [jɛɛ], [dja] (all vowels short). [ai] was the first diphthong observed. In the second half of the month [ŋɛŋɛ], [çɛ] and other fricatives similar to [ç] were heard. [ji] was new with regard to both sounds; they remained rare. The first [k] appeared in [kə]. The long expected [mamama] was finally introduced, without meaning.

The understanding extended to several set phrases. The "baby" game remained the most entertaining exercise, but her interest spread to other pictures, and she reacted correctly to the question, "Wo ist das Bild?" where no baby was in the picture. Upon "Wie gross bist du?" (only in German) she learned to put both hands on her head, smiling—her own modification of the standard reaction of holding up the arms.⁴⁷ Upon "patticake" she put both hands together. The corresponding German "Backe, backe Kuchen" immediately produced the same reaction, with no building-up of an association, perhaps by accident. But the latter

⁴¹ Karla 0;8 [g], [d], and [b].

⁴² Cf. F. Tracy, *The psychology of childhood*, Boston, 1896, p. 159. He calls the syllable "ma" "that sound which is, in the majority of cases, the first articulation."

⁴³ In Karla's speech, too, [mama] did not occur up to M 0;8, although she already produced an occasional [u], [w], and [gega]. The opinion that syllables like [ma], [pa], [ta] are the first used by infants, which is frequently found in linguistic and psychological literature, is certainly not borne out by the observations made on my children. The psycho-analytical explanation of the first labials as "a prolongation of the act of sucking" (cf. for instance Spielrein, *Intern. Zs. f. Psychoanal.* 6, p. 401; quoted by Piaget, *Language and Thought of the Child*, p. 3f.) seems far-fetched in the light of my experience. Cf. also notes to the word [mama] in the following vocabulary. Generalized statements of this kind make the need for a greater number of exact scientific records like the present very apparent. Even the existing material should have sufficed to warn against such generalizations.

⁴⁴ Karla said [(ha)ta], with voiceless vowels and unaspirated [t], E 0;7, [hata] aloud on the next day, frequently; [dædæ] second half 0;7.

⁴⁵ Wundt (third edition, vol. 1, p. 295) also registers "da-da" as indicating comfort.

⁴⁶ Karla scolded [giŋ(giŋgiŋ)] 0;6, [didi] M 0;8.

⁴⁷ Karla with certainty 0;11; she raised her arms correctly. The trick, with the same words, was reported by Tiedemann as early as 1787 (cf. English ed., p. 35). It is probably much older than that. No traditions are more stable than those of the nursery, witness the English children's rhymes, which survive unchanged although the vocabulary and setting of old rural England are largely meaningless to modern American city children.

response was still often confused with the former. "Peek-a-boo" and "Guck, guck (Kuckuk)" were learned; she liked to do this hiding game on her own accord with a blanket, etc., but silently, with no attempt at sound-imitation. The hopping reaction to "hopp, hopp, hopp!" was learned in a baby swing,⁴⁸ but soon simulated in any position without fail.

The speaking progress, aside from the babbling sounds mentioned before, was slight. [ʔa!] was addressed not only to persons, but also to distant objects and escaped toys. At the end of the month, the new combination [bi] was heard with reference to a picture (Bild).⁴⁹ The identity was doubted at the time of entry; but later developments make it probable that this was indeed the first reproduction of a standard word, a German one. This word, however, was ephemeral at its first appearance.⁵⁰

0;10. At the end of the eleventh month, her active vocabulary consisted of two words, both of which were new. The first one made its appearance in the first days of the month while she was spending a week in Milwaukee with her mother and heard only English spoken. It was "pretty," a surprisingly difficult word for the beginnings of a child's vocabulary;⁵¹ it was taught her by her relatives. It remained active after her return to Evanston and turned out to be the most stable part of her early vocabulary. It was articulated slowly and distinctly, sound by sound, usually in a whisper, but occasionally with full voice. Its recorded form was at first [pʁəti], at the end of the month [pɾiti]. The articulation was surprisingly clear for this stage of development and for such a difficult word. The only sound which showed variation was the [r]. At the first recording, it is expressly described as a brief rolled tongue-tip [r], which was never used otherwise. But it was frequently replaced by a fricative varying between [ç], [ʃ], and [s], later also [w]. The word was usually whispered and accompanied by pointing. It was correctly used as an expression of admiration, especially when pointing toward a picture; sometimes admiration was merged with a desire to have the object. The latter was not necessarily objectively "pretty"; a concentration of her interest on it was a sufficient incentive for the use of the word. Sometimes

⁴⁸ Karla second half 0;7; not clearly distinguished from "patsch, patsch!" M 0;8.

⁴⁹ Pavlovitch (§48) records the first [i] at 1;1.

⁵⁰ In the second half of 0;9, Karla said rather clearly [bebi] for a doll; she understood Karla, Hildegard, Papa, Ticktack, and Bonnie (name of our dog). Sounds: [nene], [nana], [mæ(mæ)], [ma(ma)]; occasionally a click, and [w] followed by a vowel. She imitated a [bl]-like sound produced by sliding the tongue rapidly to and fro between the lips.

⁵¹ Karla also acquired it, at 0;9, at first as monosyllabic [pvi], voiceless, with a falling diphthong. It became more perfect in form (whispered [pʰvɪ'i] 0;11) and a constantly used favorite word from 0;11 to 1;3; in her case soon usually pronounced aloud, although she also began it in whispered form. — I have heard of other children acquiring the word early, doubtless because of its frequent use by the environment. Karla's first word was "by-by," second half 0;8. Ronjat and Pavlovitch observe the beginning of active speaking also at 0;8.

it was heard, when she was at play and in good humor, in the rudimentary form [pr] or its equivalent.

The second word was [de], with a short vowel, later varied [dɪ:] and [de:], a demonstrative interjection uttered while pointing with her right hand at objects, also usually pictures.⁵² It appeared first as the answer to a question about a picture, accompanied by an expression of astonishment and satisfaction. Her mother immediately understood it as "there"; I tried to identify it with "da"; but the later history made it probable that it represented the English adverb.

Aside from these two definite words, her continual prattling⁵³ contained more diversified sounds and gave the impression of real speaking; but no other meanings were associated with sound-groups. The non-standard [ʔa], short, to arouse attention continued. Her palatal click was put into the service of calling squirrels; she used it upon the direction, "Call the squirrel." [mama], [mama] and [mamama] occurred frequently.⁵⁴ Her mother referred it to herself, but I observed it only repeatedly at the sight of her food, and without any reference while she was playing. It did not become a word until much later. Once the striking combination [mama papa] was heard in isolation; but it was never repeated and did not have any meaning. Her sound games were coming closer to standard sounds, but were still part of the preparatory playful stage. Understanding, on the other hand, progressed again. For German stimuli it was lost temporarily during her stay in Milwaukee, but returned rapidly. "Wie gross bist du?", "Backe, backe Kuchen," and "Patticake" brought the fixed reactions whenever she felt like performing. She had now reached the creeping stage, and warnings were often necessary; she understood the falling intonation of "No, no!" and "Nein, nein!" and obeyed. Upon "Gib *mir* das" she willingly gave her toy,⁵⁵ the extended hand being as much an incentive as the words. Often an open hand was extended to her so that she might clap it with her own (command: "Patsch, patsch!");⁵⁶ naturally these two reactions were often confused.

Her speaking progress was hampered by the lack of an impulse for imitation.⁵⁷ As a rule she repeated neither sounds nor motions of others.⁵⁸

⁵² Karla did not use this word in the first year, and rarely in the second.

⁵³ It is a matter of course that stages of development overlap; meaningless sound exercises continue after intelligent words have begun. Cf. for instance Compayré, p. 293.

⁵⁴ Karla second half 0;9.

⁵⁵ Karla began this E 0;9.

⁵⁶ Karla second half 0;7.

⁵⁷ Decroly (pp. 85-105) has a detailed study of different types of imitation, from two months up to sixteen months, including (p. 94f.) Guillaume's system of four stages. "Immediate imitation" without understanding (echolalia) is what is here as usually meant by the term. "Deferred imitation" (metatalia according to Stern, p. 135) of course played a considerable part in Hildegard's development. Ronjat gives no observations on imitation. Decroly (p. 95, note) realizes that echolalia does not occur with all children.

⁵⁸ Karla imitated motions and sounds at 0;8. Same notation for E 1;1.

She did sometimes imitate hand-clapping and familiar sounds like bilabial vibration [bw:] or palatal clicks, but without showing marked interest or interrupting her games. On the other hand, she liked to repeat sounds and motions of her own which produced an amusing reaction in the hearer, like screeching, which was received with simulated fright, and hitting herself in order to hear the sympathetic "Au, au!" For the latter purpose she would pitilessly hit her own head with her hand or a toy, but she never tried to say [ʔau] herself. She could not be induced to imitate new sounds. I let her hear such combinations as [gra], [bra], [bam] in clear enunciation and constant repetition. She was attentive and amused, but did not make a single attempt to imitate them. I concentrated later on the simple combination [bambam]; the reaction remained equally passive.⁵⁹ It seemed she had to find her own way without help, a characteristic which was frequently observed later on.

For the sake of comparison, it is of interest to note that at the same stage she showed remarkable persistence at solving a mechanical problem. I showed her how to push a sliding lid on a square medicine box. She grasped the problem immediately and tried it again and again, without result on that day; the operation was too difficult for the clumsy little fingers and the untrained eyes; but on the next day she returned to the task when alone and worked for about half an hour on it, until she finally succeeded. By that time there was not much left of the box.

0;11. During the last month of the first year, understanding again showed a significant development, whereas speaking was not improved appreciably. "Papa" was identified at the beginning, but "Mama" not until the end of the month;⁶⁰ she continued to say the meaningless syllables [mama], whereas accidental combinations like [baba] had become rare. The identification of "Opa," her grandfather, was added in Germany (her first trip to Germany occurred in this month). The persistent attempt to make her say [bam] failed as before. The word [tɪktak] presented to her while she was looking at my watch was assimilated. When I asked her, without preparation, "Wo ist die Ticktack?" she turned around to look at my wristwatch.⁶¹ She learned on her own initiative to raise her arms to help the process of undressing her; the command "Hoch, hoch!" soon led to the same reaction. On the train to New York I accompanied a drinking motion of hers with the word "Prost!" Immediately she took up the suggestion as a game and reacted to this word by

⁵⁹ Preyer (pp. 108f., 112, 118, 123, 131, 133) reports similar failure of deliberate imitation at E 0;9 and very limited success at 0;10 and 1;1-2. His child, on the other hand, also liked to repeat his own syllables. Preyer (pp. 86, 147, 164, 182, 185) however definitely found echolalia present, that is, repetition of final syllables or words of a sentence, or of the whole sentence, but without meaning.

⁶⁰ Karla both 0;11.

⁶¹ Karla 0;11.

tilting back her head and making a gesture of drinking, not only with her cup, but with any object she happened to have in her hand. Once learned, such associations would remain fixed. She understood "Komm her!" and "Come here" and crept near when her own plans permitted.⁶² In Hamburg she usually reacted by running away on hands and feet, with a roguish squeal, challenging people to catch her—a game which gave negative confirmation of the fact that she understood.⁶³ She invariably obeyed the warning "Nein, nein!"⁶⁴ "Finger aus dem Mund!" she understood,⁶⁴ but rarely obeyed, because of a firmly intrenched conviction to the contrary. She had less objection to following the direction not to put objects in her mouth, "Nicht in den Mund!"⁶⁵ Having the companionship of two canary birds in the house, she answered the direction, "Call the birdie," with her click, first learned for squirrels and also still applied to the English word "squirrel." Surprisingly the same reaction took place upon "Ruf den Vogel!" which had not been practised. A few days later, she understood the question, "Wo ist der Vogel?" which proved that the noun had been assimilated. The word "Look" made her pay attention. "By-by" was answered with a waving motion of the arm, less dependably so the German equivalent "winke, winke."⁶⁶ Toward the end of the month, she reacted to the question, "Wo ist die Ticktack?" also by looking at a clock, the selection of either my watch or the clock apparently depending on the most recent visual impression.

More striking was the progress with regard to words that had not been learned by means of a fixed association between stimulus and reaction. When dressing her, her mother used to speak informally about the articles of clothing she was putting on. When she once asked, "Where are your shoes?" Hildegard put her hands on them. I tested the unexpected reaction by asking again, "Wo sind deine Schuhe?" The success was the same. This was the first instance that an association had been built up in the natural way, without being taught artificially, and at the same time the first case of analytical understanding of a word in a non-stereotype connection.

This occasion showed how much the task of bilingual training was facilitated by the fact that English and German are so closely related. The process would be quite different in the case of two less similar languages. I tried the same question in Spanish: "Hildegard, ¿dónde están tus zapatos?" There was no reaction whatever. Intonation alone does not

⁶² Karla understood "Komm zu Papa," M 0;11.

⁶³ Karla understood and obeyed 0;11; later she also liked to run away with mischievous glee.

⁶⁴ Karla 0;11.

⁶⁵ Karla understood this 0;11, but obeyed it less well, whereas she was more willing to take the finger out of her mouth.

⁶⁶ Karla both, 0;11.

suffice in such a case; at least the key-word must be formally assimilated, minor divergences being still negligible.⁶⁷

This experience belonged to the last days in America. During the first week in Germany, a similar occurrence showed even more clearly how words began to be understood within an unfamiliar context. A lady of the household, who spoke very distinctly and loud, used in the course of a conversation the word "gross." Hildegard, who was sitting close by, immediately raised both arms: she had recognized the key-word for this reaction ("Wie gross bist du?") in a different connection.

As to speaking, the two most active words during the first two weeks in Germany remained the demonstrative particle [de]⁶⁸ and the term of admiration and sometimes of desire, [l'prti], whispered.⁶⁹ A clue to the approximate pronunciation can be found in the fact that members of the household, on the occasion of her next visit four years later, had preserved this characteristic word as a nick-name for her in the form Püttil, [pyti].

A few other words remained in the budding stage. Her physical needs were definitely communicated by means of crying. Once she seemed to repeat [pip] for "Piepvogel," which she often heard now. She was experimenting with the word "Ticktack," first in the form [tak], later [tiktak], without voice, finally simplified into a double click. While playing she often said during the last few days of the month [ajajaja], but it could not be definitely established as a reflection of the German affirmative adverb.

Otherwise her development rather concentrated on a rapidly increasing physical skill, an astonishing mental receptiveness and an unmistakable interest in small practical problems.

1;0. With the moment that the child crosses the threshold of the second year, I abandon the chronological discussion of her linguistic development and replace it by a systematic analysis. A few significant observations from the beginning of the second year will close this chapter by way of transition.

In the very first days, understanding increased considerably, for directions and questions as well as for individual words identifying objects. She developed a great interest in music⁷⁰ and, with a serious, absorbed facial expression, called attention to it by raising the index finger of her right hand⁷¹ and uttering a demonstrative sound, a high-pitched short [ʔi]. Any kind of music received the same reaction: piano, street musi-

⁶⁷ P. Schäfer, *Zeitschrift für pädagogische Psychologie* 23 (1922), pp. 277 and 284f., gives experimental corroboration of the impression that only the phonetically stressed elements together with the "rhythm" of the stimuli are significant.

⁶⁸ Missing in Karla's speech 0;11.

⁶⁹ Karla likewise.

⁷⁰ Karla likewise. — Later Hildegard's musical ability turned out to be only average.

⁷¹ Not observed with Karla.

cians, singing, whistling, etc. Her active vocabulary consisted of three words: [da], the German form, which had taken the place of the former [dæ]; whispered [l'prætʃ], the persistent English word; and whispered [t'r-t'a], *Ticktack*, which is both German and English, but actually resulted from German presentation. During the month a few new words were learned, all of German origin, but the speaking remained very limited. Around the time of her first birthday she began learning to walk. At the end of the month it was observed for the first time that a direction understood in German ("Kannst du allein stehen?") was not also understood in English—the German environment was taking its effect. Understanding improved remarkably. Again and again we were surprised to notice that she understood what had never been practised with her and that she singled out individual familiar words from contexts in which they were not emphasized. She often played with a little music-box shaped like a fiddling frog. Her interest in it was so strong that it became annoying. In order to avoid the tell-tale designation "Frosch," I once spoke of it as "das musikalische Wassertier." She immediately pointed to where it was standing, high up, and expressed her ardent wish to have it. She had recognized the word "Musik" even in its unfamiliar adjective form with shifted stress! By the end of the month she followed complex directions like "Gib Klaus den Spiegel" or "Lass den Wauwau Papa beißen."⁷² The stage was reached when it proved impractical to continue recording everything that she understood. Understanding, recognizing and combinative thinking (solving of practical problems) progressed rapidly, whereas speaking and walking developed slowly.

1;1. She did not reach the stage of walking without support until the second half of the fourteenth month. At the same time a slightly increased tendency to repeat words spoken for her was observed. Once she fixed her attention on the lips of the speaker and moved her own as if forming the sounds, without on that occasion getting to the point of actual articulation; it remained the only observation of this kind until years later.⁷³

1;2. During the fifteenth month she returned to America and had to re-learn English, which by that time had been forgotten, a process which took months. There had been very little understanding of English before the departure, whereas the understanding of German was quite well developed by the end of the summer in Germany.

⁷² This seems very early. Preyer (p. 142) records the correct execution of simpler double commands ("Take the hat and lay it on the chair") for 1;8.

⁷³ Preyer (p. 87) states that the hearing child uses mouth-reading less than is generally assumed, but reports instances of it from the observations of Humphreys (at 1;0; p. 258) and von Taube (at 0;9; p. 262).

Vocabulary to the Age of Two

All words used actively during the first two years (to E 1;11, or B 2;0) are listed alphabetically in phonetic spelling in the last form which they took, with their English or German standard equivalent in form. Under the head-form the history of the word is given. Words no longer active at B 2;0 are marked with an asterisk (*). The glottal stop [ʔ] is indicated, but disregarded in the alphabetical sequence.

Phonetic transcriptions are enclosed in brackets; but in the head-forms, all of which are in phonetic spelling, the brackets are omitted, both in the body of the vocabulary and in the alphabetical indexes of standard forms which follow it. The principles followed in the alphabetical order of phonetic symbols need not be explained, because words can be found with the help of the alphabetical indexes in standard spelling.

Words in parentheses in the standard versions of her sayings are added to explain the relationship of words from the point of view of standard syntax. This does not necessarily mean that the same syntactic arrangement was present in the child's mind.

*ʔa:, *andere* or *other*; both [a] and [ʌ] yield [a]; the glottal stop would point to German, the context to English. Only once 1;7: [ʔa: mɪ], (*the*) *other mitten*. She understood "andere" well, but never said it otherwise.¹

ʔa, *all* (adjective and pronoun plural). 1;10 [ʔa bau], *all aboard*, imitated. 1;11 [ʔaʊ bau da], *all balls (are) da*; [ʔa bebi], *all babies*, a translation of the German presentation "alle kleinen Kinder"; "all" was becoming more frequent as an adjective.² (Shortly after the 2;0 limit, the form changed to the more standard [ʔo:].)

ʔa, *all* (adverb, = "ganz"). 1;5 [ʔa:] with palms turned outward and thumbs sticking out, for "all gone." Replaced 1;7 by the German "alle." But [ʔa:] remained for the adverb "all" in other combinations: 1;7 [ʔa: titi], *all sticky* (shift of stress on the first of the three syllables must be due to presentation with a strong emotional pitch accent on "all"). 1;8 [ʔa 'we], *all wet*; [ʔaʊ we] ([ʊ] due to assimilation to following [w]). 1;10 [ʔa daʊ], *all gone*,³ [ʔa wet']; once [ʔa naʃ], *all nass*; [ʔa da'ɪ], *all dry*; also with back [a]. 1;11 with a greater variety of adjectives: "all through," "all gone," [ʔa biʃ bokʔ], *all broken (to) pieces*; front [a] still prevalent,

¹ Karla understood "andere" at 1;7, but did not say it until 1;11: [ʔana 'hænd], (*die*) *andere hand* (English noun). 1;11 also [ʔotol], *other*.

² Karla early in [ʔa: bu], *all books*, from M 1;4, with an intonation of astonishment giving it the value of "So many books!" Rarely with other nouns.

³ Karla [ʔa daŋ] or, with reduplicating assimilation, [da daŋ] 1;1; obsolete B 1;4. B 1;6 [ʔa:], with palms turned outward, usually followed by the name of the object which was gone, especially [ʔa: ɣaga], *all cracker* = "food is all gone."

but in [ʔɔ dɔ], *all gone*, favored by assimilation, also [ɔ]. (2;1 standard vowel: [ɔ:].)

*ʔa, *arme*. In emotional combinations like “*der arme Wauwau!*” understood since B 1;2, spoken 1;7: “(der) arme Wauwau!,” “(der) arme (Hampel)mann!” 1;10 replaced by [pɔ], *poor*, with the same facial expression. Also front [a].

ʔā, always with front [a], German *an* and English *on*, only as adverbs. Frequent since 1;9. The word was always in stressed position; it generally expressed wishes, which were frequently uttered with interrogatory intonation. Most frequent use: “*zieh an*,” “*put on*” (clothes, beads, etc.). Also for: “(put the lid) *on*” (the bottle) 1;9 (definitely English), “(turn the) radio, water *on*” 1;10, 1;11 (= “*stelle an*,” “*drehe auf*”); same meaning: “(Licht) *an*” 1;10 (definitely from German presentation), often also for the opposite, along with the correct [ʔaʊʃ], *aus*. In one instance the wish may have been faintly subordinated grammatically: 1;11 [ʔaʃ(t) baba ʔā], *ask papa (to put it) on*, namely to put a pull-string into her underwear after she had pulled it out; extended use of the adverb. Only once did the word contain no element of wish: 1;10 [baba dɪt ʔā], *papa (turned) this on (yesterday)*, an early example of wish-free narration; I had opened the shower faucet when she was in the bath-tub; the disagreeable surprise was vividly remembered. The word never represented the preposition, because prepositions hardly occurred before 2;0. “I want to ride on papa’s neck” for instance was expressed [haɪ baba nɪk] 1;10. There were cases in which its function seemed similar to a preposition: 1;11 [dɪ, ʔā, maɪ nɪk], *this on, my neck*, “hang this bell around my neck,” and [baba ʔā mɪʔ], *Papa, (please put this) on (for) me*; they may be considered cases of transition, but the “on” probably still had more or less its full value. (The preposition “on” clearly appeared 2;1: [hek, baba, maɪ ʔauto|biə ʔā maɪ wiə], *Look, papa, my automobile on my wheel*; she was holding the toy against the wheel of the cart in which she was riding.)—Compare also [ma], *come on*, which was felt as one word, the connection with “on” not being appreciated.⁴

*ʔaʔa!, address to dogs, 1;0–2. The family called it “barking,” but I doubt the onomatopoeic origin of it. It would rather seem to be a development from the early self-expressive sound [ʔa!] (here listed under its last form [ʔəʔ]) which had at this time become less frequent in its original function of calling attention to something and was often replaced by [da] with pointing; the doubling of it may be due to primary or (more likely) imitative onomatopoeia.

⁴ Karla [an] 1;8, at once in a much more perfect form: [ti, an], *chair, on*—“I want to get up on the chair.” [ā] also occurred, but less frequently.

It appeared first E 1;0 in two-word form, [ʔa ʔa], short. At E 1;1 it was contracted into one word [ʔaʔa] with falsetto voice, used also with reference to dog-pictures and, by extension, to ask for the picture-book; at B 1;2 it served primarily for dogs, by extension for other animals, for instance cows; [wawa], *Wauwau*, also with falsetto voice, appeared E 1;1. After that this more standard form soon replaced it, and the interjectional sound was again restricted to its demonstrative function.

ʔaʔa, *A-a*, a standard word in German nursery language for announcing physical needs. The vowels are short. B 1;1 reproduced as a double voiced glottal stop, accompanied by unconventional pointing to the part of the anatomy involved; clearly distinguished from the simultaneous [ʔa, ʔa] used for shouting at dogs. E 1;3 it assumed the form [lʔa-lʔa], with a serious facial expression; rarely abused as "false alarm," to attract attention or to terminate undesirable conditions.⁵ B 1;4 always with reduced voice, but very emphatic. By 1;6 it had reached the standard form, voiced. At 1;8, when she learned the adjective "big," she used it freely with different nouns and also said [brʔ ʔaʔa], which however did not indicate a distinction between the two kinds of physical needs; "big" was merely an intensive, but it was used only before nouns, whereas before that time [ʔaʔa] may well have had verbal character. During the same month it was also combined with the indefinite wish-word "bitte"; in this combination [ʔaʔa] functioned rather as a verb. At 1;11 she said [no ʔaʔa], meaning either "I do not want to make A-a" or "I have finished making A-a." She saw a roll of toilet paper in a store and invented her own name for it: [ʔaʔa bubu], *A-a paper*. Then (1;11) the verb "make" began to appear rarely: [məʔaʔ mek ʔaʔa], *meow makes A-a*; from then on the word was definitely a noun, as in standard speech.

*ʔaʔi, *Alex* 1;11, the name of her uncle in Milwaukee. Discontinued after her return to Evanston.

ʔaʔi, *alley* 1;11.

ʔaʔi, *eil* 1;4, an interjection which adults used while stroking her cheek gently. Probably first presented to her in Germany (0;11-1;2), absorbed slowly by her. At 1;4, when I talked with a lady about the peculiarities of the English diphthong [aɪ], her mother noticed that Hildegard stroked her own cheek. Then we became conscious of the fact that she also used the word occasionally; but we had not realized before that it had a meaning. Another case recorded (1;7) also involved a misunderstanding. I asked her, "Hast du Ei?", whereupon she stroked her cheek.

⁵ Karla used [bu], *pooh*, often with pointing, for the same purpose, B 1;4. B 1;8 she had not learned "A-a," although it was used even by the English-speaking adults of the household. The adults adopted her "pooh." At B 1;9 she began to echo [ʔaʔa] in addition to saying [pʊ].

²ai, *Ei*. At 1;7, she misunderstood the word "Ei" because of homonymy with "ei" and "eye." At E 1;8 she used [²ai] for an Easter egg of rubber, some weeks later for a real egg⁶ while she was eating it (where shape would seem to be subordinated to substance), alternating with [²ek], *egg*; apparently she said the German word to her father, the English to her mother. At 1;11, the egg-shaped ball was called [²ek bau], *egg-ball*, but "Ei" also re-appeared in this combination, [²ai bau], *Ei-ball*; she heard it designated alternately as "egg-ball" and "Eiball."

²ai, *eye*, 1;7. On the occasion when she misunderstood "Ei" as "ei!" (see [²ai], *ei!*), she pointed to her eye, saying [²ai], as the next attempt to understand. When I acknowledged this interpretation by "Ja, das ist dein Auge," she repeated [²au]. My diary carries at this point the sympathetic exclamation: "Poor child! How is a person expected to learn to speak under such circumstances!" However, at 1;8 she used the word correctly in a sentence: [wewe ²ai], (*I have a Wehweh (in my) eye* = "my eye hurts.")⁷

²ai, *I*, 1;5. In the history of this word, a clear distinction must be made between an early mechanical imitation and the much later intelligent use of it. It first occurred unanalyzed in [²ai!ia], *I see you* (see separate entry), 1;5. Otherwise [²ai] was used regularly from 1;5 to 1;9 as an answer to questions which called for the first person pronoun as an answer. But the case shows very clearly that a mere record of the first use of a certain word is very misleading; psychological analysis of the meaning behind the form is imperative. During all these months, the answer "I" was nothing but a mechanical reaction to questions beginning with "Who wants to . . ." in a strikingly falling intonation. To be sure, the question itself was understood and the answer was meaningful to the extent that it expressed her enthusiasm for the suggestion. But it was for her not a personal pronoun. Once (1;8) she said [²ai! barbar], with falling intonation, without the usual stimulus of a question. It would be tempting to construe this as a sentence, "I (want to go) by-by"; but it was really nothing more than a wishful "by-by" prefixed by the emotional affirmative wish-particle [²ai]. The idea of the first person pronoun was learned from about 1;8 on in the possessive relation, and from 1;10 on "I" was replaced by [maɪ], which then served as her first real personal pronoun. (See [maɪ], *mine*.) At 1;11 a new mechanical response to questions like "Who likes candy?" was taught her by her aunt: "I do," first with assimilation [²au du], then correctly

⁶ Karla E 1;8.

⁷ Karla [²ai] 1;8. Although a monolingual English child is spared the confusion of "eye" with "Ei" and "ei," its task is not much easier since it may still confuse "eye" and "I"; cf. D. R. Major, *First Steps in Mental Growth*, New York, 1906, p. 309. Hildegard and Karla did not fall into this trap.

[ʔaɪ du], with falling intonation. But shortly before that (1;11) the first real "I" had made its appearance in the combination [ʔaɪ biə . . .], *I spiel* . . . (At 2;1 "my" and "I" were in balance for the personal pronoun, with "I" gaining ground. The form was [ʔaɪ] or [ʔa], corresponding to the more or less careful pronunciations of the colloquial standard.) She almost never used her name instead of the first person pronoun (see [harta]).

*ʔaɪiə, *I see you*. Imitated in a game, 1;5. Ephemeral. Simultaneously a similar game-sentence, *[da.i:ɛ], *da ist es*, 1;4-1;5. "See" did not occur otherwise⁸ ("you" as [ju] > [ʒu] very frequently 2;1).

ʔaɪni, *ironing*. 1;8 repeated with understanding ("snowing" at the same time). 1;9: Her mother stated in a conversation, "Apricots contain lots of iron"; Hildegard reacted unexpectedly with [dada—ʔaɪni, ʔaɪni], *Carolyn (was, or did) ironing*. She had recognized the word "iron," but misinterpreted it in the meaning familiar to her ("plätten" instead of "Eisen").

ʔaɪ(), *eins*, in counting 1-2-3 (1;11); but "1" was more commonly skipped, because it was usually presented by me as the stimulus for the series.⁹

*ʔaɪs, *Eis* she repeated once 1;7; the final consonant was still unusual at that time. The English equivalent "ice" is of course practically identical in sound; but the word was actually presented in German.

arta, *high-chair* 1;5. The [t] was unaspirated, possibly sometimes voiced [d].—"Chair" and "Stuhl" did not become active.¹⁰

*ʔarte, *Eiskrem*, 1;9, the German term used by me for the English "ice-cream"; it was at that time current in Germany (there later replaced by "Sahne-Eis"). It gave way (1;11) to the English original (see [ʔati]).

ʔalə, *alle* 1;7, only in the meaning of "gone," "empty." (The attributive adjective was used in its English form, see [ʔa].) One of her most frequent words from 1;7 to 2;0 and beyond. The English equivalent appeared first 1;5 in the very expressive form of [ʔa:], with the palms turned outward and thumbs sticking out, after presentation of "all gone" by the maid. I immediately proceeded to associate the German "alle" with it. At 1;7, she used the German [ʔalə], with an un-German velar [l]. The gesture of the spread palms was transferred to the new form. It was also used for per-

⁸ Karla [tiʔ], (*Do you*) *see?* 1;10.

⁹ Karla 1;10 [ʔaɪni], with reference to one piece of candy, from presentation "nur eins." 1;11 also [wan], *one*.

¹⁰ Karla tried [tuɪ] E 1;6, [tu] B 1;8 and said frequently [ti] since 1;7, which might come from "chair," but was more likely a transfer from "Tisch." She liked to play with a little chair and a small Japanese table; the latter she first called [ti], *Tisch*. At 1;10 "chair" was improved to [te]; [tu] continued also.

sons: [mama ʔalə], *Mama alle*, where the English "gone" fits, but not the German "alle." Still, I would not assume English influence; such an extension of meaning was perfectly normal in her speech. At 1;8 she said [ʔajə ʔajə] for shutting off the radio, after presentation of "alle." At 1;9 she used it also in the combination "bath, bathing (is) alle," where neither the German nor the English is suitable ("my bath is finished"). During this month the forms [ʔajə] and [ʔajə] were used; [j] was a little later a frequent substitute for [l]. But at 1;10 she returned to [ʔalə], now mostly with a clear, palatal German [l], the tongue movement being visible; the [j] was a transitory stage in the shift from velar to palatal [l], which was achieved in this frequent word sooner than in others. At 1;11, "all gone" began to be used, but less frequently than [ʔalə]; the latter continued to be used also for persons, and not only in the meaning of "gone," but also of "not there," again a slight shift of meaning. The negative sense was clearly indicated by the gesture of shaking her head, which accompanied the statement, [me! ʔa wewe ʔalə], *Mary Alice's Wehweh alle*, equivalent to: "Mary Alice has no pain (wound, illness) any longer." At this time, no connection between "alle" and the adjective "all," [ʔav] seemed to be felt. In emphatic pronunciation, the [ə] appeared in full vowel form as [ɛ] or, with lip-rounding, as [œ], or [ʌ]. (During my prolonged absence from Evanston, the word disappeared together with many other German words; it was replaced by "all gone," see [ʔa:], *all*, 2;1.) The German synonym "weg" (see *[wek]) was used sporadically at 1;10.¹¹

*ʔap, *ab*. Occurred only once (1;11) in a situation which suggested "Wisch ab": she wiped sand from a bench, saying at the same time [wiʃ ʔap]. She understood "Mund abwischen" from 1;3, but never said it in that connection. At least a crossing with "up" is likely; notice that "up" is frequently used in English in a similar function to "ab": "wipe up." However, all her uses of "up" were concrete, not figurative; and "wipe up" would not be possible in the situation where she first learned to understand the word, when the parallel presentation in English was "wipe your mouth off" (Germanism? "off" = "ab"!).

ʔap, *up*, 1;4. (For a synonym see [ʔavχ], *auf*.) One evening (B 1;4) she said often and with enjoyment [ʔap], when she wanted to get up on the davenport;¹² probably taught her by the maid. For months

¹¹ Karla, who used less German vocabulary than Hildegard, did not learn "alle" before 2;0. She did try "weg" at 1;8, but in the sense of "wegtun," "put away"; usually "back back" < "put it back."

¹² Karla began to say [ʔap] in a similar situation, second half 1;7. For months before that time she refused to be taught the word and used "get down" instead. E 1;8 "up high," in a dynamic and a static application; at first definitely [hap har].

it remained the only word ending in a consonant. On the same evening, when I told her "aufstehen," she got up and said [ʔap], showing that the word was associated not only with the wish to get up on the sofa, but also with another upward motion; for both motions, the same expression ("get up") is used in English, but not in German ("hinauf" or "rauf" and "aufstehen"). Later in the month, "up" was used also for the opposite wish, [da], *down* being said only upon request. This does not mean that the directional sense of "up" was not well understood; the use of a word in the opposite sense is frequent in child language, and several examples of this phenomenon were observed in Hildegard's speech. Once (B 1;6) she said [ʔap] when she wished to have the lid of a cardboard box taken off. I interpreted it as "open, aufmachen," but this possibility was eliminated by the later experiences: from 1;4 to 2;0 she used the word consistently and very frequently in its standard meaning; (cf. also "auf" 1;6 in a similar situation); "open" appeared in 1;8 as [ʔabu], later [ʔapu], "auf(machen)" in the same situation (lid of can) later in the month (1;6) as [ʔau] (see [ʔauχ]). Apparently she was really thinking of the upward movement to be performed with the lid, or she was translating the more fitting German "auf." The word continued during the following months in the function of a wish to have herself, another person, or an object perform an upward motion: 1;6 "I want to get up" (on a high place or out of bed); "Put the periodical up on the mantel"; 1;7 combined with "bitte" and in the combinations "way up" and "mehr up" = "higher up," "Mama up" = "Mama, get up." This latter command she addressed to her mother every morning at 1;8. But once she said it shortly after her mother had risen, pounding on the empty bed, thus making a factual statement with no wish implied; it was probably not in a past tense ("Mama has got up"), but rather in the present ("Mama is up"). From then on, "up" was frequently used as a statement devoid of wish, both for a condition at rest ("oben") and for an upward motion ("hinauf"): 1;9 looking at candy on the mantel, she said "way up," which was at that stage a current combination (see [we:]), in the intonation of a statement (the request followed); 1;11 "(I am going to take) this dolly up (to) bed"; "meow up (in the) Baum"; "(I am) up(stairs)" (answer to question, "Where are you?"); "wake up" = "I am awake," frequently, also in play. Other verbs in a standard combination with "up" came in at 1;11: "roll up," "cover up," "häng up" (in spite of German verb, cf. [he]); the earliest one was "pick up," 1;10 or even (a little doubtful) 1;9.

ʔapa, *apple*, B 1;5, immediately also for a picture of an apple; unaspirated [p] or voiceless [b]. Twelve days later clearly [ʔaba], with

voiced [b] (assimilation). 1;8 [ʔapa]. The possibility of "Apfel" being the prototype is disregarded because the diary expressly lists "apple" as the model at the first occurrence, no doubt for some good reason. On account of the constant double presentation as "apple" and "Apfel," the German word must have had a supporting effect. But there is no other evidence for the treatment of [-pf-].¹³

ʔapu, *open*. 1;8 [ʔabu], expressing a wish, alongside the older [ʔaʋ] (see [ʔaʋχ], *auf*). At 1;10 the words of the finger-game, "This is the church, and this is the steeple; open the door, and see all the people" were imitated as [dɪ dʒuɪʃ, ʔabo doi]. Transferred at once to reality, [ʔabo dɔ], *open (the) door*. 1;11 [ʔabo dɔ], *open (the) door* and [dɔ ʔabɔ], *(the) door (is) open*—statement (adjective) along with wish (imperative); [dɪ dɔ ʔapu], *this door open*. ([abu] re-appeared 2;1, now as an infinitive in a five-word sentence.) The difference between voiced and voiceless stops was not phonemic at this stage, so that assimilation to voiced surroundings could easily take place; [b] instead of [p] is the result of carrying the voice of the vowels right through the stop without interruption.¹⁴

*ʔatʰ, *ask*. Two or three times B 1;11 in two different forms: [ʔaʃ(ɪ) baba ʔā], (*I shall ask papa (to put it) on*, namely to put the drawstring, which she had pulled out, into her underwear (papa was expected to repair all damage she had done, although his real endeavors were restricted to repairing toys); [ʔatʰ mama dɪt ʔaʋ], (*I shall ask mama this out (aus)*, namely, "to take this off," modeled after the German "ausziehen."

ʔati, *ice-cream*, often 1;11. It took the place of the older German *[ʔarte] 1;9, at first in the more nearly standard form [ʔarti],¹⁵ but soon and lastingly with simplification of [aɪ] to [a], due to dissimilation; notice that in the German *[ʔarte] with its different second vowel [aɪ] did not change to [a].

¹ʔato|biə, *automobile*, presented in the pronunciation [ʰʔatəmə|bi] (rather with slightly rounded [a] than [ɔ]), appeared at the very end of the period, 1;11, alongside the much more frequent [ʔa(ʋ)to] based on the colloquial shortening.¹⁶ (At 2;1 she always used the full form [ʰʔauto|biə], which seems to correspond to the German equivalent, but is more probably the result of a merger with the

¹³ Karla 1;10 [ʔapu] and [hapu], *apple*; B 1;11 [paɪnæpu], *pineapple*. — The form "apoo" is also listed by F. Tracy, *The psychology of childhood*³, Boston, 1896, p. 137.

¹⁴ Karla [opʰ] 1;9, as imperative: "open this box for me" etc. Once B 1;10 she said first [ʔap], *up*, but with the meaning of German "auf," then [ʔop], *open*, when she wanted a drawer opened. 1;11 still [ʔop].

¹⁵ Karla's form, B 1;9-11, was [ʔa:ni]. M 1;11 [ʰʔa:ni |kim].

¹⁶ Karla [ʰʔato |bi] E 1;11; a day or two later [ʰʔa |bi].

familiar [ʔauto], which was indeed based on German.) German "Automobil" must have reinforced the word.

ʔau, *au!* B 1;8. Used for expression of pain, alongside [wewe], *Wehweh*, which was the preferred term and became active at the same time. At its first occurrence, it was used for a statement rather than as an interjection: [wewe — da! (with a finger in her mouth) — ʔau] to indicate the pain of teething; communication, not complaint. Theoretically, the English "ouch" could also be the prototype, since at least at 1;6 [-ɪʃ] was missing. But purely German context and frequent German presentation make the German model more credible. English "ow" was not used.

*ʔau, *Auge*. Repeated only once 1;7 immediately after she had used [ʔai], *eye* independently. The compound "Augenblick" (see [ʔauwk]) appeared at the same time, but on account of the totally different meaning no consciousness of etymological connection can be assumed.¹⁷

ʔauχ, *auf*. [ʔau] 1;6-9, [ʔauχ] 1;7-11. The analysis of this word is difficult. It appeared at the same time as the following one, "aus, out," and developed hand in hand with it. It cannot be established whether they were in her consciousness semantically separate units or the same one with extended applications. Since homonymy in other instances, where different verbal images must have been present, did not disturb her, I assume the same condition for this sound-complex. At the first occurrence M 1;6, [ʔau], with faint [ʊ], is recorded as the equivalent of "aus, out," used especially for "ausziehen" ("zieh . . . aus!"). A few days later, [ʔau], with the intonation of question and request, was observed for both "ausziehen" and "aufmachen" ("mach . . . auf!"); she wanted a tin box opened. (Cf. "up" B 1;6 in a similar situation.)¹⁸ At B 1;7 it changed in the same two meanings to [ʔauχ], with an energetic [χ], much stronger than in [bʊχ], *Buch*. It is tempting to interpret this [χ] as a substitute fricative for both [f] and [s], which would be a perfectly normal substitution (same manner of articulation, but different place). There is, however, no other evidence for either [-f] or [-s] turning into [χ] in her speech, whereas omission and substitution of sounds other than [χ] is well documented. On the other hand, there are more instances 1;7-11 of [-χ] being added after [ʊ] without standard equivalent. Since, moreover, [ʔau] continued to be used in alternation with the

¹⁷ When I enumerated the parts of the head to Karla 1;7, she pointed at each item silently, but nearly always repeated [ʔau] emphatically and with evident enjoyment. She also understood "eye," but did not say it until B 1;9.

¹⁸ Karla's [opʰ], *open* (imperative) 1;9 had at first an unstable vowel and sometimes sounded similar to "up," suggesting that in her case too there may have been a feeling of semantic relationship between "up" and "open." She did not say "auf" at that time.

form ending in the fricative, it is necessary to interpret [-χ] as a mere final modification of [ʋ]: the process of raising and retracting the tongue, begun in the glide from [a] or [ɑ] to [ʋ], was continued beyond the standard limit. At 1;8, [ʔabu], *open*, appeared in the function of "auf" without displacing it entirely. B 1;11 [walu ʔauχʔ], (*Dreh*) *water (faucet) auf*, request in interrogatory intonation, with a slightly different meaning of "auf," but the same standard clue. 1;11 [ma baba, ʔauχ], *come on, papa, (steht) auf!* New meaning, same clue "auf" (English "up" in this situation since 1;7). 1;11 [maɪ ʔauχ], *my auf* = "I want to get up" (from a sitting position). Thus "auf" was always an adverb (separated prefix of a verb). (It first occurred as an echoed preposition 2;1 in [ʔau widi ʃel], *auf Wiedersehn*.)

ʔauχ, *aus, out*. [ʔau] 1;6-11, [ʔauχ] 1;7-11. This word appeared interwoven with the preceding one, under which their connection has been discussed.¹⁹ If the [-χ] does not take the place of any standard sound, her word may equally well come from English "out" as from German "aus," the dropping of final [t] still being frequent even at 1;11. Both have largely the same function and both were presented frequently. Originally, it must have come from German "aus," because it was used for "zieh aus" (clothes), where English does not use "out," but says "take off"; this use was fixed from 1;6 to 1;11; it thus continued into the period when English became predominant and was unhesitatingly inserted into English sentences: 1;11 [ʔat' mama dɪt ʔau], *ask mama this aus* = "to take this off." (At 2;1, when I returned from New York, [aut], *out*, had taken its place.) Other examples of use in the same meaning: 1;9 in answer to the question (in German), "What is Dada (Carolyn) doing?" she said [jɪ ʔauʔ], *Schuhe aus* = "she is taking my shoes off," a statement without wish, in spite of the interrogatory intonation. B 1;11 [bu baba, betɛ ʔauχ], *poor papa, button aus* = "your button is off"; neither "aus" nor "out" fits here; "off" could be the prototype ([ɔ] > [au(χ)], [-f] may be dropped), but it is not the form to be expected at this stage, and there is no other instance of the use of "off"; thus a free extension of the use of "aus" is a more plausible explanation. A different extension was observed in [meɪ ʔau ʔauχ] 1;11, *meow (is) out*, which is neither standard English ("outside") nor standard German ("draussen"), but an original transfer from a dynamic to a static meaning. Another application of "aus, out" occurred in [aɪ ʔau], *light out* 1;8; "out" might here be the basis, but "aus" is just as probable; mixing of languages was frequent. At 1;10 she

¹⁹ No such complication with Karla; [au] 1;8, meaning "out," "hinaus" = "I want to go out;" [aut], [hauɪ] 1;9, but also [ʔaut]; variant [a:t] 1;11.

said in the same situation (when the light was switched off) simply [ʔaʊ], *aus*, but frequently also the opposite, "an, on." [ʔaʊ] was at that stage phonetically the normal representation of "aus," but not the only possible one; final [s] continued to be dropped in some cases until 1;11. [ʔaʊ] did not establish itself because the clipped form had become fixed earlier, a frequent phenomenon. This instance shows that great care is necessary to arrive at a correct interpretation; to say "aus" > [ʔaʊ], therefore [ʔaʊ(x)] < "out," would be too mechanical a procedure; this proportion is ontogenetically incorrect.

ʔauto, *Auto, auto*. Preceded by *[ʃ] 1;0-6 used for any riding motion, later for cars in motion or standing. B 1;5 for pictures of autos in the form [ʔata], with unaspirated [t] or even voiceless [d]. Eleven days later [ʔada], sometimes something like [ʔaoda]. 1;7 improved to [ʔatɔ], [ʔautɔ], the unstressed vowel varying between [ɔ] and [o] and the stressed one from [a] over [aʊ] to [ɔ]. The latter variation is due to the mixed presentation, German [aʊ] and English [a], [ɔ]. At 1;8 the German form [ʔauto] became victorious, at first still with the second syllable [ɔ]; but soon the form was perfectly standardized and remained stable in frequent use until E 1;10. During 1;11 it was still the more frequent form, but the [ʊ] element of the diphthong was again sometimes omitted. This might be explained as dissimilation (omission of lip-rounding due to the following rounded vowel, which rarely still varied to [ɔ]); but in view of the early occurrence of the same form and the long stability of [aʊ], it is likely that the English prototype again asserted its influence, especially since in 1;11 the English gained a decided preponderance in her vocabulary.²⁰ (At 2;1 she always said [lʔauto|biə], in which the German [ʔauto] had won out.)—As to meaning, [baɪbaɪ ʔautɔ?] 1;8 signified her wish to go riding in an auto. Once the word was followed 1;8 by an abridged symbol derived from "choo-choo," which had assumed a generalized meaning of a riding motion. In a conversation 1;8 about going out and riding in an auto, she turned to her duck on wheels, otherwise always called [da], and said [maɪ ʔauto], an isolated transfer of application, which could be explained psychologically in several ways; then, with a shift in thought, she continued [witi ʔauto], putting her doll named "Fritzchen" in a riding position on the duck. At 1;9 she saw a picture of a complicated psychological apparatus (Bradyscope); she called it tentatively first "choo-choo," then [ʔauto]. The picture showed no resemblance with either, but in some vague way,

²⁰ Karla also learned "auto" early. At B 1;9 she said [ka:], *car* and [ba], *bus*, words which Hildegard's early vocabulary did not contain.

machines of various kinds must have formed a complex of impressions in her mind, although it would be rash to speak of a concept "machine."²¹ She saw an airplane flying and shouted, forming a very original compound: [pipi ʔauto], *Piep-piep-Auto*, "bird-auto" (1;9). 1;10 for an electric ironing machine. 1;10-11 frequently [ʔauto ɲoiʃ], also [ʔa(v)to ɲoiʃ], *Auto-noise* (see [noiʃ]). Once (1;10) her mother said to me, pointing out of the window, "Look at the cars!" Hildegard, without seeing them, echoed [ʔauto], her own translation showing that she understood the word "car," which she never used until much later. 1;11 at least twice the same form for the plural: [ʔauto ʔa:i], *Autos (are only in the) alley*, distant echo of a frequent assurance given her that she need not be afraid of autos in the garden, after a disagreeable incident had given her for a long time a fear of them; [wi tu ʔauto], *three two Autos*, referring to two toy autos.

*ʔauwik, *Augenblick!* 1;7-11. She understood the word, which I always used like an imperative asking her to wait a moment, at B 1;7 and occasionally tried to repeat it, [ʔau], [ʔaubi]. At 1;8 she sometimes raised a warning finger with it as she often saw me do; otherwise the word [ʔauwi] ([w] varying to [β], bilabial [v]) could be distinguished from [ʔa ʔwe] (with short [e]), *all wet*, only by close attention to the stress. B 1;11 replaced by "wait." M 1;11 [ʔauwik] occurred again once, in improved form, in the definite situation in which it had first been learned, but it was hardly active any longer at the end of the period.

ʔa'wai, *all right* 1;8. [ʔaiaɪ] 1;8, in an intonation of affirmative conviction, very frequently used, first as an answer to her own question "ja?" = "may I do that?", then in place of the affirmative particle "ja," as it is frequently used in standard English to express consent. A month later (1;9), when the novelty had worn off, the word had become much rarer and was again restricted to giving herself a permission, [ja] resuming its rôle as simple affirmation. At 1;10 the improved form [ʔa'wai] was reached; the definitely falling intonation reproduced exactly that used by the maid Carolyn, from whom she had learned the word. The word had become rare by this time, but was not considered extinct by the end of the period (B 2;0).²²

*ba:, *baden*, 1;3-9, used as verb and noun ("Bad," "bath"). 1;8 [mama ɲa:], *mama (is going to take a) bath*, when her mother was preparing a bath for herself; according to facial expression and intona-

²¹ Karla, at 1;3, said "choo-choo" upon seeing a photographic camera.

²² Karla learned "all right" 1;8 in about the same form from Hildegard; she used it only to announce that she was "ready" in a beloved hiding-game, faithfully reproducing Hildegard's intonation: high pitch on the first, low pitch on the second syllable. 1;9 [ʔa'wart'], pronounced very energetically, in varying situations.

tion it was a statement, not a wish. B 1;9 the noun took the form [be], which had its vowel from the English verb "bathe." Later in the month the two forms struggled with each other: [ba:], be ʔaɛ, *bath*, *bathing* (is) *alle* (= "over"). 1;11 regularly [beʃ] < "bathe." [ba:] could come from "Bad, bath" as well as from "baden"; but in that case the switch to English would not have necessitated a change in the vowel, which actually took place in the noun as well as in the verb. I therefore take the verb as the prototype. The verb was probably also presented more frequently, certainly in German. "Take a bath" may have re-inforced the early "baden," but the later change shows that "bathe" was a more powerful stimulus.²³

*ba, *Paul*, the name of a neighbor boy, presented in English pronunciation, 1;8.

ba, *piano* E 1;11; English; in German "Klavier" was used, which she did not learn. First said for a piano bench, the real one and a toy. At once also [biə ba], *spiel(en) piano* (B 2;0 the same).

*ba, *Zwieback*, once 1;9. The German word is currently also used in American English. Cf. [bakə]. Elimination of the syllable with main stress in favor of the less stressed second syllable is unusual. (At E 2;0, [ba] also meant "back," the noun; 2;1 [bak]. The adverb "back" was missing.)²⁴

baba, *papa*, *Papa* E 1;0.²⁵ The babbling combinations [dada] and [baba], without meaning, occurred for the first time distinctly and repeatedly on February 14, 1931 (0;7). At 0;8 she seemed to understand "daddy," which later was given up by us in favor of "papa." E 0;8 [bababa] was the most frequent cooing combination. At 0;10 [mama papa] was heard in isolation while she was playing, nothing but a striking accident. At 0;11 "papa" was understood and identified²⁶ (not yet "mama"), but not said, although accidental combinations like [baba] continued to be used.²⁷ E 0;11 in Hamburg, "mama" as well as "papa" was identified. E 1;0 she said [pa-pa], with a deliberate pause between the syllables, with meaning, at the same time that she learned to stand alone ("mama" not until much later). At M 1;1, whispered [pa-po], [ba-ba] was not clearly distinguishable from whispered

²³ Karla [bæ:], *bath* 1;6, statement and wish. 1;9 also [ba:] as echo of "Bad(ezimmer)" etc.

²⁴ Karla used [bæbæ], (*I want to put it*) *back* from E 1;5.

²⁵ Von Taube (Preyer p. 264) E 1;1, after an ephemeral attempt 0;9.

²⁶ Pavlovitch (§24) reports the same for 0;4, which seems incredibly early. Karla second half 0;9.

²⁷ Karla said [baba] with meaning M 0;11, regularly E 1;2. In the second year the [b] varied occasionally to [p] in emphatic pronunciation. At 1;7 aspirated [p] became regular in both syllables; soon the aspiration was reduced to the standard strength.

[ba], German *Ball*, which also often occurred in reduplication, and from "Opa," the family name for her grandfather. A week later, however, the three words were separated in articulation, [ba-ba], *papa* being then pronounced aloud. At E 1;1 [baba] and [papa], with gentle voiceless release of lip-closure, had lost its medial pause and was said frequently with enjoyment. "Opa" had been given up, and [baba] served for both purposes without clear distinction, primarily however for "papa." Attempts to make her repeat "mama" resulted, in spite of her best intentions, also in [papa], 1;2 [baba],²⁸ although acoustically she distinguished the two words perfectly. She learned "mama" B 1;3, but even then hybrid combinations like [maba] interfered with the correct form. At E 1;2 [baba] was clearly a two-syllable word, with the stress on the first syllable; it was then used indiscriminately for any man in the street,²⁹ for "mama," but primarily correctly for "papa." Often she said it merely for amusement, having no large vocabulary to choose from. Asked to call Carolyn, she experimented with several forms for the name, one of them happening to come out as [baba]; but she realized immediately that this form was already fixed for "papa," turned around with an energetic move, pointed to me and said "da," to show that she knew better. At 1;3 "papa," like "mama," was also uttered longingly in the absence of the parent.³⁰ It was distinguished from [baba], *bye-bye*, only by voice, which the latter lacked. At the end of the month, "papa" seemed no longer to be used for other men ("mama" similarly), although the word "Mann" did not become active until two months later. The form remained rather stable as [baba] beyond the second year; variants were comparatively rare. At B 1;4, when all words were subjected to occasional playful variants, such forms as [waba], [bama], [maba] were heard, the last two possibly representing blends with "mama." At B 1;11 initial [p] began to appear with growing frequency, [paba], once (M 1;11) also [papa], but without becoming predominant. From E 1;10 possessive relationship was indicated, only in the case of the words "mama" and "papa," by

²⁸ The idea often found in the literature (e.g. in Trombetti) that "m(a)," "n(a)" are earlier than "pa," "ta" and are therefore identified with the mother is certainly not universally true. Karla also said "papa" earlier than "mama," although the gap was not so great. The observation that the father is frequently named early is often found in the literature, e.g. Bateman, p. 394.

²⁹ Preyer (p. 182) reports this extension as late as 2;8. It was also observed with Karla, but only for a very short time. Elsa Köhler quotes the same observation, that children at first call all men "father" and all women "mother," from Aristotle. Unfortunately Aristotle does not give any child-form, but the standard words.

³⁰ Karla likewise for [baba], 0;11.

an equivalent for the genitive [-s]: [babaʃ].³¹ She did not learn "daddy" and "Vati" until much later.³²

babi, *bobby-pin*, a certain kind of pin used for her hair. Learned from the maid 1;7; Hildegard used it for any hairpin. B 1;11 also plural, [babiʃ], *bobby(-pin)s*.³³

*babu, *pocketbook*, a current designation for a lady's handbag, 1;8; at that stage a favorite toy. (It re-appeared 2;1 in the more perfect form [bakəbukʰ]; by that time it was obviously analyzed into its two component parts, which are treated under separate entries.)³⁴

*bai, German *Ball* 1;0-9. E 1;0 whispered [ba], occasionally and without assurance. 1;1 whispered [ba], not well distinguishable from "papa" and "Opa." Later whispered [ba], [pa] with short vowel meant "Ball"; it was then differentiated from [ba-ba] with voice, *papa*. At 1;3 [ba] improved to [ba:i], the [i] representing the palatal element of the German [l].³⁵ At B 1;4 [ba(i)], whispered, had not been heard for some time and was declared inactive; but that was due only to a temporarily diminished interest in balls. A few days later, on being shown a ball, she immediately said [ba:i] again; in this entry the [a] was emphatically identified as the front variety. At 1;4 she asked for a toy balloon with [ba:i]. At 1;5 whispered words had all but disappeared and "Ball" was uttered with voice, but returned to the simpler form [ba].³⁶ It was never used without voice again. From 1;5 to 1;8 it was [ba], at 1;5 alternating with [bai]. It would seem that pronunciation with voice made her conscious of the inadequacy of [ɪ], [i] for [l] so that she preferred to omit the [l] altogether. The word was also used for balls of yarn, which she may have taken for real balls, since one of her three balls was crocheted. But twice she also greeted with [ba] the dome of the observatory on the Northwestern University campus, 1;8. I refuse to believe that she actually took it for a ball; by that time she had had more experience in judging distance and size. The round shape simply evoked an association with a familiar object. From 1;9 the English equivalent (see [bau]) began to take the place of the German word, from 1;10 consistently so. At 1;11 her [bai] was once still understood as

³¹ Earlier by the word without inflectional ending (1;6); Karla thus M 1;4.

³² Karla said [t'a:t'i], *Vati*, 1;8, influenced by her older sister; she used it often to call me. She also learned [dædɪ] from adults (1;8), but it did not become frequent. 1;10 [ʔa:ti], *Vati*.

³³ Karla [pin], *pin* E 1;8.

³⁴ Karla E 1;11 [l'p'a k 'buk].

³⁵ Ronjat (pp. 26, 43): German *Ball* > [bay], *i.e.* [baɪ] (= [baɪ]?), 1;3. Major (pp. 319, 328) also reports "bā-ɪ" as the first form of his monolingual (English) child, 1;0. But the form changed much more quickly to "baw," 1;2.

³⁶ Karla [ba:] aloud, without preceding whispered stage, from German presentation, E 1;3; remained [ba] at least to 1;8.

"Ball"; but in the light of later computations, the evidence is clearly against such a possibility; the utterance as a whole was misunderstood (see [baɪ], *buy*).

bar, *buggy* B 1;6. First in the form [babi], with assimilation of the second consonant to the first. 1;10 contracted into [baɪ], which became the fixed form. It seems less perfect than the first version, but actually represents the normal development of intervocalic [g] in her speech. At 1;11 the cryptic sentence [dar haɪ baɪ] meant "(I want the) dolly (to) ride (in the) buggy."³⁷

*bar, *buy* 1;11. The interpretation is not certain.³⁸ It occurred twice on different occasions in the combination [bar bu]. The first time, [mama bar bu] was understood as *mama buy balloon* = "Mama bought me a balloon," although it was actually a favor given with a purchase, which would have made no difference to her. The second time that she said [bar bu], I misunderstood it. I asked back: "Meinst du, der Ball ist kaputt?" taking [bar] to stand for "Ball" and providing it with the note: "Rare instead of [baʊ]." But she corrected: [bu we ʔap], *balloon way up*, a clever circumlocution to explain the second word. The first word remains in doubt. The second situation did not seem to favor the interpretation "buy." On the other hand, "Ball, ball" was at that stage always [baʊ]; reversion to the earlier form [baɪ] could be explained by dissimilation from the rounded vowel of [bu], but not very convincingly.

barbar, *by-by* (for "good-by") E 1;3. At 0;11 she waved her hand on the clue "by-by" (and "winke, winke!").³⁹ At E 1;3 she said it, first in the form [baba], without voice. Since the word was always presented aloud, the explanation of the voiceless pronunciation, if it was phonemic at all, could be only a desire to differentiate it from [baba] with voice meaning "papa."⁴⁰ It had a strong emotional value; she was very enthusiastic about going outdoors. The English word prevailed over the German stimulus "ausgehen" even at this stage, when German was still predominant, on account of its easier form and because it served two related purposes at once: "ausgehen" and "winke-winke" (good-by greeting). About a week later, B 1;4, it changed to [ba'baɪ], without voice; it was uttered enthusiastically in response to both the English and the German stimulus, and she would run to the next room to find her coat, hat, or cart. A few days later the same form was said aloud, and it remained endowed with voice; did she realize

³⁷ Karla at once [bagi], B 1;10.

³⁸ Karla often said [baɪ] 1;10.

³⁹ Karla likewise.

⁴⁰ Karla, however, said both words aloud; they were not always clearly distinguishable in form.

that it was now different in form from "papa"? Up to M 1;4, wish was always implied and remained preponderant later; but the word was later pronounced also with reference to articles of clothing which she wore outdoors, still an emotional association, but no longer always an expression of the wish to go for a walk. At E 1;4 she said [babai] aloud with melodically falling intonation reproducing the presentation, as a farewell greeting.⁴¹ The stress was on the first syllable, whereas previously in the whispered pronunciation it had been on the second; however, the pitch of the first syllable had apparently always been higher. The essential characteristic of the new form was a slower, more deliberate pronunciation and a greater interval of intonation. At 1;5 [barbai] occurred for the first time; it became the prevailing form. Occasionally, however, even at the beginning of the third year, the dissimilated form [habai] would return; probably it was often dissimilated in the presentation. At M 1;7 she said [babai] four times in succession very distinctly in a dream;⁴² before that dreams had been manifested only by brief bursts of crying. At B 1;8, after a visit in Milwaukee, where the relatives took her riding in a car, [barbai] indicating wish was almost always followed by [ʔautʔ] (occasionally by [dʒudʒuʔ], *choo-choo*); but often she answered herself: [nɔ]. M 1;8 [aɪ! barbai], with falling intonation—the first appearance of "I," except for the standardized answer "I" to a "Who wants to . . ." question with falling intonation, probably influenced by this game. At 1;9 the word "by-by" was depreciated a little when her request once brought her only to the balcony of the apartment. After that she asked for [bɪʔ barbai], *big by-by*. M 1;10 she pointed out of the window saying [barbar duko], *by-by dunkel*, meaning "it is dark outside"; for her this meant only using "by-by" in an associational manner devoid of wish content. The prejudiced observer transferring adult patterns to child linguistics might say, "by-by" changed from an adverb implying a direction to one statically describing a condition, or even from an adverb or verb to a noun, "the outside"; it would be a grave psychological mistake to assume such thinking in logical grammatical categories at this early stage of child language. At 1;11 she reported [barbar dida], (*I went*) *by-by* (*in a*) *street-car*. M 1;11 once [babai, do babai], *by-by, go by-by*:

⁴¹ [baba(ɪ)] was Karla's first spoken word, second half 0;8; accompanied by waving. Later (1;1) for many months its form was [baɪbaɪ], but still occasionally [baba(ɪ)]; [baɪbaɪ] seems influenced by "bimbam," with which its intonation agreed at first. At B 1;8 it was gradually replaced by [baɪ].

⁴² Preyer (p. 171) first observed his child to talk in his sleep during the fourth year. — Karla did so repeatedly E 1;3; she said for instance "baby," which meant "baby, child, doll."

grammatical analysis progressing, the verb was added. E 1;11, after my departure for New York, she told an acquaintance over the telephone of the exciting event: "papa by-by, choo-choo train, New York." (2;0 she related the disappearance of her kitten in a similar way, with a confusing reminiscence of the earlier report: "Dasch (<Katz) by-by, New York, papa.")⁴³

bark, *bike* (children's term for "bicycle") 1;11. When she was given a tricycle, she selected this term from the various presentations, ignoring "Dreirad," "Rad," and "tricycle" as too difficult. Bigger children also usually call it "bike," undaunted by the etymology, which of course is beyond their ken. Hildegard's form, however, was more frequently [bart'].⁴⁴ The verb "bite" was part of her vocabulary at that time, but it hardly influenced the new noun; [k] > [t] is a perfectly normal substitution.

*barʃ, *beiss(en)* 1;10. A few times alongside [bart'], *bite*. At the beginning of the next month, the English word prevailed and continued alone.⁴⁵

bart', *bite* 1;10. The aspiration was more or less strong beyond the limit of the first two years. The competition of the German equivalent [barʃ] was short-lived. The word was soon (B 1;11), and persistently, also used for "spank, slap"; upon the question, "Warst du unartig?" she answered, [ja, mama da: bart'], illustrating the "da" with a slap of her palm on her rear end, in the tone of a cheerful communication. Intrusion of "beat" is unlikely; this word, which has too brutal a ring, was not used for her spankings. M 1;11, in the period of budding sentences, [dak, bart', mi], three words not linked into a phonetic unit, *duck bites me*. Another extended application M 1;11: [bart' baba], "I pinch papa." Upon the challenge to "catch the meow," she answered, [baits mi], with an isolated inflection of the third person and an unusual [s] for the regular [ʃ]. Two days later, on hearing a dog bark, she said, [wauwau! mi! 'au bart wauwau], which however meant, in autocratic word order, that the dog was biting, or was going to bite, a cat—free imagination. (2;0 "Mama bite Hildegard, my naughty," asking for a slap as punishment. She did not always have such a sense of justice supreme: E 2;0 "No bite, mama; my—I am, or was, a—naughty girl,") Cf. "patsch," 1;11.

⁴³ Karla learned the German equivalent for the farewell greeting, "auf Wiedersehn!" at 1;1 and for a few weeks used it regularly, first in the form [ˈwɪdɛʃɛ], with falling intonation, then with various assimilations and blending with "by-by" as [baˈbadaɪde], [ˈbaɪdæɪɛ], [ˈbaɪdæɪde] etc., occasionally with final [ŋ]. Hildegard did not learn it until 2;1. Karla also used only "by-by" later, although she regularly heard the German term from me.

⁴⁴ Karla [bar] 1;8, later [bark]. B 1;11 [baɪkɔ], *bicycle*.

⁴⁵ Karla [bar] B 1;9, only for biting candy instead of sucking it, as a reflection of my advice, "Nicht beißen!"

- bak, *block* (toy building-blocks) 1;7; singular or plural. 1;7-8 registered as [ba],⁴⁶ 1;10 as [bak]. Immediately upon learning the word "big" (B 1;8), it was also combined with "block." No instance of the word is recorded after 1;10; but it was not extinct by the end of the period.
- bak, *box* B 1;6. First [ba], with short [a].⁴⁶ Not recorded again until 1;10, [bak], *box*, [ja-bak], *sand-box* (the latter continued in this form at least into 2;1; "box" alone also remained unchanged at the beginning of the third year).
- bakə, *backe* 1;11, with hand-clapping and in conventional intonation to reproduce the nursery sing-song "Backe, backe Kuchen." Unfortunately I happened to interrupt her after the first word. She had begun to learn the hand-clapping reaction to this stimulus as early as 0;9.—Cf. *[ba], *Zwieback*; [bek], *bake*.
- *bakə, *pocket* 1;10, with short [a]. She experimented with this word: [baba bakə, maɪ bukə], *papa's pocket, my pocket*. Once [taʃ], *Tasche*. "Pocket" was preceded by the compound [babu], *pocket-book* (which re-appeared 2;1 as [bakəbuk]).
- balu, *bottle* 1;6. The first vowel wavered between front [a] and back [ɑ] throughout the history of the word. 1;6 [ba:ɪ]⁴⁷ for any glass container, the low vaseline jar as well as the tall codliver-oil bottle. 1;7 [baɪ], two syllables, clearly different from the diphthong [aɪ]. 1;8 [baɪu]—apparently reproducing the front and the back articulation of English velar [ɪ] separately. 1;9 [balu] with comparatively good [ɪ], while other words like "hello" contained a very imperfect [-ɪ-]. A few days later again [baju]. From 1;10 always [balu]. 1;10 [mɪk balu], *milk bottle*, also once for a bottle with white tooth-powder. 1;11 [balu pik, wewɛ], *bottle pieks, Wekweh*; "pieks" is an interjection accompanying pricking with a pin; this utterance, which referred to a medicine dropper and obviously alluded to its pointed end, was either a sentence, "pieks" being predicate, or a highly original compound noun like "pieks-bottle"; in either case, the unconventional application of "bottle" seemed to take its clue from the material, glass.
- baʃ, *brush*, noun and verb, 1;5. E 1;5 [bə], hand-brush, hair-brush (previously [tɪtsə], *whispered*, from "kritze-kratze," 1;1-B1;4, which was applied to the hand-brush and to brushing the fingers). B 1;6 [buba], *tooth-brush*. M 1;6 [ba], with short vowel, always for "brush," noun. At B 1;7 I tried to make her repeat "Kamm," with the usual negative result; in such cases she would maintain a disinterested silence. Once she produced [ba] for "comb," but

⁴⁶ Karla [ba], [ba] E 1;3; in the meaning "box" long a favorite word of hers; she liked to play with boxes and anything that remotely resembled a box. B 1;9 [bak], *block*, [ba], *box*, *sand-box*. At 1;10 the latter was also [bak].

⁴⁷ Karla began with [ba] M 1;4; at 1;8 it still had the same form.

refused to say that again, feeling that the transfer was inadequate.⁴⁸ At 1;8, observing two brushes, she pointed to them successively and said with rising and then falling intonation, [dɪ ba, dɪ ba], *this (is a) brush, (and) this (is a) brush*. 1;10 [ba(ɪ)ʃ], *brush* as noun; also as verb, [baʃ baba], (*I want to brush papa*; [maɪ zu baʃ], *my shoe brush*, or rather, *brush my shoe*, or even, *I (want to) brush (my) shoe*. [baʃ] and [baʃ] continued to alternate; the [ɪ] must be explained as prothetic to [ʃ]. 1;10 [tʊʃ ˈbaʃ], clearly two words with separate level stress, not a genuine compound; other compounds showed the same recomposition at this stage. 1;11 [tʊʃbaʃ].

bati, *button*, 1;10. She began to experiment with the form E 1;10: [batɛ], [betɛ], [bati]. At first it sounded somewhat like "bitte," but soon became fixed as [bati]; the unstandard form of the unstressed vowel might be due to dissimilation from that of "bitte."⁴⁹ At first the word was used as the imperative of the verb, soon also as noun: B 1;11 [betɛ ˈaʊχ], *button aus* (= "off"). In [nʊk bati], *button (my) coat*, it was again imperative. (2;1 improved form, [batə].)

*bau, *aboard* 1;10. Her mother had dramatically described to her a train trip to Milwaukee. For a time Hildegard liked to recite the story, concentrating on the emotional high points of it. "All aboard" she rendered [ˈa bau], shouting at the top of her voice.

bau, *ball* 1;9. The English word with velar [l] took the place of the earlier German [bar], *Ball*, with palatal [l], 1;0-9; the [ʊ] was the representation of the velar element, a change familiar in the development of French out of Latin. By 1;10 the German form was completely replaced.⁵⁰ At 1;11 [bau] was even combined with the German [biə], *spielen*. 1;11 compound [ˈbubu ˌbau], *paper-ball*, [ˈʔɛk bau], *egg-ball* (egg-shaped). Toy marbles she persistently called [bauʃ], later [baʊʃ], in spite of the similar sound of German "Marmeln." To describe a globular wood-bead, she once said [bau bitʃ]; "beads" was otherwise always used in the plural, for bead-necklace. Later [ˈai bau], *Ei-ball* appeared along with [ˈɛk bau]. [ˈau bau], *all balls*, again without plural sign.

bau, *bauen* 1;9. (The infinitive is given in German verbs as a convention; actually endings were disregarded, and in most cases the endingless imperative is the most likely prototype, being used most frequently with her.) This form alternated from the beginning to the

⁴⁸ Karla's first form for "brush" ("Bürste" and "Pinself") was [bu] M 1;4; [bu], [bu:], [buə] B 1;5; later [ba]. She also said [ba] for comb occasionally. She used the same word for "broom." When she improved the latter to [bum] B 1;7, she also tried [bum] for "brush" (and "spoon"). At 1;10 "brush" was [bat].

⁴⁹ But Karla also said [bati] 1;7, and in her case "bitte" did not precede. E 1;9 [bat].

⁵⁰ Karla followed the same course. "Ball" was replaced by "ball," [bau] B 1;10.

end of the period with the expanded form [baʊχ]. 1;9 [mama, mɪ! baʊ(χ), haʊʃ!]. This was difficult to understand, since [baʊ] was new and [haʊʃ] was rare; but it meant, "Mama, mit! bau, Haus," i.e., "Mama, come along, get the building-blocks, I want to build a house." Immediately after, while building: [bɪ baʊ(χ)], *big Bau*; "Bau," however, did not really represent a noun (such an abstract noun she had not even heard),⁵¹ but an unconcerned free handling of the stem, "big" also being an emotional intensive rather than an adjective. 1;11 [baba me(k)e baʊ(χ)], *Papa make (a) Bau*, i.e. "Papa has built something"; the second [e] hardly stood for "a"; it was rather a persevering transition-vowel. The syntactic relationship was again unanalyzed, there being no corresponding idiom in the presentation.

baʊ, *Baum* 1;8. She understood the word "Weihnachtsbaum" E 1;5, but did not try to say it.⁵² She identified trees 1;8, reacting correctly to the question, "Wo ist ein Baum?" But she used the word [baʊ] at the same time only for trees in pictures. At 1;10 trees were designated by [baʊ], [baʊχ]; the [-χ] was due not to a confusion with the word "Bauch," of course, which at that stage was [baʊkʰ], but to an inaccuracy of articulation—the tongue was raised a little too high at the end, continuing the process of raising and withdrawing the tongue from [a] to [ʊ] beyond the standard limit. At 1;11 the unconventional final sound was eliminated, but the [-m] was still missing: [meə!ʔaʊ ʔap baʊ], *meow up Baum*.

baʊ, *bell* 1;11. [wi baʊ], *ring bell*; a ritual: whenever, returning from a walk, she came to the side-door, she insisted on pushing the bell-button. (2;1 [wi bɔ].)

*baʊ, *powder-puff* 1;11, learned from the maid and uttered two weeks after she had left.

baʊkʰ, *Bauch* 1;6. She said [ba] 1;6 when she wished to sleep on her tummy, her favorite position. Her mother also used only the German expression for this purpose. Hildegard's word contained semantically the whole thought-complex, not only the noun. This association became clear 1;8. She played at kissing her feet, legs, etc. Jokingly I said, "Nun küss deinen Bauch!" After a short deliberation she lay down on her tummy and kissed the air—as good a way out of the difficulty as could be found. At 1;10 the form was [baʊkʰ]. It was used with great enjoyment in the com-

⁵¹ She did hear "Bauklötze," but that can hardly have affected her form.

⁵² Same situation with Karla B 1;5. Her understanding of the term was not even noticed at the time. But two months later (B 1;7) she called candies and other objects vaguely resembling Christmas trees [baʊm], whereas her term for real trees was [ti]. "Tree" was absent in Hildegard's early speech. At B 1;9 Karla used "Baum" like "tree" also for real trees.

bination [dɪkə baʊk'], *dicken Bauch*, which she had mischievously been taught to attribute to persons. She liked best to say it to a young colleague, who had the family nickname Oino, from her distortion of "Onkel": [ʔɔmo, dɪkə baʊk'], *Oino, (du hast einen) dicken Bauch*. The meaning was not clear to her; she enjoyed only the expression of amused indignation which the stimulus provoked. Sometimes she said the adjective twice (never so presented), which seems to indicate that she recognized it as a separate word; this is probable because she knew "Bauch" as a word. 1;10 [dɪtɛ dɪtɛ baʊk' wəʃ], (*den*) *dicken Bauch waschen* (her own, when she was bathing). 1;11 ['dɪkəbaʊk'], combined into one word, to judge by the clue of the stress. Once she said "dicke" alone in the same meaning, which demonstrates that adjective and noun formed one semantic complex, the adjective being empty of specific meaning. (2;0 [dɪkə baʊk'] also for "breast.")⁵³

*bæ:, *bühl* 1;5. I jokingly used this interjection of malicious triumph in conversation with my wife. Struck by the emotional expressiveness of it, Hildegard immediately repeated it several times exactly as heard and with an even more insolent facial expression. But it was ephemeral, being too rarely heard.

*be:, *Bates* 1;7-8. This name of a play-mate once appeared (1;7) improved to [be-t'], the aspirated [t] being added after a short pause, from memory, with no immediate presentation. However, at M 1;8 the current form was still [be]: [be daɪ], *Bates's dolly*. The view from the apartment window of the garden of the neighbor family always brought up the association with Bates and his sister June: [du? be?].

bea, *pail* 1;11.

bēa, *Bär, bear* *1;7, 1;11. At 1;7 she understood "Bär," but always called her teddy-bear "dolly."⁵⁴ Once the word [beə] appeared so unexpectedly that we were not certain whether it was "Bär" or an echo of the question-word "wer." However, the latter remained below the speaking-threshold, whereas "Bär" emerged M 1;11 as [bea], [biə]. Five days later the papa bear in the story of the three bears was called [baba biə]. Again three days after, she said [bia] and corrected herself into [bea]. As to the form, it is likely that the instances with [ɛ] represent the English, those with [e] and [i], the German word, which she probably heard with the North German colloquial pronunciation approaching [e] rather than [ɛ:]. German final [ʀ] or rather [ə] and English final [r] both regularly took the form [ə], [a]. The [i] is irregular; it may be due to a dissimilation of [e] from English [e], or, as I suspected at that time, a contamination with "spielen."

⁵³ Karla did not learn the German word, but B 1;9 [t'ami], *tummy*.

⁵⁴ Karla called it [wawa], *Wauwau*, for months from 1;5 on. E 1;11 [wi beɪ], *three bears*.

bebi, *Baby, baby* (The English word is used in German too) 1;2. This was the first word which she obviously understood, E 0;8, the question, "Where is the baby?" inducing her to look at her own baby picture. This game was continued during the following months, and the term "baby" was also used by her for her picture in the mirror⁵⁵ and for other children.⁵⁶ When starting the return trip to America (B 1;2), in the central station of Hamburg, looking at a little girl, she said for the first and only time [be-bi], very clearly and distinctly⁵⁶—the word had not been presented on this occasion; her interest in children was lively. The next record of the word is after the return to Evanston, E 1;2. She was saying [baba] playfully many times in succession. In the meantime her attention was called to her baby picture. Thereupon the mechanical utterance suffered an interesting interference of the new thought. [baba] was followed once by the unfamiliar combination [babi], then repeatedly by the correct [bebi]. The [e] was pure as in German, not like the English [e].⁵⁷ At B 1;3 [bebi] often had the stress on the second syllable, [be'bi:], a phenomenon which is not easy to explain; was it a device to underline the consciously dissyllabic form of the word? Other dissyllables at this time were reduplications without ablaut. By the end of 1;3 the word was still used for children, but also for pictures of any kind, an outgrowth of the early association with her baby picture. She said [bi], *Bild*, at the same time, but not actively, only as an echo. At 1;4 she named pictures in a magazine, calling children's pictures [bebi]. The form of the word never varied to the end of the period, an unusual case. At 1;6 the idea of private property began to develop.⁵⁸ Once when she felt like playing with the toy of a visiting baby, she checked herself, saying "baby"; she answered her own doubts: "ja," but felt relieved when I gave her permission to take the toy. At 1;7 the word continued to serve for designating children, not without provoking the protest of older children. But she also liked to point to herself, uttering "baby." Her baby picture was now greeted with [wau wau], because on another picture in another room she held a cloth dog in her arm, which by that time was the center of her attention. At 1;8 boys were also called [bɔɪ], in addition to "baby," after instruction.⁵⁹ 1;9 [dɪ, bɪ, bebi, baju], *this big baby bottle* ("big" was an emotional inten-

⁵⁵ Same observation with Karla.

⁵⁶ Karla much earlier, about 0;9, especially for dolls, frequently and very distinctly. She used the word persistently for children, dolls, and pictures.

⁵⁷ Karla the same, about 0;9. The vowel continued to be pure throughout her second year.

⁵⁸ Same observation with Karla.

⁵⁹ Karla 1;5.

sive); she wanted it after her mother had told her that she had used the bottle when she was a little baby. 1;10 [waʃ(u) bebi daʃ], *wash baby's dress*. Toward the end of the month, "baby" became a fixed addition, devoid of definite meaning, to [wɔk], *rock* and *rocking-chair* (see [ɪwɔkə¹bebi]), from the rocking ditty, "rock-a-by, baby." B 1;11 [bebi hita], *baby Hildegard*, for her baby picture. M 1;11 [ɪdaɪ¹bebi ɪda], *cry-baby da*: when Hildegard cried, a fictitious "cry-baby" was put in a closet so that a good baby could stay outside. This game caught her fancy. One evening, when she had cried in bed, she pointed to herself and pleaded guilty by saying "cry-baby da." On other evenings when I tried to quiet her by telling her, "Alle Kinder sind jetzt im Bett," she would repeat, [ʔa bebi betʰ], *all babies (in) Bett*, translating "Kinder" into [bebi], plural. When asked to say "Onkel Peter," she once said, with child etymology, [ɪ ʔɔku ɪbebi] (improved 2;0, see [ʔɔɪno]).

bek, *bake* 1;11: [waʃ bek gek mama], (*I want to*) *watch mama bake (a) cake*. Cf. [bakə], *backe*.

*bek, *break* 1;10, alongside with [bokʰ], *broke* and [ʔəbuk], [bʊt], *kaputt*, hardly with a differentiation in use.

bekə, *bacon* 1;9. [bekə] 1;9, [bekə] 1;11, *fried bacon*.

beʃ, *bathe* 1;9. As explained under *[ba:], *baden* (1;3-9), the English word took the place of the German, with a struggle between the two forms during 1;9, when "bathe" was [be]. At 1;11 the form was regularly [beʃ]: [baba meə beʃʔ], *papa, (do you want to) bathe mehr?* with German word order.⁶⁰

betʰ, *Bett* 1;4. Form [be], with short vowel, 1;4-8; [be] 1;8; [bet] B 1;11; [betʰ] 1;11.⁶¹ The English "bed" has assisted in the formation of the word; in fact, in the beginning (M 1;4) she used to repeat it after the presentation of both the German and the English. The higher vowel of the later forms would seem to be traceable to the narrower English vowel; but [e] > [e] has parallels also in German words. The later form with [-tʰ] definitely results from the German word. Final [d] in English words remained unrepresented to the end of the period, whereas final [t] was added from 1;10. 1;8 [haʃ be]; after repeated guesses at the meaning of this sentence uttered while she was going to bed, we finally arrived at the correct interpretation which satisfied her: "(The) Hase (her Easter rabbit) (should also go to) Bett." B 1;11 [dɪt daɪ ʔapʰ betʰ], (*I want to take*) *this dolly up (zu) Bett*. 1;11 [mama wɪtʰ betʰ maɪ]; the second word was at the time not understood; it became clear later: *Mama fixes my Bett*. 1;11 [to betʰ] looked like "to bed,"

⁶⁰ Karla [bet] 1;11 and earlier.

⁶¹ Karla [bæ:] 1;7, [bet] B 1;10. In her case the final consonant came primarily from the English model; other final voiced consonants were unvoiced at the same time.

but [to mama bet'] does not favor this interpretation; the vowel [o] makes it improbable anyway. It actually stood for "go" (usually [do]); the difference between [d] and [t] was not phonemic): *go (zu) Bett, go (in) Mamas Bett*. [jaɪ baba bet'], (*I want to lie (in) papa's Bett*).

*bi, *Bild*, sporadically 0;9-1;8. It was the first word she said, but she uttered it only once 0;9, with reference to a picture. Two months later, pointing at pictures, she would sometimes say something like [by], which however was not clearly distinguishable from a mutilated form of her favorite word "pretty," the [y] approaching a fricative; still, on repeated occurrence, it appeared different from "pretty." At E 1;0 it was recorded as whispered [by]. At E 1;3, when her regular term for "picture" was "baby,"⁶² she would still repeat [bi], *Bild*, upon immediate presentation. From B 1;4 she said often and with many repetitions [bi:]; the word was so insufficiently established that its correspondence to "Bild" was not considered likely. However, at M 1;4 it became clear that it really meant "Bild," among other meanings ("peek-a-boo"). When looking at pictures in a magazine, she named those for which she had names, like autos, dogs, children, clocks; others she acknowledged with "pretty"; [bi] seemed to be reserved for pictures of persons, so that the idea could arise that it meant a person. Then the word submerged. It occurred once more 1;8 as the name of a hand-mirror, where [bi] might have rendered "Spiegel" just as well as "Bild"; it was used only for this one mirror. As to the form of the word, the consistently long vowel in contrast with the short one of the model seems striking and might suggest interference of "baby," which served the same purpose 1;3-4; but actually, [i] was represented by [i] as often as by [ɪ], so that this feature presents no difficulty.

bi, *peas* 1;10, as food.

*bi, *Spiegel* 1;8. See end of [bi], *Bild*.⁶³

bi, *big* B 1;8. The word was taught her in the connection "big stocking," [ˈbɪr ˈdadi]. She transferred it at once independently to other objects, "Buch," "block," even "A-a," with no appreciation for the meaning of size contained in it; the antonym "small," "little" was lacking to the end of the period. It rather figured as an emotional intensive. It was spoken with a distinct separation of words and level stress. The [-g] was not pronounced, but indicated by some substitution, which may have been [h], but probably

⁶² Karla said "baby" expectantly when looking for pictures in books, about 1;5; it remained her only term for "picture" for a long time. She never tried "Bild." [pɪkə], *picture* E 1;10.

⁶³ Karla said "baby" consistently at least as late as 1;9 whenever she saw her picture in a mirror, although she had learned to call herself [kaka] earlier.

was the glottal stop [ʔ]; the [ɪ] was very short.⁶⁴ M 1;8 [du daɪ], *June's dolly*, sometimes [lɪɪ du daɪ], where "big" showed itself rather clearly as a mere intensive, since as an adjective it would probably not have been placed before "June's"; the doll was not big; "June's dolly" was not an unanalyzed unit, because she once varied it into [be daɪ], *Bates's dolly*, with reference to June's little brother. At the end of 1;8, the word reached the standard meaning. On a walk she tried to lift a piece of caked snow which was too heavy for her and said [bɪʔ ne], *big Schnee*. When we passed the same piece again, her mother challenged her to lift it. But she remembered, interrupted the motion toward complying with the request, shook her head and said [bɪʔʔ], which meant "too big." Trying to put a large cap on a small bottle, she likewise said [bɪʔ]. But the intensive function was not eliminated: [bɪʔ ʔaɪ], *big Ei*, referring to a small egg-shaped ball. In frequent examples 1;9 the function was not unified. In [bɪʔ baɪbaɪ], *big by-by* (see [baɪbaɪ]), she seemed to change the meaning of size to one of value. In "this big baby bottle" (was it really relatively big?), "big" seemed to be intensive again. By 1;11 [bɪ ʔaʔa], *big A-a* had assumed the function of differentiating one physical need from another; but this development was secondary, the emotional complement having received a differentiating adjective meaning through the interpretation of the listeners. Thus it may be said that the word to the very end of the period did not evolve the standard meaning clearly.

*bi-ba, *bimbam!* 1;1-2. First presented in Hamburg by her aunt as "bimmel bammel beier!" imitated as [bɪ:] in the same pitch as "bimmel." Later her aunt used "bimbam!" to accompany pendulum motions. On the boat in the Channel, during the return trip to America (1;2), she held her shoe by the lace and let it swing, saying [bi-ba] from memory in the correct intonation. But it was not observed again.⁶⁵

biə, *pillow* 1;11. She never tried to say the German "Kissen," although she understood it at least as early as B 1;8. However, once B 1;8 she persistently misunderstood it because of its similarity to "kiss" and "küssen" (see [diʃ], *kiss*). At 1;11 she said [biə], [bia] for *pillow*.⁶⁶

biə, *spiel(en)* 1;11. The word was frequently used intransitively like [dot biə, miʔʔaʊ], *don't spiel, Miau*, and transitively in such com-

⁶⁴ In Karla's speech, the word had the form [bɪk] from the beginning, B 1;10.

⁶⁵ Karla said [bi-ba] regularly from E 0;11; she also transferred it to the motion of rocking-chairs, disregarding other words presented to her for this purpose. For a time 1;1 it was assimilated into [ba-ba]. At 1;3 it had the form [bi-baɪ]. She did not reproduce the intonation at first, but later also learned it (1;1). 1;8 [bɪm:bam:], with the same intonation.

⁶⁶ Karla [pɒt'o] 1;11.

binations as [ʔaɪ biə det], *I spiel(e) this*, [biə baʊ], *spiel ball*, [biə ba], *spiel piano*, [bi(ə) haʊʃ], *spiel Haus* (building a house with blocks). (2;1 [pi].)⁶⁷

*brə, *spill* 1;11, pouring out water.

biʃ, *piece* 1;11. At 1;8, in "big (piece of) Schnee" (see [brʔ]), "piece" remained unexpressed. At B 1;11⁶⁸ it came in as an active element in varied combinations like [biʃ (ə) dok], *piece of toast*, most frequently with [gek], *cake*. Later [bitʃ bot], *piece of Brot*, [biʃtek], *piece of cake*. It had a different function when she reproduced in the form of questions and answers a story the main point of which was for her [ʔa biʃ bokʔ], *all broken to pieces*.

biʃ, *please* 1;9. A competitor for "bitte" (1;5-2;0). It was difficult for this word to establish itself alongside the firmly entrenched "bitte," although it was understood early. In the pre-vocal stage of both words, when she used hand-clapping for "bitte bitte," she finally produced the same reaction upon the stimulus, "Say 'please,'" 1;4. The maid obstinately endeavored to teach her to say "please." She finally succeeded 1;9 in making her say [bi];⁶⁹ but it was rarely said alone, often in the combination [bitə bi]. Later, spying candy on the mantel, she stood longingly in front of it, stated first "way up" and then said [pʊrti bi], *pretty please*, which was only accidentally the combination which children use as a reinforced "please." It expressed pleasure and wish in an undefinable mixture. By 1;10 "please" had become much more frequent than "bitte," but there seemed to be a functional differentiation; [bi] was said to satisfy conventional requirements, while "bitte" continued to be used frequently as a spontaneous manifestation of wish. [biʃ] came in E 1;10, but the older established form [bi] continued to be frequent.

bit (ʔap), *pick (up)* 1;9. On its first occurrence, [br ʔap daɪ] was understood as "big up dolly." But in 1;10 [bɪk ʔap], also in the form [pɪ(k) ʔap], became active and gave a new clue to the earlier sentence. B 1;11 the form became less standard, [bit ʔap], (*I want to pick up*). [bit waʊ] was at the time analyzed as "pick-t flowers," the English verb with the German third person singular ending. But more plausibly it was also a case of substitution of [-t] for [-k], although that was rare with her. ("Pick up" remained in frequent use beyond the 2;0 limit.)

bitə, *bitte* E 1;5. Hand-clapping, which she had learned from 0;9 as an

⁶⁷ Karla used "playing" as infinitive: [pe'nʔ], (*Shall we*) *play*? Hildegard lacked the English word.

⁶⁸ Karla [p'i: 'næni], *piece (of) candy* 1;8; but it is also possible that [p'i:] meant "please." E 1;11 [pit], always without following "of."

⁶⁹ Karla [t'i], [p'i] E 1;7; also preceded by "bitte" M 1;7, but only ephemerally. She also said it upon the challenge, "Say 'bitte'." The usual form was [t'i] until 1;11.

accompaniment for the nursery-rhyme "Backe, backe Kuchen," was transferred to the signification of "bitte, bitte," as customary in German nurseries, in Hamburg 1;0, while both her parents were gone on a week's trip to Berlin. She used the sign willingly upon the stimulus question, "Wie sagst du?" and also spontaneously. It became perfectly fixed and continued after the return to America, but she never tried to say the word. Once (E 1;1) she saw a stone lion on a high pedestal in the Mönckebergstrasse in Hamburg; she greeted it with the barking-sound originally applied to dogs and asked for it with hand-clapping as long as she could turn around to see it. It was not until E 1;5 that she learned to pronounce the word, [br-tæ], also in repeated form, sometimes [br-ti], the [i] short.⁷⁰ It immediately displaced the hand-clapping symbol. The word began with considerable variations, from [biti] to [bita] 1;6, and never quite lost them, because of varying emphasis and emotional undertones. On the last day of 1;6 she began to use hand-clapping again for a few days, without any request to that effect, alongside [bitæ], which often varied as far as [budæ]. B 1;7 the word was already combined with others in one stress group, [da 1bitæ], *down, bitte*. It was sometimes used correctly as a polite affirmative. Vowels in general were not always well-defined at this stage; "bitte" had on the whole a form similar to the conventional pronunciation, but the first vowel also varied in a wide range between [i], [ɛ], [u] and [aɪ]. The question, "Was sagst du?" was now used both when the answer "bitte" and the answer "danke" were expected. At first she always responded mechanically with [bitæ], but learned to correct herself into [dada], when the first answer was rejected. She did not care to say "danke" and rarely did it voluntarily, whereas she continually used "bitte," also combining it freely with English: "bitte up," when she wanted to be lifted up. At 1;8 the unstressed vowel assumed the standard form [ə] without reaching complete stabilization. The stressed vowel still varied widely; along with the perfect form [bitæ] the variation [bæ-tə] was rather frequent. High vowels in general were unstable because of the relative difficulty of their articulation; the impulse for economy of effort caused numerous partial assimilations. Later in the month a more energetic effort to pronounce high vowels was discernible; [bite] varied to [butæ] (exchange of equally high vowels), but never to [ba-]. At E 1;8 "bitte" revealed itself as an expression of wish transcending the standard restrictions. [bite da:ɪ], with falling intonation, *bitte, (give me the) dolly*, was standard; [bite 12a2a],

⁷⁰ Karla began to say "bitte" M 1;7. No preparatory gesture-symbol in her case. The word did not become established with her. Later she said always "please," also upon the challenge, "Say 'bitte'!" She repeated [bite] on request E 1;10.

with the same intonation, voicing the need to visit the bathroom, was not. At 1;9, "please" came in as a competitor, but was at first usually combined with [bitɛ]. At 1;10, "please" was much more frequent than "bitte," but more conventional, whereas the German continued to express spontaneous wishes. It relapsed from [bitɛ] into the variant form with assimilation, [betɛ]. At the end of the month, both [bitə] and [bitɛ] occur in the record. It remained active.

bitʃ, *beach* E 1;11: [we da bitʃ], (*let us go*) *way down (to the) beach*; unexpected emergence of the word from memory, uttered at home, without the stimulus of a visual impression.⁷¹

bitʃ, *beads* 1;9: for a bead necklace and for the game of stringing wooden beads. 1;9 [biʃ], necklace. 1;11 [bitʃ], usually for a necklace, but once [bau bitʃ], *ball-beads*, for a globular wooden bead, a single one, in spite of the plural form of the noun. (2;1 same form.)⁷²

bitʃ, *Brief* 1;11. Also used for the letter-slit in the entrance-door. She did not say "letter."

bo, *blow* B 1;11. Used first in the form [bauχ] for blowing up a balloon, soon improved in form and extended to blowing the nose, blowing a whistle, etc. Later [noʃ bo], *blow (my) nose*, imperative.

boɪ, *boy* 1;8. After instruction⁷³ used in addition to the common "baby" for all children; not frequent.

bok, *bug* 1;11. The word was first recorded B 1;11 as [bag]; but the [-g] is very suspicious, as it does not fit into the phonetic pattern of her speech at that stage. Toward the end of the month, [bok] was observed repeatedly.

bok', *broke(n)* 1;9. She learned the word [bok'] B 1;9,⁷⁴ but did not say it again for several weeks. Then it reappeared as [buk] 1;9. The representation of [oʊ] by [u] is irregular and was at the time of entry explained by blending with "kaputt," which indeed became an active competitor of "broken" a month later. [bok'] returned 1;10 and remained stable. [ʔəbuk], usually [but], *kaputt*, came in at the same time, but "broke" was more frequent. The form [ʔəbuk] reinforces the etymology suggested for [buk], because it apparently also shows blending with "broke"; substitution of [-k] for [-t] does however also occur, although very rarely. By 1;11 [but'] had become as frequent as [bok']. The expression [ʔa biʃ bok'], *all broken (to) pieces*, being the echo of a story told in English (see [biʃ]), rather naturally contained the English word.

⁷¹ Karla B 1;9 [bi:]. When her mother said, "beach, not [bi:], " she tried to pronounce the word with a final consonant, but returned to [bi:] for spontaneous use. Thus the reason for its omission is not an acoustic one. E 1;10 [bit].

⁷² Karla [bi], *bead*, 1;9.

⁷³ Karla similarly, for boys in pictures: [ba:i] 1;5, [bo:i] 1;6.

⁷⁴ Karla [bok] 1;10.

bok', *Buch, book* 1;6. History of the form: [bʊh] 1;6,⁷⁵ the [h] being described in the diary as an imperfect [χ]; [bʊχ] 1;7 with faint [χ]. 1;8 [χ] so faint that the transcription [bu] is used; later [bʊχ], the [χ] then being often very distinct. (At the same time she said [babu], *pocket-book*; in all likelihood she did not feel that it contained the same word, on account of the wide divergence in meaning: "Handtasche") 1;9 [bʊχ]. 1;10 [buk'], once [bʊχk]. 1;11 first [buk], later repeatedly [bok']. (2;1 [bakəbʊk'], *pocket-book*.) Thus the vowel was [ʊ] 1;6-7; [u] 1;8-10, with sporadic [ʊ] 1;8; [ʊ] 1;11, later [o] 1;11. It was followed by breath with or without velar friction 1;6-9, but the breath was occasionally unnoticeable. From 1;10 on the final consonant was [k], usually with strong aspiration. I give this history in all detail in order to try to decide the question whether the German or the English word is the prototype. The final consonant is no clue. The [χ] of the earlier months represents neither German [χ] nor English [k], but an off-glide of [ʊ], for which there is other evidence. At 1;10, [k] with or without strong aspiration was the normal representation of both [χ] and [k]. As to the vowel, there are other instances both for [u] > [ʊ] and for [ʊ] > [u]. Thus the question cannot be decided on that basis either. The presentation was probably predominantly German, books being most intimately associated with her father. Toward the end of the period English was stronger than German in her speech; but just then [u] replaced [ʊ] rather consistently, and [u], after all, points more definitely to the German [bʊχ] than to the English [buk]. The late lowering of [u] to [o] finds a parallel in [po], *poor* 1;10. Blending with "Boot," "boat," which had the forms [bot'] and [bok'] E 1;10, is improbable; there is no point of contact between the two meanings. The final result of the deliberation is that the two prototypes are inextricably welded together in her word. It is possible that one of them predominated in it, or that their influence alternated; but nothing can be proved. It seems probable to me that the German "Buch" was meant at least by the forms from 1;9 on (probably before; at 1;6, long [u] was practically non-existent in her speech), the rare [buk] of 1;11 representing an intrusion of English "book," which did not prevail. But that is a surmise, not an establishable fact. The evidence is given in detail as a sample of the careful consideration of all factors involved which was generally practised; in other instances results only, or abridged summaries of the reasoning used to establish them, are given to save space and spare the reader wearisome minutiae. As to the meaning, there is no problem at all; it was always close to the standard.

⁷⁵ Karla [bʊ] earlier, about 1;2; very frequently, with great enthusiasm, 1;3. Later also [bu]. It became [buk'] on the second day of 1;9.

bot', *Boot, boat* 1;10. After slight preparation, the word was fixed as [bot'], [bok'], also used at once for a toy sailboat which she saw for the first time, having hardly ever seen a sailboat since her stay in Hamburg (0;11-1;2). 1;11 applied to the picture of an airship, [bot'], an original transfer. The temporary identity of the form [bok'] for "Boot" with those for "Buch, book" and "Brot" (see there) is probably accidental.

bot', *Brot* 1;7. The vowel varied 1;7-9, [bo·], [bu], [bū], [bu^x].⁷⁶ The final consonant was added 1;9, [bok'], 1;10 [bot']. She did not say "bread."

*bu:: 1;11, with a frequentative motion of the hand, a symbol referring to thunder. The word is difficult to explain. It is not the representation of either a German or an English standard word; *[do], based on "es donnert," was used at the same stage. It might be simply onomatopoeic, as an original invention. More probably it was a development from *[bū], *bums* 1;9, an interjection used for a sudden fall and the sound produced by it. The negative emotional value might link it to [bu], *pooh*; from that word it was distinguished by the overlength and, more significantly, by the expressive motion of the hand. Before the emergence of special forms, the word [duko], *dunkel*, serving as a general term for fear, had also been used as a reaction to thunder (1;10).

*bu:, *Butter*, once 1;9. The word did not become active.⁷⁷

bu, *balloon* 1;10. At first, the word "Ball" also did duty for a balloon (recorded for 1;4). 1;10 [bu:]. 1;11 [baɪ bu] twice, where [baɪ] may be "buy" or a recurrence of "Ball" in a tautological compound, but more likely the former (see [baɪ], *buy*).⁷⁸

*bu, *Blume(n)* 1;0, 1;7, 1;11. About 1;0, whispered [bu] for "Blumen" was observed, but only occasionally and vaguely. M 1;7 [bu] re-appeared or was learned again, but did not become fixed. The general term of admiration "pretty" sufficed as a reaction.⁷⁹ A need for a specific term was felt B 1;11, and [bu] was practised again. But a week later the English [waʊ], *flower*, appeared along with [bu] and won out.

bu, *spoon* 1;7. [bū·] 1;7.⁸⁰ [dɪ ˈʔɔɪɔɪ bu], *this (is the codliver) oil spoon* 1;9. [dɪ maɪ bu], *this (is) my spoon* 1;10. [ˈʔek bu], *egg-spoon*, 1;11.

⁷⁶ Karla [bu] 1;8, [bot] 1;11. She also said "bread" 1;10 ([bet] 1;11), but "Brot" was by E 1;11 more frequent.

⁷⁷ Karla [bata], *butter* and as echo [bʊtə], *Butter* B 1;10; [bɔdɔ], *butter* 1;10, the vowels between [ɔ] and [o].

⁷⁸ Karla first [bu]; B 1;9 [bʊn]; M 1;9 an indistinct two-syllable form.

⁷⁹ "Pretty" was Karla's only term for flowers, practically restricted to this reference 1;5-6. [bu] was heard just once, M 1;4. At that time she usually said [mama], *mama's (flowers)*. At B 1;8, "Blumen" came in again as [bum] (she did not try to say "flowers" at that time); a few days later [mama—bum], *Mamas Blumen*, with pitch accent on "Mamas" and a pause between the words.

⁸⁰ Karla [bū·] 1;4; [bu] 1;6; [bum] B 1;7, after she had learned [bum] for "broom," a word which was lacking in Hildegard's early vocabulary.

*bʊ, *bums!* 1;9. The interjection was frequently presented whenever she or an object fell, connoting the sound produced in association with the sudden motion.⁸¹ It became active for a time, when she enjoyed letting herself fall into the snow in a sitting position: [bʊ, ne], *bums (in den) Schnee*. A week after the snow had disappeared, she reproduced the experience by dropping backward on the rug, with the same exclamation. The sound-connotation may have become active in the word [bu:] for thunder 1;11 (see there). "Bums" was apparently displaced by "crash" 1;10-2;1 (see [daʃ]).

bʊ, *put* 1;11. Verbs began to become frequent at the very end of the period. [bʊ ha ʔā], *put hat on*. ([pʊt] 2;1.)

bubu, *Papier, paper* 1;8.⁸² At its first appearance, a variation [babu] was also used, the first vowel of which points to German origin ([a] as against English [e]), although the stress on the first syllable resembles the English. From 1;10 the [u] became fixed, first [bʊbʊ], 1;11 consistently [bubu]. The surprising first vowel is doubtless due to assimilation to the second.⁸³ 1;11 [ᵢbubu ʔbaʊ], *paper ball*, a self-found term for a ball of crumpled tin-foil. [ʔaʔa bubu], *A-a-Papier*, another original compound for a roll of toilet paper which she spied in a store. [ᵢbubu ʔbaʊ] also for a real paper ball. (2;0 [babaʃ bubu], *papa's paper* with reference to the newspaper, while I was in New York; this meaning is definitely based on English usage.)

bʊi, *pudding, Pudding* 1;11. German regularly uses the English word too. (2;1 [pui].)

bʊʃ, *push* 1;10. [bʊʃ ʔetʔ], *push in*, 1;10. [ᵢbʊʃ ʔetʔ—ʒʊʃ!], *push in* (a drawer)—*zul* 1;11. [baba, bʊʃ mi], *papa, push me* (on the tricycle).⁸⁴

bʊtʔ, *kaputt* 1;10. [ʔabuk], but more commonly [bʊt] 1;10; the synonym [bokʔ], *broke* (1;9) was still more frequent. 1;11 [bʊtʔ] as frequent as [bokʔ]. E 1;11 also [butʔ].

da, *cover* 1;11; often as [da ʔap], *cover (me) up*.⁸⁵

da, *da* B 1;0.⁸⁶ This demonstrative was preceded by [dɛ], which resembles

⁸¹ Karla said [bum] in these situations, B 1;7. At B 1;8 she also used it for other pains of her own and for her sister's disease, the measles.

⁸² Karla said [na], the vowel tending toward [æ], for "paper," B 1;7, [bi] M 1;7 alternating with [næ], [pi:] B 1;8. [pi:] points more definitely to "Papier" as a model than Hildegard's form. Ament (p. 47) reports for one child "biba" M 1;1.

⁸³ This can be called a case of vowel-harmony, as A. S. C. Ross observed it: "An example of vowel-harmony in a young child," *Modern Language Notes* 52 (1937), p. 508-9. But with Hildegard this feature was exceptional. Karla said [perpu] < paper 2;2. Thus the [u] represents [-ɪ].

⁸⁴ Karla [bʊ, bebi], (*he*) *pushed (me, the) baby* B 1;9; a complaint.

⁸⁵ Karla used the verb since E 1;10: [kap], *cover up* (hapology).

⁸⁶ Demonstratives similar to [da] are frequent in the early speech of children in different countries. Cf. e.g. [da], [ta] of a French child, Grégoire pp. 379-380. The exact phonetic form can usually not be inferred from the accounts, because of the inadequate transcription. "Da" in English treatises may mean [dæ], [dɛ], or [da].

"there" more than "da," but took the place of both. In Hamburg B 1;0, the common [dɛ], with short vowel, changed into distinct [da:], which she frequently heard especially from her grandfather. At E 1;0, [da], now with short vowel, was still the only word pronounced with full voice. Its meaning varied; it included the wish to get something. At meal-time she pointed with "da" to dishes she wished. It was also used, with pointing, to call attention to something, the older sound (see [ʔəʔ]) for this purpose becoming rare. In 1;1 it continued to be the only fully voiced word; it was often pronounced very loud. At 1;3 [daʔ], distinctly with interrogatory intonation, was used as a request: "May I have that?" Pointing at one picture after another on the wall with [da] in a high-pitched voice, she did not express a wish, but interest. At 1;4, [da] was listed as active among the 29 words which she had used up to that time, in the two meanings of "there it is" and "I want it"; it was an interjection rather than an adverb. It was frequently long, with falling intonation. Soon [da:i] was heard, which was at first taken for a playful variant of "da." But by the beginning of the next month (1;5), [da:i] had recurred rather frequently, in a number of variations including [da:i:ɛ]. It then became clear that it really represented the first repetition of a grammatically complete sentence which she often heard: "Da ist es," with the stress on the first word. At B 1;8 the word "da" was used in sentences. She expressed the fact that she had teething-pains by saying "Wehweh—da!—au!" putting her finger in the mouth with the demonstrative; communication, not complaint. A little later: [ʎni ʎwewe—ʎda ʎwewe], *knee Wehweh, da Wehweh*; plaintive statement. In the second half of the month (1;8), [dɪ], *this* had become active as a demonstrative pronoun as well as an adjective. But [da:] was also retained as a local demonstrative adverb. B 1;9 double demonstrative: [dɪ bɪ bux—da:], *this (is a) big book—da!* Often she made a statement in the primitive sentence-form of question and answer: [memeʔ dɔdɔʔ da:], pointing to the day-bed where her cousins Marion and Dodo had slept a week before on a visit. At E 1;10 [da] was used for "down"; but the diary carries the notation that [da:] also clearly meant "da" again. 1;11 [mama da: baɪʔ], *Mama da bite* = "mama gave me a slap there," clapping her buttocks with the palm. [da maɪ baʊ], *da (is) my ball*. [baba maɪ dɔ da], *papa (has) my comb*. [meʎʔaʊ daʃ da:], *Miau kratz da* = "the cat scratched me there." Twice [da jaɪ da:ʔ], (*may I*) *da slide down?* pointing to the bannister; this time the first [da] was short. Homophony did not disturb her: [baba, dɪʃ da da:], *papa, this da down* = "carry this chair down from the terrace into the garden"; the interpretation of "da" in this instance is not easy: "da" = "dahin" is possible;

there is no other example for a reinforcement of [dɪʃ]; it might also stand for "trag," which became active a short time later. [hoti da], *hottey* (<horsey) *da* = "there is a horse." [ʔau bau da], *all balls da*, meaning, "Put all the balls there," into the net-bag; this appears as the only clear instance where "da" is used to imply motion in a certain direction ("dahin"); but the idea might just as well be, "I want all the balls there." [ɪdaɪbebi ɪda] in the game of putting the cry-baby into the closet (see "baby"); but after a crying-spell in bed also applied to her own unsplit personality, with pointing to herself. [mɪʔau da:—mɪʔau ɪnat' da:], *Miau da—Miau not da*. In the latter half of the last month frequently [waɪt' da], *right da*; a purely English idiom ("right there"), the local adverb translated into the active German equivalent. ([da:] persisted into 2;1, although English was then prevalent.)—The vowel quantity is not significant, since the presentation varied between short, long and over-long [a]; the use of "da" with short vowel when handing over an object ("There you are") did not become important in her speech; no instance is recorded.⁸⁷ But she did say [dada] in such situations 1;4-5 (see "thank you").

da, *down* 1;4. She had been using "up" for some time for upward motions, when the maid also taught her the antonym, which she reproduced as [da:] with the rising intonation of the presentation. But for some time she said it only upon special request, whereas "up" was active and served also for the wish to get down in spontaneous utterances.⁸⁸ At B 1;5 she was sitting on a chair and wished to be helped down. After saying "up" several times without effect, she said [da:ɔ] for the first time spontaneously; the relatively perfect form, which was not used again for months, was a reminiscence of the presentation, not of her own former reproductions. B 1;7 [ɪda ɪbitæ], *down, bitte*. At E 1;9 the familiar combination "way up" sprouted the antonym [we da], at first when she looked at the slide in the neighbor's garden and remembered sliding down on it. After moving into the new house (B 1;10), she used it often for the wish to go down the stairs.

⁸⁷ She probably used it in this function too (cf. "hier, here" 1;9). Karla, in whose early vocabulary the word did not loom so large, used it occasionally 1;1 only in the function of handing over, "there" and "there it is" being said in the function of adverb of place. [da] was already obsolete at B 1;4.

⁸⁸ Karla learned "down" several months earlier in the combinations "lie down" (B 1;1) and "get down" (M 1;1), which she said in full, while "up" remained latent much longer, "get down" being used also for the wish to get up on a chair for several months from E 1;3 on. "Down" was [daʊŋ], at E 1;1 ephemerally used alone for "get down" in the same two meanings; "(get) down" lastingly served also for the wish "I want to get out of the play-pen." Usual form: [dɛɪdaŋ?], with strikingly rising intonation to indicate the wish; B 1;4 [dɛ daʊ(n)]; later [daʊn]. 1;11 [da:] and [daʊn].

Soon it occurred also in a static connotation, 1;10 [(mar) bar we da], *my buggy (is) way down* (in the basement). At B 1;11 "down" became frequent in the combination "fall down" (see [wɔ]), [da] (sometimes with very short vowel, whereas otherwise the vowel was often long in the same word). It soon occurred also in other standard combinations: "walk down," "slide down," M 1;11 "lie down" (statement of fact and declaration of intention), "knock down" (first [daʊ], then "corrected" into [da]—the memory of the fixed reproduction was stronger than the influence of the standard presentation). [baba, dɪʃ da da:] has been discussed under "da." (2;1 still [fɔ· da], *fall down*.)

*da, *Jack* E 1;9. The name of a neighbor boy, which she learned just before the removal to a new home. Thereafter she had no incentive to use it again.⁸⁹

*da, *John* 1;11. The name of a neighbor baby. It did not become established.

da, *trag(en)* 1;11. In the latter half of the month for the wish "trag mich," often uttered during walks with raised hands, clearly indicating the intention. Possibly earlier in the month (see "da"). The form does not come from English "carry"; the [i] of the second syllable would not drop out.⁹⁰

*dada, *Carolyn*, E 1;2-10. The name of the maid, pronounced [kærəlɪn]. Babbling combinations like [dada] were frequent 0;7-9. But the meanings which they acquired (comfort, scolding; see *[dɪdɪdɪ]) were unrelated to the later meanings. Moreover, their form had changed considerably by the end of 0;10. When [dada] reappeared during the second year in several meanings, it was no longer a self-expressive babbling complex, but an attempt to reproduce standard words. There was a complete break between the two functions of the same sound-complex, although the comparative ease of production of the syllable furthered its use at both stages. At E 1;2, being challenged, "Ruf Carolyn," she once tried something like [gɛga], then distinctly uttered the familiar word [baba], but became immediately conscious of the fact that it already had another function and pointed at me saying "da." A few days later, on the first day of 1;3, she found an adequate form in [dada], which soon became perfectly stable. In the first days, variations like [ɲa-ɲa] still occurred, but they soon disappeared. From B 1;4 voiced [dada], *Carolyn* was for one month distinguished from voiceless [dada], *thank you*. It was used as a possessive 1;10: [dada ha], *Dada's hat*. By this time, the form had been reinforced by its frequent adoption on the part of the members of

⁸⁹ Karla [da], about 1;7, for a small metal toy called "jack."

⁹⁰ Karla had "carry" E 1;11: [ke ka:la], *carry Karla* (= "me").

the household. The word fell into disuse after the maid had left.⁹¹ *dada*, *thank you*, *danke* (1;1) E 1;3. Once 1;1 she repeated "danke schön" playfully as something like [ʔaŋk-ʃ], but this was an isolated mechanical reflex. At E 1;3 the maid taught her "thank you," which Hildegard said in an indistinct two-syllable combination containing a dental and an [a] sound, nodding her head as she did with "ja." At B 1;4, it was probably still without meaning. Only upon request, she often but not always repeated "thank you" as [dada] without voice, differentiating it from the homonym with voice meaning "Carolyn." At the end of the month she would say [dadaɪ] without voice, nodding her head at the same time, upon the request, "Say 'thank you' " or "Sag danke." The first model was English "thank you," but the German "danke," presented just as early and just as persistently, was from the beginning an equally effective stimulus. Since E 1;4 she also often said [dada(ɪ)] aloud when giving something.⁹² This might be explained by the fact that antonyms frequently are included in the function of a word. It is more likely that she did not have a clear idea of the meaning, voiced [dada] being associated with "da" in reduplication;⁹³ "da," with short vowel, is a standard German interjection accompanying the handing over of objects. The differentiation by the use or absence of voice seemed to indicate that she made a distinction between receiving and giving. By B 1;5 she said [dada], *thank you*, always on request, sometimes spontaneously. It was still used for receiving and giving. At this period, whispered words had become rare for a while; the formal distinction between the two functions as well as the differentiation from [dada], *Carolyn*, had therefore disappeared. The diary neglects to state when [dada] ceased to be used for giving, probably soon. At 1;9 she used "here" when she handed things over. The final [ɪ] no longer appeared after M 1;5. At 1;7 the question, "Was sagst du?" when she was given something, brought the mechanical answer "bitte," which she corrected after disapproval into [dada]. For some time she disliked producing the conventional reaction when given something, and we allowed her a res-

⁹¹ The maid who took care of Karla was called Vira (short for Alvira, Italian pronunciation). Karla said [dida] 1;3, later (E 1;3) assimilated into [didɪ], which became regular. Only to call her she said [βira] 1;6, for a short time assimilated into [βi-βa], then again [βira].

⁹² Karla occasionally said [daŋ], with voice and energetic nodding, in the same situation 1;1, then dropped it and started it again more regularly at 1;6, always nodding her head once, very emphatically. Although I was not conscious of it, I observed later that I also nodded slightly with "danke." E 1;9, [daŋk], from German "danke," even as echo of "thank you." B 1;11 [daŋkə], *danke* and [t'æku], *thank you*.

⁹³ Cf. H. Cornioley, *Die sprachliche entwicklung eines Kindes*, Bern, 1935, p. 8f.

pite. But I continued to say "danke" conscientiously every time she gave me something; she liked to share her cherished possessions, even sweets. In the second half of 1;8, she voluntarily resumed the saying of [dada], now with a pronounced high-low intonation, which had its root in the English model rather than in the German one. The diary records no later instance of the word, which indicates the fact that it remained stable in form and meaning. It was definitely alive at the end of the second year.

*da-da, *Tante* 1;1. I heard her say "Tante" once as [da-da], once as [dɪ-dæ]. At that stage, vowels used to vary widely. The word did not become established; we returned from Hamburg to America shortly after, and the stimulus became too weak. In the memory of the household in Hamburg, the word lived four years later in the form [da-dæ]. This variant may well have occurred. But laymen's records are generally thoroughly inaccurate phonetically and quite commonly affected by the standard word-form. No term for "aunt" became really active, her American aunts being called by name only.⁹⁴ For occasional use of "Onkel" instead of "Tante" see [ʔɔmo].

dadi, *Bleistift* 1;6. At 1;1 she asked for my pencil with something like [by], from the interjection "pieks" (see [pik]). Months later this form disappeared when she learned the more rational use of a pencil for scribbling. At B 1;6 the word was confidently recorded as [bartil], the [i] short. At 1;7 it was simplified by assimilation into [dadi],⁹⁵ the [i] being so high that it was produced with friction, practically [j]. Apart from assimilation, there may have been a general predilection for the form [dadi] at this period; it had no less than five widely different meanings: "Nackedei," "stocking," "Jasper," and "Taschentuch" in addition to "Bleistift." Normal sound-substitution and assimilation combined seem to have led these five words from different sources to phonetic forms so closely similar that they all merged in the one form [dadi].⁹⁶ At 1;10 an unexplained ephemeral form [dak] occurred: "Bitte [dak]"; misunderstanding this, I said: "Ich habe keine duck"; she laughed and corrected herself: [dadi]; but shortly thereafter she said [dak] again. Presumably it stood for some other (unrecognized) word like "Stock"; for [dadi] continued to the end of the period.

*dadi, *Jasper* 1;7. Ephemeral.

⁹⁴ In Karla's speech no word for "aunt" had appeared by 1;7; none had been used before her with any degree of frequency.

⁹⁵ Karla's first form, B 1;7, was [da:-di], with level stress. Later 1;7 regularly [na:], which seems equally remote from "Bleistift" and from "pencil." 1;8 [ba'ɪ] and [mɛn], *pencil*. B 1;10 only [pɛnɪ], *pencil*.

⁹⁶ Cornioley, *op. cit.*, p. 14 reports a similar case, with a good explanation.

- dadi, *Nackedei* 1;6. "Nackedei" was frequently said to her in a teasing way, when she had no clothes on; the word had considerable amusement-value for her. M 1;6 [dai] seemed to reproduce the third syllable alone although it bears only a secondary stress. That would be possible. By B 1;7 the form was [dadi], which at that time meant "Nackedei" and "stocking." Thus [d-] might also stand for [n-]. This substitution would be natural, since both consonants are dentals; but the regular substitution for [n] at that stage was [ŋ], already developing into [n]. Probably the word did not evolve quite regularly, but shared in the great [dadi] merger discussed under "Bleistift." If the second [d] is regular, the first may be due to assimilation. (At the beginning of the third year, perfect [nakədaɪ] was reached without transition.)⁹⁷
- dadi, *stocking* 1;7. Of the five words for which [dadi] stood, this is the only meaning in which it corresponds regularly to the standard form; [dadi] is the normal development which "stocking" had to take at this stage. It is probably the key-word, which set the style for the other four. It was also the first meaning attached to [dadi]; "Nackedei" appeared earlier, but at that time in a different form. "Stocking" kept this form until the end of the period and was used frequently: [ʼmaɪ ʼdadi], *my stocking* 1;7, [ʼbɪ? ʼdadi], *big stocking* 1;8, [nɔ mama dadi, hɪ mama dadi], (*this is*) *no(t) mama's stocking, here (is) mama's stocking* 1;9. At 1;11 the same form stood for the plural: [dadi! mama he ʔap dadi!], *mama hangs up stockings* (on the washline).
- *dadi, *Taschentuch* 1;7. Registered once in this meaning. Second syllable not a regular development, but result of the [dadi] merger. She understood "Taschentuch" as early as 1;3. Compare *[taʃ] 1;10. But the word became active and stable only at 1;10, in an entirely different form discussed under [haʊdʒu].
- da-i, *candy* 1;10. At 1;6 she used [keke] once for "candy"; however, it probably did not come from this word, but was an undifferentiated use of "cake," although this word was still inactive at that time (1;9 [kik], 1;10 [keke], 1;11 [gek]). At 1;10 "candy" appeared as [ga-i], [da-i]. At 1;11 [da-i] was fixed for "candy," but included also cherries. The length of the stressed vowel and the closed quality of the [i] were stable enough to differentiate this form from [dai], *dry*. She did not learn (French-) German "Bonbon."⁹⁸

⁹⁷ Karla did not learn the word. It was rarely used with her. The conviction had grown that nakedness should not be emphasized as something noteworthy.

⁹⁸ Karla used B 1;4 [gaga], which however came from "cracker." At B 1;7 she acquired [nani], the first [n] not quite standard; 1;8 [næni]. She tried "Bonbon" 1;8 as [mamam], [bambam]; my pronunciation is [bɔŋʼbɔŋ] or, with assimilation, [bɔmʼbɔŋ]. Karla reached [bɔmbɔm] 1;9; occasionally she still assimilated it into [mɔmɔm]; but [næni] was more frequent. 1;9 [kæni], E 1;9 sometimes also [kændi].

da-1, *dolly* 1;6. Quality and quantity of vowels varied somewhat, but otherwise the form was stable throughout the long period in which the word was used very frequently. At 1;1, when she was already able to follow complex directions like "Leg den roten Ball in das Körbchen," she misunderstood the request, "Wisch der Puppe den Mund ab"; she simulated wiping her own mouth. The reason was that the word "Puppe" was not well understood. She had not had her doll for six weeks; it had just been given her again, and she showed interest in it for the first time. In the following days she played much with it and developed a special interjection, [ʔo:], with which she always greeted the doll; that sound did not occur in any other connection. At 1;4 she played with dolls with much imagination (see [pu], *pooh*), but still had no word for them. In the very beginning of 1;6, [da:i], *dolly*, appeared, at a stage when many new words became active. This form became fixed; she never tried either "doll" or "Puppe," although she understood both. At 1;7 she used it also for her teddy-bear, although she understood "Bär"; the latter word she tried once at 1;7, but it did not become active until 1;11. 1;8 [maɪ daɪ], *my dolly*, [du daɪ], *June's dolly*, and other combinations; [bɪtə ˈda:ɪ], with falling intonation, *bitte (give me the) dolly*. 1;9 [daɪ], 1;11 [da:ɪ], [daɪ], [daɪ], for instance [dɪt da-ɪ ˈapʰ bɛt], (*I want to take this dolly up(stairs) (zu) Bett*).⁹⁹

daɪ, *cry* 1;10. At E 1;3, upon the stimulus, "Wein mal" or "Cry," she would produce a good imitation of crying, which nevertheless was recognizable as fictitious. But the word did not become active until seven months later, when she reported [daɪ], in falling intonation, (*the baby*) *cried*. 1;11 [da:i], (*the baby*) *cries (or is crying)*; [ˈdaɪbeɪ], *cry-baby* (for details see "baby").¹⁰⁰

daɪ, *drei* 1;10. Mechanical counting started 1;10 in English and German. The act of lifting her down was dramatized by preliminary counting to three. Upon the stimulus "one" she would continue "two, three," upon "eins" correspondingly [waɪ daɪ]. A little later she combined English and German, always omitting the numeral "one," which served as stimulus and was not considered part of the series; she had an idea of counting and used the same sequence upon the request, "Count." The sequence was regular [wi tu waɪ daɪ], *three, two, zwei, drei*. At 1;11 [ˈaɪ(S) waɪ daɪ], *eins, zwei, drei* occurred, but "eins" was still usually omitted; once [waɪ daɪ wi], understood as "zwei, drei, vier," but in the light of later experience probably "zwei, drei, three"; once [wi

⁹⁹ Karla tried "dolly" B 1;8, but her regular word was "baby" as early as 0;9 and for a year afterwards. She called a teddy-bear "Wauwau." [da:i] 1;10; but 1;11 still [tu beɪ] with reference to two dolls.

¹⁰⁰ Karla [ka-ɪ] 1;10 or 1;11.

- dai tu], *three, drei, two*. (2;1 still the fixed combination [wi tu wai dai] as an announcement of jumping and other sudden actions.)
 dar, *dry* 1;10. Began early in the month, and in the latter half was frequently uttered proudly in the morning upon awakening, alone or with "all": [ʔa dai]. 1;11 first applied to drying clothes, [waʃ ʔa dai], (*the*) *wash (is) all dry*.
 *da:i:ɛ, *da ist es* 1;4-5. At B 1;4 and B 1;5, [da:i], [da:i] occurred repeatedly. It was at first taken for a variant of "da," but later (1;5 [da:i:ɛ]) developed into the first grammatically complete sentence in mechanical reproduction.¹⁰¹ Compare [ʔa:liə] 1;5.
 dak, *duck* B 1;6. Early an object of lively interest. E 1;1, when she saw ducks in the water, she tried to repeat German "quak, quak!" At the very beginning of 1;6, she called her toy duck [da], with short vowel,¹⁰² as well as German "natt-natt," another onomatopoeia presented to her. At 1;8, duck was always [da]. Once she called her toy duck "my Auto" (see "Auto"), which was a fanciful transfer of the term for play purposes, the difference in meaning being perfectly clear to her. At 1;10, [dak] was used ephemerally for "Bleistift," but had doubtless no connection with "duck" (see [dadi], *Bleistift*). By 1;11 [dak] was the form for "duck": [ˈdak ˈbart ˈmi], (*the*) *duck bites me*, in play.
 daʃ, *crash* 1;10. This is one of the most difficult words in her whole vocabulary. It was used sporadically, but not infrequently 1;10-2;1. The meaning was fairly clear; it referred to rapid motions of various kinds. At 1;10 she let herself drop from a stool into my lap without fear and said [daʃ]. At M 1;11 this practice was still in force with the same verbal accompaniment. At that stage she sometimes ran through the garden with determination and said [daʃ] at the same time. (At 2;1 the word became more frequent, although it seemed to have no support in standard usage. It was associated with rapid motions. Once I asked her, "Was habt ihr mit dem zerbrochenen Glas getan?" She answered [daʃ].¹⁰³ When we did not understand, she explained, [wo we], *throw away*.) At its first occurrence, a question-mark took the place of the standard equivalent in the diary. The next time, English "dash" was thought of, which corresponded well in form and meaning; but it was rejected as it had never been presented to her to our knowledge. (At 2;1 no etymon had been found yet; original creation was suspected. At 2;2 the verb of [ʔai datʃ ʔa ju], *I (let myself drop) on you* was still enigmatic.) This was almost the only

¹⁰¹ Karla E 1;1 [ˈdeɪɐ], *there it is*, B 1;4 [ˈdeɪɐ].

¹⁰² Same observation with Karla.

¹⁰³ This looks like a mechanical echo of "Glas," which had the same form in her speech. But this explanation, which would be perfectly possible with Karla, does not work in Hildegard's case. She did not echo words mechanically.

word for which no standard model could be found, until a complete examination of the phonology had been made. Then it appeared that quite a number of verbs could phonetically be the prototype, like "crush, thrash, clutch, crouch, dance, chance, glance, cough, crash." Taking the meaning into account, I perceived that "crash" was the most suitable etymon, especially in its use as an interjection. Its emotional appeal recommended it, and the meaning (sound plus surprising motion, like the corresponding German "bums" *1;9) was sufficiently fitting for most of the employments; the fact that "bums" did not recur after 1;9 makes the hypothesis still more plausible. The application to hard running is a transfer which has nothing unusual in it. Thus "crash" was accepted as a probable prototype for [daʃ]. The fact that this model was not recognized at the time of observation and diary recording is due to the circumstance that the word was always used from memory, with no presentation of "crash" preceding. (At 2;1 [daʃ] also became her phonetic equivalent of "gosh" in "oh my gosh," which her mother once used in annoyance and which Hildegard immediately took up and used amply on account of its emotional appeal.)

daʃ, *dress*, verb and noun 1;10. The German equivalents were not tried (but compare [ʔä], *an, on*, which was used in the sense of "put on articles of clothing," "anziehen" 1;9-11, but not in the sense of "zieh mich an"). 1;10 [daʃ], later [deʃ], [bitə deʃ], (*bitte dress* (*me*). Later in the month, she returned to the less standard [daʃ] and retained it to the end of the period. 1;10 [bebi daʃ], *baby's dress*. 1;11 [bidi daʃ], *pretty dress*, [idaʃ 'mi], *dress me*, more frequently [bidi daʃ ʔäʔ], (*Will you = I want to put a pretty dress on*).¹⁰⁴

*daʃ, *Glas, glass* 1;11 once.¹⁰⁵

daʃ, *Katz* 1;10. This was not the generic term; "Miau" served as such 1;8-2;1. But on May 27, 1932, we got a kitten for her. She first referred to it as "Miau," also called it "kitty, kitty" with falsetto voice (see [diti]). But after two days she tried [kaʃ] or [gaʃ], from "Katz," as I playfully called it in a colloquial form; [jo kaʃ], *hello, Katz*. At B 1;11 she had three distinct forms: she spoke of the cat as [mea'au], imitated its voice [mi'au], and called to it with [daʃ]. "Dasch" therefore became the name of this cat in the family, a fact which made this imperfect form stable. In the latter half of the twenty-fourth month, she once played hide-and-seek with the cat as she frequently did with me: [daʃ, we hantaʔ], *Dasch, where (is) Hildegard?*, "where" being a translation of my "wo." (At 2;0, when the cat had disappeared, she re-

¹⁰⁴ Up to 1;9, Karla's term for "dress" was [budi], *pretty*; 1;10-11 [det].

¹⁰⁵ Karla M 1;11 [gæt] < glass.

ported the fact with an imaginative explanation: [daʃ baɪbaɪ, nuɪjək, baba], *Dasch by-by, New York, papa.*)

daʃ, *kratzen, scratch* 1;11. This word came with the cat and, by accident, had the same form as its name: [meɪʔau daʃ da:], *Miau kratz da* = "the cat scratched me there." (From 2;0 also in other connections: [ʃu daʃ mai bak], *you scratch my back*, imperative, 2;1.) Phonetically both "kratzen" and "scratch" could be the model. This is certain for the German word; for the English there is no other evidence that [skr-] > [d-], but it is the substitution which I would expect. Presentation was probably equally frequent in both languages. ("Scratch my back" definitely goes back to English presentation.)¹⁰⁶

*da:t, *dark* 1;10, rarely. It did not gain ground against the German equivalent "dunkel," which had taken on a strong emotional tinge.¹⁰⁷

*dat, *that* 1;11, only one day. Otherwise she used only [dɪt], *this*.

dat', *forgot* 1;11. [mama dat' tuʃbaʃ], *mama forgot toothbrush*, at first repeated from presentation, then independently used in the sense of "mama forgot to brush my teeth," for which her mother had chosen the noun version. For about two weeks, the verb appeared only in the stereotyped combination [mama dat tuʃbaʃ]. Then it was used in another context, [baba dat dɪt], with pointing, *papa forgot this*, showing that she had an analytical understanding of the word. (At 2;0 [dat] also stood for "got" = "get.")¹⁰⁸

dau, *towel* 1;10. Listed 1;10 as "approximately" [dau], M 1;11 clearly [dau].

*dɛ, *there* 0;10-B 1;0; 1;5. This demonstrative was preceded by *[ʔəʔ], which was used as a pure demonstrative, without interrogatory intonation, from 0;8 to E 1;3. It will be recalled that [dæ] and [dɪ] were the most frequent babbling combinations at 0;8.¹⁰⁹ M 0;10 [dɛ] emerged with meaning. When asked about a picture, she pointed to it, saying [dɛ], with an expression of joyful astonishment.¹¹⁰ At E 0;10 [dɛ:], also varied [dɪ:] and [de:], was a de-

¹⁰⁶ Karla learned "scratch" 1;9, with reference to scratching her slight eczema, which she called [bubul], a derivative of "pooh"; this interjection had been induced by the greasiness of the salve used to combat it. The form of "scratch" was [gæt], [dæt] 1;10.

¹⁰⁷ Karla [da:] E 1;6 with a theatrical expression of awe. She did not say "dunkel," but understood it to be synonymous with "dark."

¹⁰⁸ Karla [gæt] 1;11.

¹⁰⁹ Darwin ("A biographical sketch of an infant," in *Mind* 2 (1877), pp. 285-294) mentions "da" as the first articulated syllable of the child at 0;5 (cited by Schultze, p. 23, note). Cf. Wundt, third edition, v. 1, p. 310. Miss Shinn's niece said "da," with short vowel, at 0;10 (Stern, p. 162). English records without phonetic notation are difficult to interpret; [da] is probably not meant, more likely [dæ] and probably [de], as with Hildgard.

¹¹⁰ Karla several months later; recorded as active B 1;4, but discontinued soon thereafter.

monstrative interjection, which she used spontaneously while pointing with her right hand at objects, still usually pictures; it was one of her two words at this period. It is not impossible that the variation [dɪ:] contained germs of "this." At E 0;11 [de] remained frequent as a demonstrative particle. At B 1;0, when she frequently heard "da" from her grandfather in Hamburg, [de], by now with definitely short vowel, changed to [da:] (see there), removing all doubt that it had previously been based primarily on the English. For five months thereafter, there is no record of [de], but at 1;5 it is mentioned as a familiar word, uttered with rising intonation while looking at pictures. It was then obviously a question like "What is that?," but cannot be phonetically traced to "that." After 1;5 it ceased, being abandoned in favor of *[ə] with interrogatory intonation, which continued to 1;6, of [da], which remained active since B 1;0, and of [dɪ], *this*, which came in not later than 1;8.

- *dədə, *Gertrud* 1;1. [də:da], the [a] short, several times repeated aloud from the presentation "Tante Gertrud," the pretonic "Tante" not being reproduced. About ten days later, upon being asked, "Ruf Tante Gertrud!" she said [də:di], where the stressed vowel seems based on English pronunciation, which her mother may have used. By the end of the month, the form was not yet fixed, but was mostly [dədə].¹¹¹ The return to America prevented the name from being crystallized into a stable form.
- *deʃ, *steht* 1;11. Only once, [witi deʃ], *Fritzchen* (a doll) *steht*. Difficult to explain: "steht" with metathesis of the initial [ʃ]? "steh-" plus English [-z]?
- *dida, *street-car* 1;11. Once [baɪbaɪ dida], (*I went*) *by-by* (*in a*) *street-car*, after she had been riding in one. She did not say it again, but returned to [tʃʊtʃu] for "street-car."
- *dɪdɪdɪ, B 0;9-E 0;10. This self-expressive combination is listed as a word, because it became stabilized in form and associated with definite meaning. Evolving from babbling combinations like [dada], [dædæ], [tætæ] 0;7-B 0;9, [dadada] B 0;9 in a loud tone clearly was scolding when she disapproved of something, whereas in ordinary tone it expressed cooing comfort.¹¹² Later it became [dædæ], and by E 0;10 it occurred, rarely, in the form [dɪdɪdɪ] with a plaintive timbre.¹¹³ Usually it was then [nenene], which is sufficiently different to be listed as a separate word instead of a variant.

¹¹¹ Ament's Louise (p. 79) said "dədə" 1;3 for "Tante." Stern (p. 344) interprets this as metathesis, which is not convincing; vowels are too unstable at this early stage. [dədə] was Karla's form for "Hildegard" (see [harta]).

¹¹² Cf. Wundt, third edition, v. 1, p. 295: "da-da" = comfort.

¹¹³ Karla [dædæ] second half 0;7; [dɪdɪ] for scolding M 0;8; preceded by [ɡɪŋ(ɡɪŋɡɪŋ)] for the same purpose 0;6.

diə, *dear* 1;11. Taught in combinations like "mama dear," "papa dear," quickly learned and only used in this way. [baba dia, wet ʔap], *papa dear, wake up*. A little later [ˈmama ɪdiə] etc. (After 2;0 in other combinations of the same type; occasionally before the noun, "dear papa," [dia].)

dɪk, *drink*, noun and verb 1;10.¹¹⁴ [bɪtɛ, dɪk], *bitte, drink*; probably the noun, because a habitual question was, "Do you want a drink?" [dɪk mɪk], (*the cat*) *drinks milk*. 1;11 [dɪk(ç)]. [ˈdɪkə ɪwɔlu], *drink of water*; the unusual distribution of stress may be due to the habit established in [ˈdɪkəbaʊkʰ], *dicken Bauch*. The noun [dɪk] can only be based on English;¹¹⁵ the verb was reinforced by German "trinken." But of course there was no classification into nouns or verbs in her consciousness.

dɪk, *stick* 1;10.¹¹⁶

dɪkə, *dicken* 1;10. As a mischievous game, she was taught to accuse different persons of having a fat tummy: [ʔɔmo, dɪkə baʊkʰ], *Oino (hat einen) dicken Bauch* (see [baʊkʰ]). The adjective became a stereotype addition to "Bauch" without meaning; she would say with reference to herself, while bathing, [dɪtɛ, dɪtɛ baʊkʰ waʃ], (*den*) *dicken Bauch waschen*. The correct [-k] also continued. Later [dɪkə ʔa wet], *dicke all wet*, showed clearly that the adjective was not understood. By 1;11 the two words had formed a compound as indicated by the stress, [ˈdɪkəbaʊkʰ].

dɪʃ, *kiss*, noun and verb 1;11. At B 1;4 she understood "Gib Mama Kuss" and "Give mama kiss."¹¹⁷ B 1;8 she confused this word with German "Kissen," which resembles both English "kiss" and German "küssen." I told her, "Bring Papa ein Kissen." She gave me a kiss. I tried to explain, "Nein, ein Kissen hier," pointing to my head. She kissed the rear of my head! (A similar confusion again at 2;7.) But at other times she understood the word "Kissen" (which, by the way, did not become active; cf. [biə], *pillow* 1;11). B 1;11 [dɪʃ], with fairly high [ɪ], almost [i]. A little later [dɪʃ] frequently, parallel with occasional [duʃ], *Kuss*. [mama dɪʃ maɪ], *mama kiss my* = "kissed me." (2;1 still [dɪʃ].)

dɪt, *this* 1;8. This demonstrative was preceded by [ʔəʔ], [dɛ], and [da]. It is a very difficult word on account of the variations of its form and the variety of models it may be based on, at least English "that" and German "dies," possibly also German "das" having to be kept in mind. The meaning is clear enough. The word appeared as [dɪ] 1;8 in frequent use as a demonstrative for wish and

¹¹⁴ Karla [ninin] B 1;8, [nin] M 1;8, also for water in general; 1;9 also for a drinking-glass, [ˈmama ɪnɪn], *mama's glass*; B 1;10 [nɪŋk]; 1;11 [dɪŋk].

¹¹⁵ For many years afterwards, she said persistently "Gib mir einen Trink," with an incorrect transfer of the English formation to the German.

¹¹⁶ Karla 1;8 [dɪk], *stick*, occasionally [dɔk], *Stock*.

¹¹⁷ Karla E 1;7. — She said [dɪt] 1;11.

statement; [dɪ baɪ], (*I want*) *this bottle*. But at the first recording the note is added that it had probably escaped attention for some time; perhaps the earlier [dɛ], *there*, although no example of it is recorded after 1;5, had passed over into [dɪ] unnoticed. "That" remained practically below the threshold of active use (see *[dæt], only one day 1;11); for contrasting statements of the type "this—that," [dɪ] was used in both members: [dɪ ba, dɪ ba], *this (is a) brush, (and) this (is a) brush* 1;8, the contrast being clearly indicated by the intonation, the pitch being high in the first half, low in the second; [dɪ haʔ ja. dɪ haʔ no], (*Shall I put on*) *this hat? Ja. This hat? No*, 1;8; bringing two overshoes: [dɪ dodo, dɪ dodo], with the same high-low intonation, *this (is) Dodo's (and) this (is) Dodo's*, pure statement of fact, 1;8. [dɪ] was at this stage used as demonstrative adjective and pronoun, [da:] continuing as demonstrative adverb of place. The maid used to say "now this" while putting on one article of clothing after the other; Hildegard repeated occasionally [naʊ dɪt] 1;8, but the [-t] was ephemeral. 1;9 double demonstrative: [dɪ bɪ bux—da!], *this (is a) big Buch—dat*; [na dɪ], *now this*; [ˈdɪ ˈbɪ ˈbebi ˈbaju], (*I want*) *this big* (emotive, see "big") *baby bottle*; [dɪʔ maɪ], *this (is) mine*, namely her dress—quiet statement of ownership; and several similar cases 1;9. At 1;9, [hi], *hier, here* entered as a competitor in similar functions. At 1;10 it is recorded that [dɪ] always appeared as [dɪt], often repeated several times as a running start of a statement. The final [t] is difficult to explain.¹¹⁸ Interference of "that" was thought of, and it cannot be ruled out entirely, because [dɪ], [dɪt] took the place of "that" as well as "this." But in view of the facts that [naʊ dɪt] appeared first 1;8 as the direct reproduction of "now this"; that [t] and [s] are produced at the same place of articulation; and that [ts] and [tʃ] also appear early as representations of [-s], although not so lastingly as in [dɪt]; [dɪt] should probably be interpreted as a direct equivalent of "this," although it is the only instance of [-s] > [-t]. However, [dɪt] did not win definitely over [dɪ]. Both forms continued to occur side by side to the end of the period, and I can find no principle of differentiation; both occur as adjectives and as pronouns, at the beginning and at the end of word-groups, before vowels and consonants. Some examples: [dɪ dʒurʃ], *this (is the) church* 1;10, in direct reproduction of a nursery rhyme; [dada ha, dɪ maɪ], (*this is*) *Dada's hat, this (is) mine* 1;10; [baba dɪt ʔä], *papa (turned) this on (yesterday)*, namely the shower-faucet, 1;10;

¹¹⁸ Karla started [dɪt] on the first day of 1;11. But in her case, [t] was the regular substitution for final [s]. E 1;11 also [dæt], *that*: [ˈmami fik, ˈdæt], *mammy fix that* = "fixes" or "fixed"; [no dæt, papaʔ], (*Did you*) *know that, papa?*

[dit ʔā!], (*I want to turn*) *this on*, namely the radio, the name of which was first tried, then abandoned, E 1;10; [dit da-ɪ ʔap' bet], (*I want to take*) *this dolly up(stairs)* (zu) Bett 1;11; [dɪ 'bubu ɪəʊ], *this (is a) paper ball* 1;11; [dɪ do ʔapu], *this door open* 1;11; [dɪt et'], *this (is) in* 1;11. [dɪtʔ] 1;11 as a question for confirmation; for instance, after carrying out the command, "Bring the little rug from the living-room," she asked [dɪtʔ] to make sure she had brought the right object. [dɪ nea], *this (is for the) nails* 1;11, trying to file her finger-nails. Other ephemeral variant forms 1;11: [hɪ ɜʊs] in the nursery rhyme mentioned before—substitution of "here is" for "this is"; [baba dɪʃ he ʔap], *papa, hang this up*, with free word-order: reproduction of German "dies," or improved form of "this," which did not gain ground against the fixed [dɪ], [dɪt]; [dɪʃ], with reference to a chair. The word "this" was frequent because it was useful to fill many gaps in the active vocabulary. In the second half of 1;11, [dɪtə], [dɪʃə] frequently were used along with [dɪt], [dɪʃ], especially in [dɪtə 'maɪ], *this (is) mine*, each word with its own falling intonation; the [ə] might be the budding copula "is"; but it did not last. ([dɪ] and [dɪt] were still active at 2;1.)

dita, *Theresa* ([tɪ'rise] or [trɪʃə]) E 1;11. Reported to me by letter just before her second birthday as [tita], on her birthday as [dida]. The difference between [d] and [t] was unphonemic. In later direct observation I found the form [dita] to be the most common one; cf. also [ʔɔmo].¹¹⁹

*drti, *kitty* 1;3; 1;10; 1;11. She saw a small cat B 1;3, which was introduced to her as "kitty." Enthusiastically she called it again and again with [didi] or [titi], the closure of the dental being imperfect so that a sort of affricate similar to [ts] or [tʃ] resulted. By B 1;4 the word was inactive.¹²⁰ At 1;10 she had her own little cat, which she spoke of as "Miau" or "Katz"; but she also imitated the call "kitty kitty," about [didi dɪdi], with falsetto voice, as in the presentation. The form was not cultivated by her, although her mother often used it. Several weeks later (1;11), when other children called "kitty," she imitated it again as [dɪdi], but dropped it once more; "Miau" served also to call the cat. A short time later, [dɪti] became more frequent again, only for calling the pet. (At 2;1 she avoided the word even in reproducing the rhymed story of the "three little kittens"; she said [wi mɪ'au], *three Miau*.)

do, *cold* (adjective) 1;10. At 1;7 she reacted to the feel of a plate with ice-

¹¹⁹ Karla B 1;9 [tɪ't'a], easily learned, not from "Theresa," but from Hildegard's mutilation [tɪ't'a], which still clung to the friend as a nickname.

¹²⁰ Karla did not learn it at all at the early stage. She called cats "Wauwau" B 1;4.

- cream by whispering [harʃ], *heiss*. [do:] appeared E 1;10. At 1;11 she liked to make the statement [do], usually correctly.¹²¹
- do, *comb* 1;10. It came in at about the same time as the preceding word, also as [do:], with no fear of the homonymy.¹²² 1;11 [baba mai do da], *papa (has) my comb da*.
- *do, *dog* 1;11; usually [doti], *doggie* and "Wauwau."¹²³
- *do, (*es*) *donnert* 1;11, once. See *[bu::] and [duko].
- do, *door* 1;10. This word antedated "cold" and "comb" slightly, but had at first a different form; in the rhyme "This is the church . . .," she imitated "open the door" by [ʔabo doi]. Very soon she once used it for the corresponding real situation, [ʔabo do], *open (the) door*, proving that the first imitation was not merely mechanical. 1;11 [ʔabo do], *open (the) door*, [do ʔabo], (*the*) *door (is) open*, and [do juʃ], (*the*) *door (is) zu*. At the same stage she would sometimes avoid the word: [ʔdi ʔzuʃ], with falling intonation indicating the nexus, *this (is) zu*, meaning the door. [di do], *this door*.
- do, *go* 1;10, at the same time as "cold" and "comb": [mai do we], *my (=I) go away*; [do we!], *go away*; [do we], (*the cat*) *goes away*. 1;11 [do ʔawe], *go away* (also *throw away*); once [do babaɪ], *go by-by*. [to betʔ] was at first taken for a blend of "to bed" and "go"; but the use of a preposition is improbable at that stage, and [to mama betʔ], which was heard at the same time, is doubtless "go (into) mama's Bett"; the difference between [d] and [t] was not phonemic. (At 2;1, [d] was still the normal consonant; [ʔa doi ba(ɪ)baɪ], *I (am) going by-by* shows a new inflected form.)¹²⁴
- dɔ, *gone* 1;10, only in "all gone." At 1;5 the maid Carolyn taught her "all gone," which Hildegard said as [ʔa:] with the palms of her raised hands expressively turned outward,¹²⁵ (see [ʔa:], *all*, adverb). This was replaced by "alle" until 1;10, when [ʔa dau] appeared rarely along with it. At 1;11 [ʔɔ dɔ], with dramatically falling intonation, was still less frequent than [ʔalə]. (But by 2;1 [ʔɔ: dau], [ʔɔ: dɔ:] had replaced "alle.")
- do, *throw* 1;11. [do ʔawe], *throw away* (also *go away*). (2;1 [wo we].)
- dɔdɔ, *Dodo* 1;6. Her cousin Dorothy was usually called by this nursery form of her name. Hildegard said [dodo] 1;6, but in the following months this form alternated with [dɔdɔ], which eventually prevailed (still at 2;1). More than a week after she had last seen them in Milwaukee (1;6), she would still often say the names of the

¹²¹ Karla [ko:] 1;8.

¹²² Karla [ko:m] 1;9.

¹²³ For Karla's words see [wauwau].

¹²⁴ Karla at once [go], 1;11. [ʔ go ʔmamaʔ], (*Shall I go (with) mama?*)

¹²⁵ Karla exactly the same way B 1;6, especially in [ʔa: ʔaga], which meant: "food (to eat or to drink) all gone." Earlier she said, with falling intonation, [ʔa dɔ], or with reduplicating assimilation [da dɔ], 1;1; variant [da-ɡɔ] E 1;1. [a: ɡaɪ] B 1;9, also as translated reflection of "nicht da," "alle," "ich hab' keins mehr."

two sisters Marion and Dodo with an interrogative intonation, especially when she was out walking; she gave both vowels of [dɔdɔ] a curiously rising inflection. Later (1;7) the series was supplemented after instruction by the name of the third Milwaukee cousin, Joey, [dɔ-i], which on account of the newness of its acquisition was often given first place. About a week later, the series had been mechanized, and then Dodo was omitted; it was not even inserted on request. There is no reason to assume that she was thinking of only two of her cousins; the boy was less interesting to her than the two girls, who always took care of her. The shortening of the series was due to the similarity in form of [dodo] and [dɔ-i] (haplology). On account of the rhythmical distribution of stress, the name Dodo received reduced emphasis in the series of three names. 1;8 in possessive function: [dɪ dodo, dɪ dodo], *this (is) Dodo's, this (is) Dodo's*, high-low intonation, statement of ownership of two overshoes.¹²⁶

dɔ-i, *Joey* 1;7, the name of her cousin in Milwaukee. The addition of this name to a series of names has been discussed under [dɔdɔ]. Its form did not vary.¹²⁷ 1;9 and 1;10 possessive: [dɔ-i nɔ-i], *Joey's kimona*, designating a robe which she had "inherited" from her cousin.

dɔɪs, *stone* 1;11.¹²⁸ Used for one stone. The [s] was at first thought to be an incorrectly used plural [z], which is possible. But there is also supporting evidence for the explanation that it might be due to metathesis of the initial [s]. Cf. [deɪs], *steht*.

dok, *toast* 1;9.¹²⁹ The English word is used in German too in practically identical pronunciation. When she began to use the word, she experimented with it, forms with final [k] also being heard; but the outcome was then [dot]. A week later the form was [duk'], 1;10 [dʊk], 1;11 [bɪʃ (ə) dok], *piece of toast*. Final [t] > [k] is rare in her speech, but not unique (in this case, dissimilation from the initial [d] may have been a contributory reason). The same is true for the change of the [o] sound to an [u] sound. The semantically related word "Kuchen" might have interfered; but more likely it is a case of inaccurate articulation, the tongue being raised too high.

dot, *coat*, only in [bɪtɪ dot], *petticoat* 1;11. Apparently a child etymology, "pretty coat," but the "coat" part not identified with "coat," which she called [nʊk]; the latter was indeed an outdoor coat,

¹²⁶ Karla was also taught this name at 1;6, but her first form was more imperfect, [da-da]; 1;8 [dɔdɔ].

¹²⁷ Karla same form 1;8.

¹²⁸ Karla [doun] 1;10, 1;11 [toun], *stone* and [tain], *Stein*.

¹²⁹ Karla [t'u:] B 1;8, [t'o:] M 1;8, [tot] 1;10.

which would hardly be associated in meaning with a piece of underwear.¹³⁰

dot, *don't* B 1;11. The form did not change (even after the 2;0 limit). Without scruples she combined it also with German verbs: [dot biə, mi'ʔau], *don't spiel*, *Miau* ("Don't get my horsey nass" 2;0); but more frequently "don't" alone, as a simple interdiction, as she heard it often enough addressed to herself. The verb [du] itself did not appear until later 1;11, and then only in a mechanical use. That is natural enough, since the negative verb has much greater emotional value and was heard much more frequently. The functionally equivalent "nein, nein" and "no, no" (interdictions) had been acquired as early as 1;6. "Not," [nat], appeared practically at the same time as "don't."¹³¹ (2;1 still "no bite" instead of "don't bite.")

doti, *doggie* 1;11. A late synonym for "Wauwau" 1;3-2;0. [do], *dog* 1;11 did not gain ground against these two competitors.

du, *do* 1;11. First taught her by her aunt in Milwaukee as a mechanical reaction: "Who likes candy?"—"I do," which she pronounced with the same playfully exaggerated falling intonation, first with assimilation, [ʔau du], then correctly [ʔai du]. (Real meaning was induced 2;0. [ʒu du dɪt], *you do this* 2;1.) Cf. [dot], *don't*.

*du, *June* 1;8. [du dai], *June's dolly* 1;8. Removal from the neighborhood made the name of her playmate inactive.

du, *too* 1;10 in both meanings: commonly as an adverb of degree, and once in the sense of "also."¹³² The adverb of degree was omitted before 1;10, because in its pretonic position it did not attract her attention; 1;8 she refused to lift a big piece of caked snow, shaking her head and saying [bɪʔ?], which amounted to "It is too big for me"; 1;9 while eating: [ma(ɪ)ʃ], (*too much*). This omission is semantically possible; colloquial Spanish quite commonly avoids the clumsy "demasiado," *too*, and says "es muy grande," *it is very big* instead of "es demasiado grande," *it is too big*. But since both German and English regularly use "too," "zu," Hildegard learned it 1;10: [tu maʃ], *too much*, [du ha], *too hot*, "too big," and with other adjectives, regularly in the form [du] (2;1 improved to [tu]). In the sense of "also": E 1;10 [dɪk mɪk, gaga du], (*the cat drinks milk, (eats) crackers too*; at the time of the entry I was astonished at this use of "too" and not sure of the interpretation. (But it was reported again 2;0, "tickle this (hand) too.")

*du, *Zunge* 1;11. The difficult [ts-] was tried in two versions, [du] and [ju], the [d] representing the [t] part of the affricate, while [j]

¹³⁰ Karla [ko] for an outdoor coat, B 1;9. [l'pe |kot], *petticoat* 1;11; no child etymology.

¹³¹ Karla [dɒnt] E 1;10.

¹³² Karla [tu] 1;11 in both meanings.

stood for the [s] element, no combination of both being attempted. The vowel excludes the English "tongue" as a prototype.¹³³

duko, *dunkel* E 1;8. I introduced the idea of "dunkel" to her by showing her dark halls and rooms a couple of times. For a few days she experimented, [dudu], [dodo]. On the first day of 1;9 it settled into [doko], the [k] always unaspirated. At 1;10 [duko] became an important word, after she had had a fear of the dark for a few days. [da:t], *dark* was heard rarely; [barbar duko], pointing to the window, *by-by dunkel* = "it is dark outside," statement of fact without fear. Toward the end of 1;10 she walked in complete darkness from one room to the other without any fear or mention of it. But the old fear-complex was still semantically attached to the word "dunkel." She used it then for window-shades, of which she was afraid for a few days. On a day of many heavy thunderstorms, she was frightened by the thunder and called it [duko], but with a glance at the shades, underneath which she could see the reflection of the lightning; probably the wicked shades were to blame for the thunder. At that time, I thought I discerned a differentiation in the final vowel, [duko] for shades, [duko] for thunder, but that was probably accidental. Later [duko], which remained active, must have lost its emotional connotation, although there is no further record of it. Thunder was called [bu::] 1;11; she indicated a shade, still indirectly, but less emotionally, by "way up high" 1;11, taking a clue from its rolling-up motion.

*duko, *Kuchen* 1;10-11. At 1;10-11 [kuko] and [keke], *cake* were in rivalry, the latter assuming 1;11 the form [gek], the former, [duko], which was due to dissimilation.¹³⁴

duʃ, *juice* 1;7. B 1;7 [dutʃ], [duʃtʃ], later [duʃ], 1;11 [duʃ]. The apparent agreement between the transition-[ɪ] and the unpronounced "i" of the standard spelling is of course purely accidental.¹³⁵

*duʃ, *Kuss* 1;11. As early as 1;0 she understood the order, "Gib Mama (Papa) 'n Kuss" and followed it. At B 1;4 she understood the command equally well in German and English. It took eleven months from the first understanding to the first uttering of the word. The English word [diʃ] emerged first, but occasionally the German form was used along with it. [mama duʃ], (*ich habe*) *Mama (einen) Kuss (gegeben)*. The English form won out soon.

¹³³ Karla M 1;9 about [to], which probably came from "tongue," but possibly also from "Zunge," which she had frequently heard from me. She had no [s] at that stage. Cf [t'u:] from "zu" at the same time.

¹³⁴ Wundt³ v. 1, p. 290 reports "*Guga, Kuchen*" for a girl before 1;7. Karla said [gugu], with variations of the vowels, very frequently from 1;3, but it stood for "cookie," which is etymologically related, but semantically different ("biscuit"). "Cookie" was in Hildgard's speech [titi] 1;6, [tutiʃ] 1;10. Karla echoed "*Kuchen*" as [k'uk'o] ephemerally at B 1;9.

¹³⁵ Karla B 1;11 [dʒut], [dut]: [l'paməpu 'dut], *pineapple juice*.

ʔɛpi, *airplane* 1;11. At 1;9 she used two original makeshift expressions to call attention to an airplane, [pi pi ʔauto], *Piep-piep-Auto*, a "bird-auto," or a "flying machine," and [we:: ʔap], *way up*. At 1;10 she used [ʧʊʧʊ], *choo-choo* for an airplane which she heard; she transferred this word from a train to all kinds of machines. The specific form [ʔɛpi] emerged 1;11.¹³⁶

ʔɛk, *egg* 1;8. [ʔɛk] appeared one day earlier than [ʔaɪ], *Ei*.¹³⁷ The two forms competed until 1;11. They were applied to eggs as food and to an egg-shaped rubber ball. The form was [ʔɛk] 1;8-11, [ʔɛk] for a while later in 1;11 (2;1 again [ʔɛk]). At 1;9, while eating egg, she called it alternately [ʔaɪ] and [ʔɛk], apparently in German to me, in English to her mother; but at the same time she used other bilingual terms indiscriminately. "Egg-ball," first half 1;11, [ʔɛk ʔbau], with level stress; later "egg-spoon," [ʔɛk ʔbu], with subordination of "spoon" to "egg"; finally [ʔɛkbau], [ʔaɪbau] M 1;11, perfect compounds.

*ʔɛ:t, *ätschl* 1;6, 1;10. When she sucked her finger, I would upbraid her by saying "ätsch, ätsch, Fingerlutscher." She took it up 1;6 as [ʔe ʔe], in a similar pitch. The word did not become very active. It is again recorded once 1;10 as [ʔɛ:t]. The presentation probably varied between standard German [ʔɛ:tʃ] and northern German colloquial [ʔɛtʃ]. (At 5;4 she said [ɛ:tʃ].) Cf. the following word.

ʔɛt', *in* 1;10.¹³⁸ Not as a preposition, but as an adverb. E 1;10 [buʃ ʔɛt'], *push in*; [wɔk ʔɛt'], [wɔk ʔɛt'], rendering "walk right in," the exciting part of a nursery game, when the finger enters the mouth. This use gives a clue for the very unusual form of the word; of course, [t] being a dental like [n], the substitution is not abnormal; but there is no other instance of it in her speech. Now [ʔɛ:t] had come in somewhat earlier 1;10 for "ätsch," an interjection with which I tried to shame her when she sucked her finger. The association with the finger in the mouth led to a blend of the two words, aided by the phonetic kinship of [n] and [t]. At the first recordings, this [ʔɛt'], [ʔɛt'] puzzled me; but by 1;11 I was certain of its meaning: she said [meʔ ʔau ʔɛt'], putting the cat in her little rocker; [ʔbuʃ ʔɛt'—ʒuʃ!], *push in—zul*, closing a drawer. In all these cases, "in" expressed a motion. But later in 1;11, it was apparently also used with a condition of rest, or result of motion: [dɪt ɛt'], *this (is) in*. The distinction between dynamic and static function of words can hardly be assumed to have been conscious at this stage. Still the fact that practically all examples

¹³⁶ Karla [hæ:pen] B 1;10. The [h] was so clear that a visiting friend asked her: "Are you Henglish?"

¹³⁷ Karla [ʔɛk] 1;9, much later than "Ei"; first for Easter eggs. Later also [ʔɛk]. Both "Ei" and "egg" remained active.

¹³⁸ Karla said [ɪn] correctly from the start, B 1;9.

correspond to a motion is noteworthy; nor is it surprising: the motion is more dramatic than the statement of a condition. The model is the English word; German "hinein," "'rein"¹³⁹ and "drin" would have resulted in different forms. The preposition "in" does not enter into the picture, because the prepositional stage had not been reached: 1;8 [wa? ne?], *walk? (in) Schnee?* 1;9 [bʊ, ne], *bums (in den) Schnee*; the preposition, with its pre-tonic position, had not crossed the threshold of perception. (It continued to be omitted 2;1: [ʔaɪ put maɪ hat maɪ hu], *I put my hat (in) my room*, but began to come in at the same time, still in the form [ʔetʃ], [ʔetʃ]: [pʊt ʔetʃ ʔho], *put in (the) holes*; the stress indicates that there was a gradual transition from "put in, holes" to "put in holes.")

- *ʔə? 0;8-1;6. A demonstrative interjection without model, slightly varying in meaning and form. The vowel moved between the limits of [a], low, and [ɪ], high, front vowels, from 0;8 to B 1;4, and eventually settled into the neutral vowel [ə], which was still somewhat fronted and raised, reminiscent of [ɪ]. The phonemic parts of the interjection were the initial glottal stop and the high-pitched voice, which usually characterized it as a question. The form might simply be called a voiced glottal stop with high pitch and varying buccal resonance. The unarticulated precursor of the interjection was a brief, sharp shout, which she uttered 0;8 to attract attention.¹⁴⁰ About a week later (0;8) it had taken on the more definite form [ʔa!], with very short vowel,¹⁴¹ and was used definitely with the intention of communication, but not yet with a clear meaning. At B 0;9 she addressed not only persons, but also distant objects and escaped toys¹⁴¹ with this sound. It continued for several months. At B 1;0 she called attention to any kind of music with a raised right index finger, serious absorbed facial expression, and the demonstrative sound [ʔɪ], very short. By the end of 1;0, [ʔa] had become less frequent, because [da] (short vowel), with pointing, had then become active and was preferred because it was more "grown up," more conventional. However, the old interjection was continued in reduplication for the more specific purpose of addressing dogs, [ʔa-ʔa] E 1;0; this form is listed as a separate word; double voiced glottal stop at that time

¹³⁹ Karla [jaɪn] 1;11.

¹⁴⁰ Karla 0;6. With her it did not develop into [ʔə], but disappeared soon.

¹⁴¹ Grégoire (p. 380) reports the use of [ʔa!] by a French child as a demonstrative, along with [ta] and other forms. Deville (v. 23, pp. 337f.) records an "eu sec" used by his daughter to attract attention and to express a desire for an object which she had dropped. In this case there were prototypes in the presentation, interjections with varying function, namely "euh" (probably [ø]) indicating disapproval (p. 341) and "eu, les lèvres fermées" indicating interdiction (v. 24, p. 12). The phonetic description is not clear; [ʔə] (or [ʔm]) may be meant in some of these instances.

also served another purpose (see [ʔaʔa], A-a). At B 1;3 she often expressed wishes of any kind by [ʔe] with falsetto voice and interrogative intonation, accompanied by pointing.¹⁴² Toward the end of the month, both [ʔə] and [da], with rising intonation clearly marking them as questions, were used to express requests: "May I have that?" But both occurred also as non-wishful signs of interest; she pointed to picture after picture on the wall, saying [ʔə] or [da] in a high-pitched voice. Both [ʔaʔ] and [ʔəʔ] are listed in a summary of her vocabulary at B 1;4 with the meaning "I want it." At 1;6 the demonstrative [ʔəʔ] still existed, but often also had the form [ʔeʔ]. Between that time and the end of the year it died out. At B 2;0 it is expressly recorded as extinct, requests for objects or permissions then being expressed by [dɪʔ], *this*, or a pleading glance without words. Among the successors of the "word," [de], *there* 1;5, *[jaʔ] 1;8, and *[hmʔ] 1;8 must also be listed. [ʔəʔ] is a border-line case as far as the definition of a "word" is concerned.

*ʔə, a 1;11. Very uncertain. M 1;11 [baba me(k)e baʊ(x)], *Papa make a Bau*; but [e] may have been a transition vowel. M 1;11 I asked her: "Was hat Mama dir erzählt?" She answered [ʔəloʊʔ], which was interpreted as "a story." But this may be a misinterpretation, and the word did not occur again. (At 2;1 the indefinite article did appear in the form [ʔə], but was even then rarely used.)

*ə, of 1;11. After the word "piece," which was learned B 1;11, the "of" was regularly omitted;¹⁴³ but along with [biʃ dok], *piece (of) toast*, [biʃ ə dok] was also heard. The [ə] may be called a transition vowel, but it was probably reinforced by the "of," or at least by the three-syllable character of the presentation. [ʔdɪkə ʔwɔlu], *drink of water* was first thought to be influenced in form by [ʔdɪkəbaʊkʔ], *dicken Bauch*, and the familiar expression may indeed have helped to induce the form (see [dɪk], *drink*). But the word [dɪk] was well established without an attribute by 1;10; semantic confusion is out of the question. The situation is similar to "piece of toast." The "of" remained incidental; [biʃtek], *piece (of) cake* was heard subsequent to these examples.

*ʔəʊχ, *huck!* 1;7. Once when she lost something out of her hand, she said this interjection with a roguish expression, with the same slightly rising intonation and falsetto voice as the German colloquial interjection used under the same circumstances. But I did not remember having used it before her, and it never occurred again.

¹⁴² Karla the same way much earlier, 0;11, but without pointing. [ʔə ʔə ʔə] was later a concomitant of impatient wishes, a self-expressive reflex sound which hardly deserves to be called a word.

¹⁴³ Same observation with Karla 1;8, 1;11. The unstressed "of" between two stressed words has in colloquial pronunciation not enough body to be noticed by a child at an early stage. Karla never used it during the first two years.

ʔəwe, *away* 1;6. Since the pretonic first syllable was frequently omitted in her pronunciation, the separation from [we] in expressions like "way up" is not easy to make. But because the two uses result from clearly distinct presentations, the words are treated separately, as in all other cases where homonyms resulted from different prototypes. She learned the word 1;6 with reference to her cousins Marion and Dodo, who were "way, far away" in Milwaukee, [mə-məʔ dɔ-dɔʔ we::], the [we::] with emphatic falling intonation. For days she would entertain us with this recital, underlining the notion of distance with a charming motion of the hand, her eyes having a serious distant expression. Once it was released by the keyword "Milwaukee," which she picked from a conversation she overheard. By 1;8 the favorite recital had the form [l'meme 'doi 'we::], *Marion—Joey—away*. At the same time the last word in the combination gave way to [waʊ], which must be traced to "Milwaukee" (see [waʊwi]), but by the test of intonation had the same meaning as "away." A contributory reason for the change was the fact that [weɪ], *away*, now assumed the more practical meaning of "put it away," a wish which she frequently uttered, because she had a well-developed sense of order at that stage: [bu weɪ], (*put the*) *Buch away*, the first word with rising, the second with falling intonation. Then the more perfect form [ʔəweɪ] appeared 1;8 side by side with [weɪ] with the meanings "put it away," "take it away," for instance "take your feet away." It now announced an intention in addition to a wish; once she said it when she was about to put her cart away. At 1;10 the common form was [we]; [a'we], [əwe] also occurred; [maɪ do we], *my (= I) go away*, [do we!], *go away*, [do we], (*the cat*) *goes away*. "Away" standing alone was [ʔəwe]; after vowels the omission of the unstressed first syllable is natural; it is hardly audible in the colloquial standard in such cases. At 1;11 [we] and [ʔəwe] were still both heard; [do ʔəwe], *go away* and *throw away*. (Even 2;1 [wo we], *throw away*.)

gaga, *cracker* 1;7. In the absence of a German equivalent for this American variety of biscuit, the English word was also used in German. At 1;6, when Carolyn (Dada) had given her a cracker, she showed it to me and said [dada]; that might have meant "cracker," but more likely it was a report, *Dada (gave it to me)*; for at that time [titi], *cookie* was used indiscriminately also for crackers. At 1;7 a distinctive word for cracker appeared, at first in varying form, [kʰakʰa], [gaga] and similar combinations.¹⁴⁴ At 1;10 [gaga] was

¹⁴⁴ [gaga], at first in competition with [gʊgʊ], *cookie*, then gradually winning out over it, was Karla's fixed term for anything to eat or to drink from 1;4. She said it constantly, since she was always anxious to eat and drink, in contrast to Hildegard, who never ate much. In the beginning (1;4) [gaga] was also used for cigarettes and matches, for which the later symbol was [Φ Φ Φ] = "hot."

recorded as the long-established form. E 1;10 [dik mik, gaga du], (*the cat*) *drinks milk, (eats) crackers too.*

gek, *cake* (1;6) 1;9. At B 1;6 she answered the question, "Was hast du im Mund?" with [keke], which was interpreted as "candy." But since the latter assumed the entirely different form [da-ɪ, [ga-ɪ] 1;10, it is more probable that it was the word "cake" in undifferentiated use. But it remained latent until 1;9, when it reemerged as [kik]. At 1;10 [keke] vied with [kuko], *Kuchen*, which was still heard in the second half of 1;11 as [duko]. But "cake" was much more frequent during 1;11, so that "Kuchen" was considered extinct by 2;0. The form was then rather consistently [gek]: [waʃ bek gek mama], (*I want to*) *watch Mama bake (a) cake.* When she had made a cake of sand in the sand-box, she used the stereotype formula, [naɪʃ gek], *nice cake.* Variant form only once, second half of 1;11: [biʃtek], *piece (of) cake.*¹⁴⁵ The German "Keks," which is the equivalent of American "cookie," was understood as early as B 1;2, but never used by her; nor did it cause a confusion between the meanings of "cake" and "cookie." It is therefore not likely that the two-syllable form [keke] 1;6, 1;10 was due to the influence of [kuko], *Kuchen*; it should be explained as reduplication.

ha:, *Haar* 1;10. She understood "Haar kämmen" at 1;0. She said [ha:] at 1;10.¹⁴⁶ At M 1;11 [ha:] was more frequent than [hea], *hair.* Both continued to be active.

hā, *Hand, hand* 1;11, singular and plural.¹⁴⁷ The English model was probably more powerful, but even the plural [e] in German could be represented by [a]. [mama waʃ hā], *mama washes (my) hands* or *Mama wäscht (mir die) Hände.* [hɔχ hā], (*ich hebe Papa*) *hoch (an der) Hand.* [hā] was rather frequent. Compare [hadʒu] > [haʊdʒu], *Handschuh.*

*haba, *hoppel* 1;11. This word belonged to very early presentations in German nursery rhymes, in the repeated forms "hopp" and "hoppe"; English "hop" was presented much less frequently. She learned to react to it 0;9¹⁴⁸ when she was in a door swing, the tips of her feet touching the ground, but soon made a hopping motion without fail in any position. She said it for the first time on a new mechanical horse, imitating my "hopp, hopp, hopp": [haba haba]. Unless the second [a] is explained by a sort of reduplication, the form fits better with "hoppe," which might have emerged from memory; but the first [a] agrees much better with the unrounded vowel of American "hop." Another explanation of the second

¹⁴⁵ Karla [ke] E 1;8, [kæ:] B 1;9, [kæ-k] M 1;9, [kek] 1;10.

¹⁴⁶ Karla [ha:] 1;8, with falling intonation.

¹⁴⁷ Karla [hæ:] 1;9, with faintly nasalized vowel; 1;10 [hæ-n], from English "hand."

¹⁴⁸ Karla began during the second half of 0;7.

vowel would be from rhythmical presentation of "hopp, hopp, hopp," with the second word less strongly stressed, plus addition of the fourth [a] to provide the customary vocalic termination; but as far as I was conscious of it, "hopp, hopp, hopp" was rather presented with level stress, likewise the English equivalent. Anyway, the word did not remain active.¹⁴⁹

hai, *high* 1;11. In the compound [ata], *high-chair*, the word occurred as early as 1;5. But alone it did not become active until the latter half of 1;11, in [we ʔapʰ hai], *way up high*, with which she paraphrased the rolling window-shade. German "hoch" had appeared a few days earlier, but the easier English word won out in the remaining week of the second year.¹⁵⁰

*hai, *outside* 1;9. [hai] in the meaning of "outside" is listed once, in the expression of a wish, [ʰdi ʰhai], *this (shall go) outside*. The first syllable is often unstressed, especially after a verb; its omission is natural.¹⁵¹ The word lost out against synonyms. [ʔaʊχ], *aus, out*, was used for "outside, draussen" once in 1;11, [barbai] from 1;10 regularly for "I want to go outside," the nursery form customarily presented to her; once 1;10 also in a case where the standard language would have "outside," in the static meaning of "draussen" instead of "hinaus," [barbai duko], *by-by dunkel* = "it is dark outside."

hai, *ride* 1;8. Preceded by *[ʃ] 1;0-6 for riding motions. Her mother frequently asked her, "Do you want a ride?" Once 1;8 in the house, putting her hands on her cart, she uttered the corresponding wish by saying [haihai]; it would be rash to call this form a noun, in spite of the model. From 1;10 the word became more frequent: [hai baba nik], (*I want to ride (on) papa's neck*). From then on the word functioned rather definitely as a verb. 1;11 [dai hai bai], (*I want the dolly (to) ride (in the) buggy*; [meʰʔa ʰai ʰmi], *Mary Alice rides me*, present in form, but past in function, delightedly reporting an experience. The last example shows transition to transitive use; but the pause and the intonation proved that the verb was still partly intransitive. (2;1 still [hai], initial [r] always being [h]. At 2;1 the same form also began to stand for "hide.")¹⁵²

haiʃ, *heiss* 1;5. "Hot" (see [hat]) was earlier, 1;4. Whispered [ha] changed 1;5 to whispered [hai], the first case of a replacement of a word by

¹⁴⁹ Karla said instead [ʔə ʔə ʔə], with a musical intonation high-low-high, for a few months from 1;4 on.

¹⁵⁰ Karla "up high," static and dynamic, 1;8.

¹⁵¹ But Karla E 1;10 [çæmbak hatai], (*the sandbox (is) outside*). In the meaning of "(I want to go) outside," [hataid] 1;11 replaced "by-by"; also [wa:k], (*I want to go for a walk*). 1;11 at first [hat'art] also for "Mahlzeit!" Then echoed [ma:lt'art]; soon and frequently spontaneous [moltart].

¹⁵² Karla [hai], *hide* 1;8. Hiding was her favorite game at that time. "Ride" was [wart] 1;10: [ʰwart ʰa:to], (*I want to ride (in an) auto*).

the equivalent from the other language.¹⁵³ She used it correctly for "hot" and "warm," once with an [s] sound, something like [harts], whispered.¹⁵⁴ But "hot" returned and remained predominant. At 1;7 she once said [harʃ] again, when I was up with her at night and she was in an especially good mood; when I hesitated with the interpretation, she pointed to the radiator. About a week later she said [harʃ], whispered, for a plate with ice-cream, in the meaning of "cold." At 1;8 [ha], *hot* was the usual word; but once she said distinctly [ʔarʃ] with reference to a hissing radiator; later in the month only occasionally [harʃ]. At 1;10 [harʃ] was still active. Its meaning was rather concrete. When I said with a sigh, referring to the weather, "Es ist heiss," she touched various parts of the picture on which I was working (probably framing it) to see whether they were hot. Later on in 1;10 and 1;11, only "hot" is recorded, in two instances; but "heiss" was not considered extinct at 2;0, although it was recessive.

hart', *light* 1;6, noun and adjective. She repeatedly asked for permission to operate the light-switch 1;6, saying [har] with rising intonation (question = wish). 1;7 [ar], without [h], but also without glottal stop, the [a] strikingly short so that a clear monosyllabic diphthong resulted. Once I showed her (1;8) a picture of a swimming-pool, pointing out the water, a man, a woman etc.; but she said [har] pointing to an electric lamp of unusual shape which attracted her attention. 1;8 [ar—me ar—me, mama], *light—mehr* *light—mehr*, *Mama*, an enumeration of lamps, pointing to them; the last lamp stood next to Mama's usual seat, so "Mama" was, as frequently, possessive (not an address). [ar ʔau], *light out* 1;8, the stereotype exclamation when switching off a light; although it was presented just as frequently in German, "Licht aus!", she said "light" only in English. 1;10 [hart], with the final consonant; it was usually a noun; once she used it as an adjective. 1;11 [hart'].

harta, *Hildegard* (German and English) B 1;11. She understood this name to refer to her from the end of 0;6, beyond doubt. By 0;8 she reacted to it even when she heard it in a spoken sentence, with no emphasis placed on it.¹⁵⁵ But she was very late in saying

¹⁵³ Karla also used [har] and [ha] 1;8, not whispered. She said [har] only to me, often as an echo of my "heiss." 1;9 [kapi har], (*der*) *Kaffee* (*ist*) *heiss*.

¹⁵⁴ Preyer (p. 123) also reports an accidental pronunciation "ha-its," based on "heiss," 1;2, at a time when [ts] could not be repeated consciously. The pronunciation is nothing but an unsuccessful fricative [s], the tongue being at first brought too close to the alveoles, forming a brief stop.

¹⁵⁵ Karla was much later in understanding her name. At M 0;8 she showed no such reaction. She called her sister experimentally [hida] and [dada] for a short time 1;1; [dadi] E 1;2; [deda], [dada] 1;3-4; varying forms 1;7-9: [dada], [jaja] etc., most commonly [deda]. She called herself "baby" when she saw her picture in a mirror—the general term for "child." At the very beginning of 1;9 she learned to say [ka-ka-], M 1;9 [ka:la], with velar [l].

her name. At 1;7, when she had already begun to use "I" and the possessive "my," she could not be induced to repeat her name. Instead she liked to point to herself when saying "baby," which had long been in use for all children and was not a name for herself. She said her name for the first time on June 4, 1932 (B 1;11): [bebi hɪta], *baby Hildegard*, with reference to her baby picture, with which the word "baby" had been associated since E 0;8. She answered the question, "What's your name?" with [hata]. Once a stranger asked her, "How old are you?" She answered [harta]—the answer was thus a semi-mechanical reaction. At M 1;11 she used her name [harta] not infrequently in imaginative games; but in real conversations she referred to herself only as [maɪ], *my*, which served also for "I." Any question containing the word "name" elicited the answer "Hildegard." For instance, "What is the kitty's name?" Answer: [harta]. She played hide and seek with the cat Dasch and asked, [daʃ, we harta?], *Dasch, where (is) Hildegard?*, imitating the question, "Wo ist Hildegard?" which I would ask when I played the game with her. She continued to use the name, [hata] and [harta], only in games, as an address to herself, in final position, never as the subject of a sentence, although we used it sometimes in that function instead of "you."¹⁵⁶ (At 2;0, however, she did use it in place of the first person pronoun: "good Hildegard"; "mama, bite (=slap) Hildegard, my (=I) (was) naughty." At 2;1 she learned her full name, [har(t)(a) hepot].) The form of the name is not quite easy to explain. The first form, [hɪta], seems more perfect than the later ones. [hata] must be due to assimilation; [harta] is either the result of a partial dissimilation or a blend with the standard vowel. There is a bare possibility that [aɪta], *high-chair*, since 1;5, had, by some queer association, an influence on the name.

haja, *Helen* 1;9, referring to a neighbor girl. At first she had no name for her. Then she called her [wiwi], *Rita*, which was the name of another neighbor, *Helen's friend*, without distinguishing the two in name. Finally she learned the special name [hara] for her, which soon (1;10) became fixed as [haja]. During that month we moved to another neighborhood, and there is no further record of the name. It must have become rare with the diminished contact, but was not thought extinct at 2;0.

**hakə*, *hacke* 1;11. Knocking two stones together she once repeated correctly, [hakə hakə], the words with which our friend Oino had accompanied the action.

**haʃ*, *Hase* 1;8. Once going to bed she said [haʃ be]. We guessed re-

¹⁵⁶ Karla referred to herself by her name quite frequently from E 1;10. During 2;3, when she already used "my," "her" etc., correctly, she still frequently said "Karla" instead of "I," although "I" was also in her active vocabulary. Sentences like "Karla eat my meat" were not unusual.

peatedly at the meaning without satisfying her, until we understood: "(Der) Hase (soll zu) Bett." "Hase" is easier to say than the American equivalent "rabbit." Neither "rabbit" nor "bunny" was ever attempted, and "Hase" was used only this once for an Easter rabbit, a toy.¹⁵⁷ She probably called it otherwise "Wau-wau" or "dolly."

hat, *hot* 1;4. At M 1;4 she understood "hot" and would point to the radiator. A little later she said whispered [ha] with reference to a radiator, her face showing the expression of caution. She also said [ha], in an excited whisper, B 1;5, for the flame of a match. From 1;5 on, "hot" had to compete with "heiss" (see [harʃ]), which temporarily displaced it (1;5); but eventually "hot" remained more frequent, although both words continued to the end of the period. From 1;6-1;8 "heiss" occurred only very occasionally, [ha] being her regular word, whispered until 1;7, with voice from 1;8. The final consonant did not appear until 1;11, [du hat], *too hot*, although the competitor "heiss" showed the final consonant regularly from 1;7, tentatively even at 1;5.¹⁵⁸

hat', *hat* 1;6. B 1;6 in the unusual form [h:], which might also come from "Hut." From 1;8 definitely English, the form being consistently [ha] until 1;11; once the word is recorded as [ha], but I am inclined to discount this variant, because the difference between front [a] and back [ɑ] was not easy to make out. Only once during 1;11 was the final consonant heard, with the word at the end of the utterance, [mama nu hat'], *Mama's new hat*. After that the word occurred again in medial position without [t], [bu ha ʔä], *put hat on*. (At 2;1 [hat] was regular.) In all examples recorded except the last, "hat" was accompanied either by "this" or by an indication of its owner corresponding to a standard genitive or possessive.¹⁵⁹

haudʒu, *Handschuh* 1;10. She understood "Handschuh" at 1;5, but her word was [mi], *mitten* 1;5-1;10 (2;1). At 1;10 she once repeated "Handschuhe" as [hadʒu], with reference to gardening-gloves; cf. Hand > [hā] 1;11 and Schuh, shoe > [ʒu] 1;9. By 1;11 "mitten" had been completely displaced by [haudʒu], the [u] of which was due to assimilation to the second syllable. In the meantime the word had become merged with [ha(u)tu] 1;10 > [haudʒu] 1;11

¹⁵⁷ Karla did not say "Hase" nor "rabbit," but tried "bunny" 1;8. Usually the term "baby," which regularly served for dolls, embraced cotton bunnies as well.

¹⁵⁸ Karla paid attention to everything hot, but used the interjection [ʔ ʔ ʔ], uttered with a serious, apprehensive expression, to call attention to it from 1;4 on: cigarettes, coffee-pot, electric hot-plate etc. Hildegard had no word for "cigarette" in the first two years, although I smoked just as much at that time. Karla first called cigarettes [gaga] or [wawo] 1;4. Karla said [ha] 1;8, without a preceding whispered stage; also [har], *heiss*.

¹⁵⁹ Karla [hæ] 1;8, [hæt] 1;10.

meaning "Taschentuch, Serviette"; at 1;11 the three meanings were associated with one form. (At 2;1 she even translated "mittens" in the favorite story of the three little kittens into [haʊdʒu], the rhyme being destroyed anyway by the replacement of "little kittens" by [mɪ'au]. But the older word soon reappeared as [mɪtʃ].)

haʊdʒu, *Taschentuch* 1;10. The word appeared ephemerally as *[dadi] 1;7, but then remained latent until 1;10, when it emerged as [hatu], [haʊtu] in the meanings of "handkerchief" and "napkin." She used both objects for similar purposes; their functional difference had not become clear to her. The form [hatu] seems to correspond closely to "Handtuch," and there is no semantic difficulty; all three were for her probably nothing but pieces of cloth used for indiscriminate wiping. But "towel" became active at the same time as [daʊl] 1;10 > [daʊ] 1;11. [hatu] might represent the first part of "handkerchief" and the second of "Taschentuch." The [ʊ] of the variant [haʊtu] is the result of assimilation to the second syllable. At 1;11 the word merged with [haʊdʒu], *Handschuh*, this one form meaning "glove," "handkerchief," and "napkin." It is unlikely that [dʒ] represents the [tʃ] of "handkerchief," although it is phonetically possible. The form changed mechanically into complete agreement with the similar [haʊdʒu]. [haʊdʒu wɔ da] ([da] with short vowel), *Taschentuch (has) fall(en) down*. [maɪ hu, haʊdʒuʔ], (*Shall I go to my room (and get a) handkerchief?*)

haʊχ, *soap* 1;10. A difficult word. At first experimental wavering between [ok] and [oka], then settled into [ok].¹⁶⁰ She seemed to be vaguely conscious of the imperfect character of her form. At 1;11 she started experimenting again, [ʔok], [haʊχ], [hoχ], often [ʔokʰ]. Soon [haʊχ] was the common form. Although this form does not represent a single sound of the model correctly, there is no doubt that it comes from "soap." There is one other instance of [s-] turning into [h] ("outside"); in general, words beginning with [s] and [z] were rarely attempted; the most common substitution was [j]. The vowel was better in the beginning, [o], but there is supporting evidence for its dissimilation into [aʊ], [aʊ] ("blow"). The final [k], [kʰ] would seem to be a representation of [p] retaining its manner of articulation (stop) but changing its place of articulation (bilabial) because of assimilation to the velar vowel. For the later substitution of [χ], the manner of articulation of the [f] in "Seife" was thought of as a model. But it can be explained without resorting to the assumption of an interference of the Ger-

¹⁶⁰ I heard something like [ok] also from Karla 1;8. But when I tried to check up on the pronunciation she did not say it again. At 1;10 she said [çop].

man word, either as a further approximation to the preceding vowel, or as a mechanical excrescence of the final [ʊ] (as also in [baʊχ], *blow*), for which there is ample evidence; the final consonant would then be unrepresented. For the early two-syllable [oka], the dissyllabic German "Seife" might again be considered as a rhythmical prototype; but on account of its instability, it is perhaps better to regard it as an experimental failure, although as such it hardly has a parallel.

haʊʃ, *Haus*, *house* 1;8. The form did not change, except for the [a], which varied to [ɑ]. That might indicate a difference between the German and the English model. However, it is better not to press this point, because this vowel-difference was not phonemic in Hildegard's speech and because American English does not use the Southern British front [a], but almost the same variety of vowel as the German. The word was first used for houses she built with blocks, then for houses in pictures (1;8), finally (1;11) for real houses. B 1;9 the word was still noted as rare; [mama, mɪ! baʊ(χ), haʊʃ!] *Mama*, (*komm*) *mill* (*Get my blocks. I want to bau(en)*, *Haus*; immediately after, [bɪ baʊ(χ)], *big Bau*. 1;11 [wiwi haʊʃ], *Rita's house*, actually an apartment; this semi-abstract function, "place of residence," is occasionally used in the colloquial standard; [haʊʃ], (*come into the*) *house*; [bi(ə) haʊʃ] (*I want to spiel(en)*) *Haus*, with blocks.¹⁶¹

he, *häng(en)* 1;11. [baba diʃ he ʔap], *Papa dies häng up* = "hang this up." [mama he ʔap dadi!], *Mama hängt up stockings* (on the wash-line). One would think, on account of the combination with English "up," that English "hang" was the model. But the phonology excludes this possibility; [æ] + nasal never became [e], whereas [ɛ] is not infrequently represented by [e]. The "up" is then a translation of German "auf," with which it was competing at that time.

hea, *hair* 1;11, less frequent than [ha:], *Haar*.¹⁶²

hi, *hier*, *here* 1;9. [no mama dadi, hi mama dadi], (*this is*) *no(t) Mama's stocking, here (is) Mama's stocking*. She also used the word when handing things over: [ʰhi (baba), *hier*, *Papa*. In the first example, "here" corresponds in function to "this" 1;8; in the second, to "da" 1;0. How closely the word resembled "this" in function is demonstrated by the fact that in the verse "This is the church," after having rendered "this" correctly, she varied it with "here": [hi zuʃ], *here (is the) church*.¹⁶³

*hm?, *hm?* 1;8. This interrogative term was probably presented in Eng-

¹⁶¹ Karla [haʊ] 1;9, with vague reference; 1;11 improved in meaning, not in form.

¹⁶² Karla [he] 1;9, [heɪ] 1;10, [he] 1;11.

¹⁶³ Karla 1;11 [hiə], [hi] and [hi], also in two functions: [hiə, bani], *here, Bonnie*, meaning "come here"; [hiə, fa:ti], *here, Vati* (handing me something).

lish as well as in German. Only during 1;8 it was frequently used as an appeal for corroboration, "Shall I?", "May I?"¹⁶⁴ Previously "ja?" had been very common in the same function. "Ja" was then gradually narrowed down to its assenting function, the interrogative element being isolated from it and connected with the word [hm]. Later, after her vocabulary had grown, she combined instead the interrogative intonation with the verb or noun which indicated the idea more specifically. Often she answered the question [hm?] immediately herself with "ja" or "nein."

*hɔ, *hol(en)* 1;11. Once [baba hɔ mauʃ], *Papa, hol (die) Maus*, a toy which had fallen over the fence.

hɔ, *home* (adverb) 1;11. In the second half of the month in the meaning of "home" implying direction (= "nach Hause"): [me 'ʔa 'it', hɔ], *Mary Alice (must) eat, (she went) home*; [me 'ʔa hɔ, it'], *Mary Alice (went) home (to) eat*.¹⁶⁵ (At 2;0 also "home" in the static function, corresponding to "at home," where however in the colloquial standard the preposition is omitted: "nobody home, no.")

*hɔχ, *hoch* 1;11. She learned to understand the word early as an imperative to raise her arms in order to facilitate undressing, alternating with "up." At 1;8 I tried to make her put a shoe-horn, which she had placed on the lower shelf of a stand, in the right place higher up. My directions "ganz oben," "höher" were not understood; I tried "hoch"; but then she held up both arms, which showed that "hoch" was for her not an adverb, but a verb in the imperative, at least from the view-point of standard grammar; actually the psychological conditions of child language are probably much simpler: "hoch" was simply a stimulus which induced a fixed reaction. She did not use the word 1;10 when she wanted to convey the idea, "The poplar is very tall," which could in German be rendered by "sehr hoch." She said instead "way up," which is in the colloquial standard a static as well as a dynamic adverb, but not a predicative adjective, as which it would have to be analyzed in this instance if the analysis of standard grammar were applicable. Finally 1;11 [hɔχ] became active and was used rather frequently, especially in [hɔχ hā], (*ich hebe Papa*) *hoch (an der) Hand*, when she thought she was helping me to get up by holding my hand. Thus the word was then no longer restricted to the specific function of the early understanding, but it still functioned rather as a verb or adverb than an adjective. It did not remain active. English "high" came in a few days later.

¹⁶⁴ Karla [hm?], in high pitch, about 1;5-B 1;8, frequently for "may I have it?", but rather as an urgent wish than a modest request. At E 1;11 she used [hm'hm:] at the end of statements as an emphatic affirmation of their correctness, the second syllable with a striking high-low intonation.

¹⁶⁵ Karla [hom] E 1;9: [hom, mama], (*let us go*) *home (to) mama*.

hoti, *holley* (horsey) 1;10. The early interjections [ʔəʔ] and [ʔaʔa] were used primarily for dogs, but also for several kinds of other animals; horses may have been among them. At 1;3, when [ʔaʔa] changed to [wuwuwu] (see [wauwau]), she used this new form preferably for her soft slippers, which reminded her of her soft toy dog; but she also greeted two bronze horses, book-ends, with the same sound combination, however with falsetto voice. At 1;6 she still called horses [wauwau], although she understood the word "Pferd," which she never tried to say up to 2;0. When she heard a horse in the street, she called attention to it in the house with [wauwau]. At 1;10 she heard the child-word "hottey" and quickly took it up, [hoti].¹⁶⁶ 1;11 [hoti da], *holley da* = "there is a horse," correctly transferred from a toy horse to a real one. In comparing Hildegard's record with earlier ones, one must remember that real horses were by this time a rare phenomenon in city life, although they were for that reason all the more interesting.

hu, *room* 1;11, first in "my room." Form consistently the same until 2;1. ʔiə, *ear* 1;8. [ʔɛ:] 1;8. [waʃ ʔiə], *wash ear* 1;11. "Ohr" was not used.¹⁶⁷ ʔitʰ, *eat* 1;10. The earliest symbol for food and eating was [ʔm:] 1;0, which remained active. 1;8 [wau ʔm], (*die Frau isst*, in a picture. At 1;8, when I asked, "Was tut das Baby, der Hund?" with reference to pictures in which they were eating or drinking, she smacked her lips. The specific verb [ʔitʰ] came in at 1;10.¹⁶⁸ [papa ʔa tu itʰʔ], *papa, (are you) all through eat(ing)?* 1;11. The form remained stable. (The exaggerated aspiration was reduced 2;1: [maɪ it tu maʃ], *my eat (= I ate) too much.*) No German equivalent in her speech.

ja, *ja* (0;9-11) 1;3. As soon as the first fricatives appeared (B 0;9), she was observed to study a toy and say to herself [dja] (short vowel, as all vowels were at that stage), with a thoughtful, serious tone. In the first half of the eleventh month (0;10) she often said [jæ],¹⁶⁹ which might come from "ja" or from "yes" and is not regular for either. Probably these were not words, but accidental babbling combinations. No other instance is recorded until E 0;11, when she often said playfully [jajajaja]. Then there is a long gap until 1;3, when nodding her head was noted as a new acquisition, more

¹⁶⁶ Karla likewise 1;10, for her wooden riding-horse on a metal spring, which Hildegard had received on her second birthday; spontaneously also for the first real horse she saw after that. Since she saw horses so rarely, it is surprising that she used the same term. Modern city children cannot be expected to have live horses in mind when toy horses are called by that name. But pictures of horses may be their bridge for identification.

¹⁶⁷ Karla understood "Ohr" and "ear" 1;7, but did not say either of them by E 1;8. [i:] 1;10.

¹⁶⁸ Karla 1;8. She also learned [ʔɛtʃ], *essen* 1;10, and used it for English-speaking persons as well as for me. She frequently called me for lunch or dinner: [ʔa:ti, ʔɛtʃ], 1;10-11.

¹⁶⁹ Not observed with Karla.

as a game than a gesture of affirmation, but occasionally accompanied by [i'a].¹⁷⁰ It remained active thereafter. When she learned "thank you" 1;3, she accompanied it with nodding also, both expressions being of interest to her as symbols of a permission extended and a wish fulfilled. At B 1;4 [ja], with short vowel, is listed, together with "thank you," "danke," as an active, but more or less mechanical word, without clear meaning. About a week later [je] occurred as echo of "yes," with slight semantic value, [ja] continuing concurrently. At B 1;5 she reacted to "Sag ja" and "Say yes" by saying [jajaaja], again always in fourfold repetition, for which she had no model in the presentation. Two days later, simple or double [ja] is listed as an innovation. Later 1;5 the word was not yet used as an affirmative answer; the question, "Schmeckt das gut?" for instance, was left without an answer, although she reacted to "Wie schmeckt das?" with a gesture which showed that the verb was understood. Finally B 1;6 [ja:], with rising intonation, was used with meaning and in very clear pronunciation, the fricative being articulated emphatically. At 1;6 she felt like playing with the toy of a visiting baby, but did not know whether she would be allowed to do so; she said [bebi] = "that belongs to the baby"; she then answered her own doubts with [ja], with rising intonation and accompanied by nodding, but felt relieved when I gave her specific permission. The negative was at that time still used only mechanically.¹⁷¹ At B 1;7 [ja] was very frequent, generally without variation in form. But once I heard an emphatic [he'a], spoken laughingly in the joy of being understood; this variation was accidental; it can be explained by an insufficient raising of the front part of the tongue; I have often heard the same variation in the careless pronunciation of adults in Hamburg. Once (1;7) a playful variant with back [a] was heard. Even at 1;8, "ja" was not always used for an affirmative answer; being asked, "Willst du nun zu Bett?," she answered [be], *Bett* instead of "ja," a form of affirmation which is not common in standard German and English, but is well known in other languages.¹⁷² Very often, however, she used it as

¹⁷⁰ Decroly (p. 199) lists as precursors of the affirmative words, 1. the execution of a command (Deville 1;4); 2. nodding (Deville 1;5); 3. the repetition of the command. Hildegard was rather early in using "ja."

¹⁷¹ Jespersen, *Language*, p. 136, states that "no" is usually learned earlier than "yes." Hildegard used "ja" mechanically as early as 0;9 and again 1;3, yes 1;4, with meaning 1;6; "ja" became meaningful a little earlier than "no," "nein." Karla said "no" and "nein" occasionally from about 1;6 and 1;4 respectively; "yes" and "ja" did not appear until B 1;9, [je] and [ja:], and then only upon request. At 1;11, [je] was much rarer than [ja:] and [ja], which she used very frequently as an affirmative answer to a question and to suggest consent to a wish of hers, although she had few German words otherwise.

¹⁷² At 1;10, Karla used the same form for affirmative answers, the earlier "ja" (and "yes") having completely disappeared.

a question to ask permission, "Shall I . . . ?," "May I . . . ?" At 1;8 [hm?] was introduced for the latter purpose, and "ja" began to be narrowed down to the function of assent. In agreement with that the intonation changed to a falling one; the vowel was often long. Frequently she answered the question [hm?] herself with [ja] or [naɪn]. But interrogative "ja" continued to occur for a while: [wa? ne? ja?], *walk? (Im) Schnee? Ja?* Any question was answered by either "ja" or "nein," but often without any regard to the real facts. She even answered questions which she did not understand. Thus the reaction was in part mechanical; she knew a question had to be answered either affirmatively or negatively, but did not feel the responsibility of giving correct information. At the same time as [hm?] she learned [ʔaɪaɪ], *all right* (see [ʔa'waɪ]) as a means of expressing consent. She first used it as an answer to "ja?," when the latter was still a question asking permission, later very frequently in place of "ja." But at 1;9 the novelty of that term had worn off; it became much less frequent; [ja], with short vowel, was again the simple affirmative, and [ʔaɪaɪ] was used when she gave herself a permission. "Ja" continued in full sway through 1;11; "yes" did not become active. "Ja" is easier, and it is not infrequently used in colloquial American English ("ya").

jabak, *sandbox* 1;10.¹⁷³ At the same time that "box" reached the form [bak], the compound [ja'bak] came in. She did not say "sand" alone, but used at 1;11 [jabak] also for "sand," even for sand in her pockets or her shoes. Clinging to the form of the word, one might interpret this use as meaning, "This comes from the sandbox"; but more likely the sand was for her the important element of the sandbox, and the "box" part of the word became semantically submerged in her consciousness. The word was very frequent, representing as it did a major interest of hers (2;1 unchanged). The first [a] would be better authenticated if it came from German "Sand"; but it also agrees with English "sand" if we assume that the nasalization ([æ̃n]>[ā]) was dropped in this case on account of the two-syllable form of the word, just as it was in German words of the same type ([ʌn]>[ā], but in dissyllables [a]).

jaɪ, *lie* 1;11. As full verb (standard infinitive): [jaɪ baba betʃ], (*I want to lie (in) papa's Bett*); as imperative: [baba jaɪ da], *papa, lie down*; frequent in both functions, also as declaration of intention, "I am going to. . ."¹⁷⁴

¹⁷³ Karla said [ba], *box* for "sandbox" 1;8 and continued to use this simple form for months. But E 1;9 she also developed the form [çæ:n] for "sand"; 1;10 [çæmba(k)] for "sandbox."

¹⁷⁴ Karla B 1;1 [laɪ daʊŋ], B 1;4 assimilated into [da(ɪ) daʊ(n)], later again [l]. She addressed this command only to herself or to a doll.

jai, *slide* 1;11. [da jai da:ʔ] (first [da] short), (*May I*) *da slide down?*, twice, pointing to the stair-railing, an adventurous suggestion of unknown inspiration; she was used to sliding down garden slides for children.

jai, *write* 1;11.¹⁷⁵ The German model "schreiben" is ruled out as improbable; [ʃR-] does not occur otherwise; [-b-] is always [b], never dropped; final [p] is absent only in one other instance ten months earlier, so that the imperative "schreib" is not a convincing model either. Three words appeared in the form [jai] at the same time, with no fear of the homonymy. (A fourth one was added 2;1: "like," verb,¹⁷⁶ a fifth in a compound: [jaiwɔ:k], *sidewalk* 2;0.)¹⁷⁷

*jakə, *klappert* 1;11. An uncertain word, observed only once in [dɪ jakə dʒu], interpreted as "this klappert zu," the "zu" with a question mark because of the semantic difficulty; situation not recorded.

jaʃut, *sun-suit* (pronounced [sansut]) E 1;11, for a play-suit going under this name,¹⁷⁸ but also for my bathing-suit, which was indeed not very different from it. (A year later she still said "sun-suit" for any bathing-suit.) (2;0 reported to me as [jatjat], but probably unchanged in form.) "Sun," "suit," and "bathing-suit" did not become active, although "bathe" was in her vocabulary.

*je, *yes* 1;4. The combination [jeje], with short vowels, was heard B 0;9 in babbling; it might be based on "yes," since [dja] occurred at the same time; but in spite of that fact, it is more cautious to explain it as an accidental babbling combination and an exercise in fricatives, which were new at that time; it certainly had no meaning. The same holds for the frequent [jæ] 0;10. At 1;4 she would repeat "yes" as [je]. But the word never became really active; "ja" (1;3-2;0) held the field alone.¹⁷⁹

jojo, *hello* 1;5. In calling to somebody, the German "hallo!" may have reinforced the word; but she probably did not hear it often. At the telephone she always heard "hello" from her mother, never from me; I answered by giving my name (that was important for teaching her the family name, which she gave in connection with

¹⁷⁵ Karla [ʃai], also variant [ʔai] E 1;8. The representation of initial [r] by a labial is surprising, but was clearly observed. E 1;11 [wait].

¹⁷⁶ Karla [waik] 1;10, e.g. [ˈwaik ˈbɔdɔ], (*I*) *like butter*.

¹⁷⁷ Just one example of how little the observation of non-phoneticians can be trusted: her mother reported this form to me, when I was in New York, as something like [sardrɔk]. The observation of laymen is vitiated by the influence of the standard equivalent, not to speak of the interference of standard spelling, which in English may cause serious distortions. Many laymen, for instance, do not realize that the "w" of "write" is silent in their own pronunciation. Karla [ˈʃaɪd ˈwɔ:k], *sidewalk* 1;11.

¹⁷⁸ Karla [ʃaɪtʊt] B 1;11.

¹⁷⁹ Karla acquired the affirmative much later, B 1;9, [je] (short vowel) and [ja:], only upon request. She too found "ja" much easier than "yes"; she had no [s] nor a substitute for it at that time.

her first name, [hai(t)(a) hepot], in German pronunciation, from 2;1.¹⁸⁰ The first form of "hello" was indistinct,¹⁸¹ about [ʔəɫɔ]; it became definitely that B 1;6, the [l] being strongly velar, that is, English. At B 1;7 the elevation of the back tongue was again emphasized in the record: [ʔəɫɔ baba], *hello, papa*. At 1;8 [əɫɔ], always with velar [l], was associated with the telephone; she would shout it into a real or a toy telephone, together with names like "papa," "Dodo." Strangely enough, the [l] became very imperfect at 1;9, although she had a much better [l] in [balu], *bottle*. [ʔəɫɔ] served not only for speaking into the telephone, but was also transferred to the instrument itself. At 1;10 she greeted the neighbor with [əɫɔ, mɔ], *hello, man*. Toward the end of the month the form changed to [jo] ([jo, kaʃ], *hello, Katz*), also [jojo]; the reduplicated form became the regular one. At E 1;11 she introduced an elaborate, original telephone conversation with "hello." (At 2;0, interpreting a scribble representing a letter to me, she had "hello" among the words of the letter.)

jokʹ, *Loch* 1;10 is treated under the variant [lokʹ].

*joke, *Löscher* 1;11 is treated under the variant *[loko].

*ju, *Zunge* 1;11 is treated under the variant *[du].

*juʃ, *lutsch(t)* 1;10, recorded once, probably referring to a doll sucking its finger in her imagination. "Suck" was never tried; "sucks" as prototype for [juʃ] is improbable on account of the vowel; the addition of an inflectional ending would also be very doubtful. (At 2;1 [juʃ] stood for "use," verb.)

*kχ, an interjection referring to something tasting bad; recorded twice, with very emphatic pronunciation, at 1;7, when she had no [k] in her sound system, and again at 1;10; on the second occasion the [χ] is described as post-palatal. There was no model for the interjection in standard presentation. It must be a reflex.¹⁸² Antonym: [ʔm:].

*kɔ, *call* 1;11. First half of 1;11: [mama dɔ, miəʔaʊ], *mama calls (the) meow (cat)*; second half: [mama kɔ meʔa], *(her) mama calls Mary Alice*. Two days before: [da] and [dɔ].¹⁸³

¹⁸⁰ Karla said [ʔa ɔ] 1;10 for "hello," reproducing only the stressed syllable; [hɔʔ] 1;11. [ʔaɪn], *fine* was a stereotype item of her telephone conversations; she did not know that this word was an answer to inquiries about the speaker's health. She said her name 1;10 as [ka:la (h)apo].

¹⁸¹ Same observation with Karla 1;9; spontaneously, at a toy telephone, she said [nɔʊ], *hello*, followed by [ʔaɪn].

¹⁸² [kχ], with post-palatal articulation intermediate between [ç] and [χ], was much more frequent with Karla from E 1;1 on; for instance, she said it without fail every time I offered her a grape; E 1;8 clearly [kç]. Wundt³ v. 1, p. 290 gives "kch" among the "emotional sounds" of the second half of the second year.

¹⁸³ Karla [ko], [go] M 1;11.

- *koko, *cocoa* 1;8. In the second half of 1;8 she pronounced her first [k], unaspirated, the first velar stop. In the following days she said "cocoa" correctly. It did not remain active. She never used the German equivalent.
- *"quak, quak!", a conventional German representation of the sound which ducks make. She tried to repeat it E 1;1 when she saw ducks in the Hammer Park in Hamburg. It did not occur again. "Duck" became active 1;6.
- *lɪlɪlɪ, *klingelingeling* 1;5, approximate form, the [l] imperfect. Used a short while for a hand-bell.¹⁸⁴ "Bell" came in 1;11.
- *lɔːɪʃ, *story* 1;11. Very uncertain. "Was hat Mama dir erzählt?"—Answer: [ʔəɔːɪʃ]. This was understood as "a story," but that may be a wrong interpretation induced by the expected answer. The form [lɔːɪʃ] would be quite irregular for "story."
- lok', *Loch* 1;10. From the last week of 1;10 infrequently used, [lok'] and [jok'].¹⁸⁵ (After my stay in New York, "Loch" was found to be displaced by [ho], *hole*, 2;1.)
- *loko, *Löscher* 1;11. My cradle-type hand-blotter was a favorite toy of hers. Once when she had not played with it for more than six weeks, nor heard its name, she referred to it as [loko] and [jokɛ].
- ʔm: B 1;0, an interjection referring to food and eating, expressing a wish for it. At B 1;0 she always greeted food with [m:].¹⁸⁶ [mam:ɔ] (0;9) in its early stage (0;10–1;1) was also associated with food, but [m:] was much more frequently and definitely used for it. When she was impatient, the form was varied to [mɛmɛmɛmɛ], by the family interpreted as "mehr, mehr, mehr," and [mjəm-jəmjam], which is the same form with the diphthong changed from falling to rising, combined with a modification in vowel quality.¹⁸⁷ (At 4;11 [(m)jəmjam] recurred and continued in later years, in the meaning of "tastes good," also as an adjective of the same meaning: "It's too myummy"; but at that time it was learned from other children as a child word.) At E 1;0 "tastes good" and hunger were indicated by [ʔm:]; in the former meaning it was also combined with tapping her chest, a gesture which she had been taught. This gesture makes the assumption of a spontaneous origin of the interjection questionable; it was probably

¹⁸⁴ Karla used [bibɪ] instead 1;8 when riding on a tricycle.

¹⁸⁵ Karla [dɔk] 1;0.

¹⁸⁶ Karla B 0;11 or earlier, but not for long with any degree of frequency. However, it was still listed as alive, B 1;4.

¹⁸⁷ [mjəmjam] was ephemeral. For Karla, however, it was the regular sign for "I want to eat" from M 0;11 on; later also [njəmjam], [namnam]. She still used [mjəmjam] for "I want to eat" at the end of the second year and later, but only because the adults retained this nursery word. She also said "eat" in the same meaning. For "tastes good" she often said [gut'], *good* 1;10 instead of the infantile [ʔm:].

conventionalized and learned by imitation.¹⁸⁸ At E 1;1 the differentiation of the two meanings by the omission or addition of the gesture was continued. At 1;4 [m:] voicing the desire to eat is recorded with falling intonation. At 1;5 food was still [ʔm:]. As a reply to the question, "Wie schmeckt das?" she used the gesture of tapping her chest, silently. At 1;8, when we were looking at pictures of eating, the questions, "Was tut das Baby, der Hund?" were answered by a smacking of the lips. At the end of the month, [ʔm] was used as a verb, divested of its wish content, but not of its interest, in the same situation: {waʊ ʔm}, (*die*) *Frau isst*. The stage was set for the replacement of the interjection by a real verb; "eat" appeared 1;10. ([ʔm:] was thought extinct; but at 2;0 it was found to be still active in the sense of "tastes good.") Antonym: *[kχ].

ma, *come on* 1;10. E 1;10 [mɔ, meʔau], *come on, Miau*, [mɔ, baba], *come on, papa*. 1;11 [ma baba, ʔauχ], *come on, papa, (steh) auf!* (2;1 [mā]). It displaced "mit" (1;8-1;10). The presentation was with a vowel intermediate between [ɔ] and [a], about [ɐ]. Hildegard's form shows clearly that she felt the imperative and the adverb as a unit; she dropped the first syllable, like most pretonic syllables.¹⁸⁹

*ma, *Mack* 1;7, the name of a neighbor family in the apartment, did not become very active.

ma, *Mann, man* 1;5. At E 1;2 [baba] was used for any man in the street as well as for "papa" and "mama."¹⁹⁰ By E 1;3 this misuse (from the standard point of view) was corrected. At 1;5 she said [mā] rarely when looking at pictures and only then. About four days later (1;5) the form was [ma], and it was then used also for women in pictures. From that time on the unnasalized vowel became more frequent, but occasionally the nasalization representing the final [n] recurred (even in 2;1). At 1;6 the absence of nasalization is emphasized in the record; but the vowel was definitely [a] leaning toward [ɔ], the only back [a] in her speech at that stage, which points to the German model. Six days later [ma] is again

¹⁸⁸ [m] sounds are associated with food in the child language of different nations. Some examples in the literature (Wundt³, v. 1, p. 294; Compayré, p. 300 f.; Preyer, p. 232; C. Franke, p. 749), without phonetic transcription: Darwin "mum," Taine "ham," Heinicke "mum" (German), Fritz Schulze "mäm-mäm," Preyer "mömm" ("mimi" traced to "Milch"); cf. Compayré "nana." I doubt the correctness of the explanations given by these scholars for the origin of the symbol. Mrs. Fenton's explanation (p. 119) is only slightly less fantastic.

¹⁸⁹ Karla 1;9 said [kam] and [kamɪ], *coming*, without functional differentiation; the differentiation began slowly at 1;11; also [kam], [kamɪ].

¹⁹⁰ Karla as early as M 0;11, at first only for "papa," then a short time also for strange men, soon restricted to "papa." She had no word for "man" even as late as 1;9. At 1;11 she said [mæn].

listed with front [a], which goes back to the English word. It was at that stage spontaneously transferred to real men. Later 1;6 [mā] was again nasalized. 1;7 [ma:] for "Hampelmann." A woman in a picture was again called [mā], but she also repeated [ʔau], *Frau* for the first time. Immediately after, she again said [ma] and corrected herself, [ʔau]. [ma:] continued to be used for her Hampelmann, but also for a Weihnachtsmann (toy); upon the question, "Wo ist der Hampelmann?" she got her Weihnachtsmann. Obviously only the last syllable was clear in her consciousness in spite of its secondary stress; the two syllables preceding it were not understood and dimly considered identical. 1;8 [ma ʃ] = "die Frau schläft," in a picture; [ma] persistently remained the first reaction to the picture of a woman, corrected into [wa], later [wau], only upon insistent disapproval; and the corrected term was used only for women in magazine pictures. At 1;10 she used "Mann" as an address to the neighbor, [əlb, ma], *hello, Mann*, which was linguistically normal, although socially objectionable. At 1;11 the psychological and articulatory path from "Mann" to "Frau," which had so often been used, was reflected in the compound [mawau], *man-Frau*, which she repeatedly used for "woman." (At 2;1 still [mā] for "woman.")

maɪ, *mine* 1;6. 1 I give "mine" as the etymon because she happened to learn the word first from this presentation. But "my" and "mein," the latter with its varying grammatical endings, cannot be disregarded as models; nor is it feasible to separate the adjective from the pronoun because the German adjective "mein" has the same form as the English pronoun "mine." She probably did not develop, during the second year, a consciousness of the distinction in form which the word has in English and German in its two functions. At 1;6 she surprised us by saying [maɪ] repeatedly, pressing an object to herself with an emphatic asseveration of possession. We soon found out that the maid Carolyn played a game with her to see who could first seize some object, triumphantly shouting "mine," as good a method as could have been devised to teach her the possessive idea and word.¹⁹¹ The reaction was purely mechanical at first. Two weeks later (B 1;7) Hildegard also used the word as an adjective, but only in the beloved teasing game, [maɪ ba], *mein Ball*, [maɪ 'dadi], *my stocking*, the latter still with double main stress. About four days later, the adjective "my" was occasionally varied to [mam], [maɪnə], at the same time that "nein" acquired a final [n]; that was German influence; I had taken up the game in German. At 1;8 she liked to play with

¹⁹¹ Karla learned [maɪ] the same way E 1;8 from me; model: "meins." She used "my" and "mine" 1;11, the latter also as adjective: [mam toʊn], *my stone*. This was either a misuse of "mine" or influence of "mein."

a doll which the neighbor child June had lent her. At first she called it [maɪ daɪ], *my dolly*, where [maɪ] was nothing but an emotive. After repeated explanations that the doll belonged to June, she changed the designation to [du daɪ], *June's dolly*, the possessive idea gaining in clarity. In the second half of 1;8, [maɪ] had lost its earlier wish content and become quietly objective; it was used in connection with the names of various objects. Once she called her toy duck (otherwise [da]) metaphorically [maɪ ʔauto], *my Auto*. She liked to make statements of ownership for other persons as well. The association of "my" with the teasing game had disappeared. At 1;9 she made dispassionate statements like [dɪʔ maɪ], *this (is) mine*, namely her dress, [maɪ] now being a pronoun again from the standard point of view, but with no difference in form. 1;10 [dɪ bukʰ maɪ], *this Buch (is) mine*; [dɪ maɪ bu], *this (is) my spoon*; [dada ha, dɪ maɪ], (*this is Dada's hat, this (one is) mine*; [maɪ zu baʃ], *my shoe-brush*, or rather, *brush my shoe*; [ʰbaba ɪbakə, ʰmaɪ ɪbukə], *papa's pocket*,¹⁹² *my pocket*; [maɪ wɪ], *my feet*. 1;11 [maɪ hu], *my room*; [maɪ nɪk], *my neck*; [ʰmaɪ ɪmaɪ], *my money*; [dɪtə ʰmaɪ], both words with falling intonation, *this is mine*. The final [n] had been completely given up in all words by 1;10. At M 1;11 [maɪn:], with syllabic [n], was spoken once, but that was an isolated occurrence. There is not a single instance of mistaken reference of the sort that is frequently found in children's speech in the case of "shifters" (as Jespersen calls words which refer to different persons in different situations.)¹⁹³ She always used it for herself, even immediately after another speaker had used it for himself; the teasing game helped there. Once 1;11 she played with my desk calendar and said [maɪ]; I answered, "meins"; she at once took up this form, [maɪʃ]; thus the game went back and forth for some time; on other occasions she repeated this procedure, always indicating by her roguish expression that she meant it as a game; [maɪʃ] was also ephemeral. Hildegard never used her name in the genitive instead of "my." 2) The story of [maɪ] has another important chapter. From 1;10 she used it also for "I," partly replacing [ʔaɪ] (1;5-2;1), at first in detached position, very soon also as the subject of sentences. One of the earliest examples was [maɪ wewe], which sounds like "mein Wehweh," but functioned rather like "I (have a) Wehweh." This instance illustrates the probable origin of this meaning. 1;10 [maɪ we ʔap], *I wake up*; [maɪ do we],

¹⁹² Karla, like Hildegard, began 1;8 to put a possessive genitive before nouns: [ʰmama ɪmen], *mama's pencil*. There was at first a long pause between the two words, but they were clearly combined into one group by a strikingly lower pitch of the second word, as in the presentation, "That is mama's pencil," with a stress on the genitive expressing ownership.

¹⁹³ *Language*, p. 123. Karla had considerable difficulty with shifters like "you."

I go away. [ʔaɪ] had almost disappeared; even upon a question in the intonation which had first induced the answer "I" 1;5, she now generally answered "my." 1;11 [maɪ wəʊ (wə) da], *my fall down* often for "I fell down." "My" for "I" was very common, although "I" did not become entirely inactive. 3) At 1;11 "my" also came in for "me," which had itself become definitely active just before. There was a strange case with "my" after the noun, [mama wit' bet' maɪ], *mama fix(es) Bett my*, where "my" was perhaps not a possessive, but expressed some such idea as "for me." Later in the month she said [wi maɪ], *feed my* = "me"; since [mi] was by that time frequent, this was at first taken for a slip of the tongue; but [wi maɪ] became frequent and was supported by other instances like [mama diʃ maɪ], *mama kiss(es) my* = "kissed me."¹⁹⁴ She never used her name instead of the first person pronoun during the first two years; I strictly avoided this nursery usage, but her mother was less consistent. (At 2;0 there was an instance of "Hildegard" for "me," coupled with "my" for "I": "Mama (should) bite (=spank) Hildegard, my (am) naughty"; but such cases remained extremely rare. "My" continued 2;1 in the functions of "my," "I," and "me.")

maɪ, *money* 1;11: [ˈmaɪ maɪ], *my money*—no fear of homonymy.¹⁹⁵

mama, *Mama, mama* B 1;3. (Presentation identical in both languages.)

To the end of 0;8 she never produced this sound combination even approximately.¹⁹⁶ The first accidental [mamama], without meaning, was observed E 0;9. All during 0;10 [mama], also [mama(ma)], occurred often without definite meaning. Her mother referred it of course to herself; but I observed it repeatedly only when Hildegard saw her food; it was uttered also without any reference while she was playing, once in the combination [mama papa], which was meaningless, in spite of what fond parents might think. At E 0;10 [mamama], frequently uttered, could not yet be linked to a meaning. At B 0;11 she understood "papa,"¹⁹⁷ although she said [baba] very rarely and only by accident; but "mama" was

¹⁹⁴ Jespersen, *Language*, p. 124, explains "my" for "me" as "a kind of blending of *me* and *I*" (he includes examples also for "my" used in place of "I"). This explanation is unconvincing in Hildegard's case. She recognized in "my" not only the possessive but also the first person singular idea and transferred the latter, as in many other instances, to uses not countenanced by the standard language. I have thought of the possibility of tracing the form [maɪ] for "I" to standard "am I," but see in this model at best a contributory influence. Karla used "my" neither for "I" nor for "me."

¹⁹⁶ Karla [maːi] 1;7, [maːni] E 1;9.

¹⁹⁷ Nor did Karla until M 0;8, although she already produced sounds like [u], [w], [gega]; second half 0;9 [mæ(mæ)] and [ma(ma)] without meaning. Wundt³ (v. 1, p. 295) describes "ma-ma" 0;7 as "the ordinary concomitant of the natural crying motions;" he refutes (p. 352) the claim that "ma" is the earliest and most frequent "sound." With Hildegard, [ba], [pa] and [da] were indeed much more frequent.

¹⁹⁸ Same observation with Karla, second half of 0;9.

not identified although she continued to say [mama]. Finally at E 0;11, "mama" was also understood.¹⁹⁸ But she kept on saying [bababa], [mam:a] and [mama(m)] playfully without meaning 1;0; at best the latter had a reference to food, for which however [m:] and its variants became now more frequent, the variant [mjamjamjam] being strongly reminiscent of [mamama] and [mam:a]. At E 1;0 she said "papa" with meaning, but "mama" was still passive. At 1;1 "mama" was not yet said with clear meaning although she had learned to say "Opa" and the names of several objects. At the end of the month she could not be made to say "mama" consciously, although she tried, even when I attempted to develop it out of the familiar [m:] for food; she would start correctly with closed lips, but then [papa] always came out. At 1;2 [mamama] for food had entirely been displaced by [ʔm:], but acquired no new meaning. At E 1;2 [baba] served among its other meanings also for "mama,"¹⁹⁹ although she had no difficulty in distinguishing the two words acoustically. We spoke distinctly for her [m::, m:a]; she repeated [m:] or [baba]; only once [m:a] came out, but repetition could not be achieved. Finally, on the third day of 1;3, she learned from her mother to say "mama."²⁰⁰ When I asked her for the first time, "Ruf Mama," she first said [maba]. But then she did exercises: [m:a, m:am] etc. Finally, she exuberantly repeated again and again with strong emphasis the detached monosyllables [ma ma ma . . .]. But the word was not yet used spontaneously or as a dissyllable.²⁰¹ By M 1;3 "mama" was firmly established; she also called "mama" longingly in her mother's absence.²⁰² By the end of the month it was clearly a dissyllable, with the stress always on the first syllable as in the German and English presentation; it was used only for her mother. Variants like [bama] and [maba] were still heard B 1;4; they may have been phonetic variants of the bilabial, or they may still have been blends with "papa." At 1;6 names were also

¹⁹⁸ Karla also E 0;11. Pavlovitch (§24) at 0;4!

¹⁹⁹ Not observed with Karla. — [baba] might also be considered a phonetic representation of "mama": [m] and [b] are both labials.

²⁰⁰ Karla B 1;1, regularly M 1;2, [mama] or [mama].

²⁰¹ Our experience is thus strongly at variance with the frequent assertion that [ma] is one of the first sounds of the baby (cf. for instance Trombetti, *Elementi di glottologia*, Bologna, 1923, p. 231, who gives Kretschmer as an authority; also quoted with approval by G. Royen, *Die nominalen Klassifikationssysteme in den Sprachen der Erde*, Vienna-Mödling, p. 785), certainly semantically, but even phonetically, with regard to babbling combinations. Cf. Wundt³ I, pp. 351–354. The little boy of friends of ours in Hamburg also said "Papa" earlier than "Mama." In P. Schäfer's tabulation concerning the first meaningful word, *Zeitschrift für pädagogische Psychologie* 22 (1921), p. 319, "papa" appears frequently, "mama" rarely.

²⁰² Karla, who also learned [baba] earlier than [mama], used [baba] in my absence as early as 0;11. Von Taube (Preyer, p. 264) E 1;1.

used to indicate ownership.²⁰³ When she said [mama] with reference to mama's shoes or to the lamp standing next to mama's usual chair, the word was in the genitive (possessive) from the point of view of the standard language. But actually the reference must have been much more loose. At 1;8 [mama ʒi], *mama's shoe* was perhaps functionally analyzed more conventionally. A phonetic form for this relationship came in toward the end of 1;10: [mamaʃ], but only for the two names "mama" and "papa" and only to indicate possession. She never used her own name in this way; the "shifter" "my" was the sole conveyor of the idea. When "mama" had become a dissyllable, it was striking that she imitated a doll's "mama" in a very different form (1;8): "What does your dolly say?" Answer, [ma! ma!], very emphatically. 1;11 [mama kɔ me!ʔa], (*Mary Alice's*) *mama calls Mary Alice*: the first use of "mama" as a "shifter," for another person's mother. The German and the English model are too similar to be separated. "Mother" and "Mutter" did not become active in the first two years, nor did "Mami," "mammy" or other forms of endearment;²⁰⁴ none of these was used before her with any frequency, if ever. (2;1 [memi], *mammy*, in the story of the three little kittens.)

maʃ, *much* 1;9, sometimes with a prothetic [i] before [ʃ]. 1;9 [ma(i)ʃ], (*too*) *much*, with reference to food. Later the "too" was expressed: 1;10 [tu maʃ], 1;11 [du maʃ]. (2;1 [maʃ it tu maʃ].)

maʊʃ, *Maus*, *mouse* 1;7. At first in the form [mæʔ]. At 1;8 the diphthong was represented by [a], the final consonant by [ʃ]: [maʃ]. 1;10 [!mki !maʃ], *Mickey-mouse*. 1;11 [maʊʃ]. The reference was always to toys or to imaginary mice in nursery games. I do not believe in any influence of the plural form "mice," "Mäuse"; she must have heard the plural very rarely if at all.

maʊʃ, *mouth* 1;10. She understood the direction, "Wipe your mouth" B 1;4, and the German equivalent, "Mund abwischen," even earlier. She did not learn to say "Mund." She said [maʊʃ] in the second half of 1;10. Once she articulated [maʊf], with a faint off-glide [ç]. That is to say, all fricatives except [χ] and [s] were tried in unsuccessful attempts to imitate [θ].²⁰⁵

me!ʔa, *Mary Alice* 1;11, the name of her dearest friend, four years old. In the first half of the month the form was [meə !ʔa]. The [ə] looks like the result of the [r]; but intervocalic [r] ought to be unrepresented in her speech, and the glottal stop was not used in

²⁰³ Karla thus 1;4, for several months as a stop-gap for missing specific terms for objects; 1;8 with the name of the object added: [!mama !men], *mama's pencil*.

²⁰⁴ Karla said [mami] often and with the joy of achievement from the second day of 1;7; she learned it from Hildegard—the first word traceable to the influence of her older sister.

²⁰⁵ Karla [ma:] 1;10.

the presentation; I pronounced the name in the orthodox English fashion also, without glottal stop. The form should rather be explained as being influenced by the contemporary [meə¹ʔaʊ], *miau*, which itself probably contained a child etymology, namely an association with the word "mehr" (see [meə] and [mi¹ʔaʊ]). The [ə] disappeared very soon, M 1;11 [me¹ʔa], also [me¹ʔa]. [me¹ʔa] became regular in the second half of the month, although [me¹ʔaʊ] was also heard occasionally; conceivably this was only a slip of the tongue, but it corroborates the theory of a formal association between "Mary Alice" and "miau." Compare: [mama dɔ, miə¹ʔaʊ], *mama calls (the) meow* B 1;11; [mama kɔ me¹ʔa], (*her*) *mama calls Mary Alice* E 1;11.

meə, *mehr* 1;5. The early unstandard symbol for food, [meəmeəmeə] 1;0, alternating with [mjamjamjam], should not be associated with "mehr," although the family jokingly did so. But M 1;5 she repeated "mehr" as [me:]²⁰⁶ and also reacted to the stimulus, "Say 'more'," with [me:], both words having been understood and identified earlier. At E 1;5 "mehr" had taken the nearly standard form [mea]; my final [ɐ] has the North German colloquial form between [ə] and [a]; [meɐ] was specifically recorded at 1;8. She also said "more" as [mɔ] E 1;5, but only on demand and ephemerally. At 1;6 the first meaning, "more to eat," was extended to cover the adjective in "the other ball" and similar cases, an extension which is perfectly normal, but does not happen to be used in the standard language. In the attributive use the form was [me] or [me:][:|me¹ʔaʔa], *mehr A-a*, [lme¹ba], *mehr Ball* = "einen anderen Ball"; there was a pause between the words and level stress; but the pause soon became shorter and thus the attributive character of "mehr" emerged more clearly. A more uncommon use of "mehr" was [aɪ — me aɪ — me, mama] 1;8, pointing at different lamps ("light") in succession and connecting the last one with "Mama" as the owner. Otherwise the distinction between isolated [meə] and attributive [me] was carried out with a fair degree of consistency; it reflected a distinction in duration if not in quality observable in the presentation; 1;9 [me meə] (second [e] short), *mehr milk* (or *mehr, mehr?*). But there were instances in which the distribution of forms did not correspond to this functional distinction; the word was felt as one and the same: [meə bebi], *mehr Baby* 1;8, statement of fact while studying pictures, "noch ein Baby." "Say 'no more'" she regularly answered with [no me] E 1;8. "More" did not really become active in her speech. Toward the end of the period [meə] was a

²⁰⁶ Karla, after sporadic previous attempts, said [me] as echo B 1;7; her active word was "more." [mɔ:, me] B 1;9 ([di, du], *chair, Stuhl* at the same time). 1;11 [me] again rare. [mɔ] frequent.

real adverb: [baba meə beʃʔ], *Papa mehr bathe?* = "Do you want to bathe more?" [mama ʃ meə], self-corrected into [mama meə ʃ], *mama (wants to) sleep mehr*; this correction looks like a switch from English to German word-order, but the first utterance might also have stood for "Mama schläft mehr," if grammatical analysis of the thought was attempted at all. (At 2;1, after my prolonged absence, "mehr" was the only German word which had survived in active use.)

mek, *make* 1;11. First instance: [məʔau mek ʔaʔa], *Miau makes A-a*. Later: [baba me(k)e bau(χ)], *Papa make (a) Bau* = "papa has built something with blocks." The verb was still rarely used. (At 2;0, when verbs became more frequent, "make" was in the earliest list.)

meme, *Marion* B 1;4; the name of a much older cousin in Milwaukee. Hildegard learned to call her [meme] on the occasion of one of Marion's visits to Evanston.²⁰⁷ At the end of the month, when Hildegard was herself in Milwaukee, she said the name again in the same form. At E 1;5, again in Milwaukee, she said the names of her two favorite cousins continually while riding in a car, expressing expectation in their absence; the name "Marion" now took the form [meme], which won out by 1;8 and has clung to the girl in family parlance until this day. After her return to Evanston she often said the two names with an interrogative intonation, especially during walks, [mæmiʔ dɔdɔʔ] 1;6. For months her favorite conversation was [mɛ-mɛʔ dɔ-dɔʔ—we::], *Marion? Dodo? (Far) away!* 1;6. At 1;7 the form [meme], with open vowel, is recorded for the last time. [meme] continued to be said together with "Dodo" and often "Joey," the name of their younger brother; the weeks of separation no longer caused interruptions in the use of the name. The curious raising of the vowel to [e] is not unique. (At 2;1 she rendered "mammy," [mæmi], by [memi] in the story of the three little kittens; there was probably no association with the name [meme].)²⁰⁸

**meɪʔɔino*, *Leona* 1;11; the name of a visiting young lady, very imperfectly imitated with distorting child etymology, "mehr Oino," the second part being her designation of adult male friends of the family. Interference of the form for "miau," which was also associated with "mehr," is possible. The child etymology was probably semantic as well as formal, the idea of "mehr Oino" being something like "another adult visitor"; [ʔɔino] was occasionally also used for women visitors. After the departure of the house guest the name fell into disuse, adult friends having a less lasting interest for her than children or half-grown girls like her cousins.

²⁰⁷ Her own form. No similar nickname had been used by the family previously.

²⁰⁸ Although Karla learned "Dodo" 1;6, she did not acquire "Marion" until 1;8, [meme].

(At 2;0, during another visit of the same friend, the name took a more correct form, [l] being rendered as [j]; exact form not available on account of my absence from Evanston, about [ji'ona].)

mi, me *1;4, 1;11. The maid taught her to say [mi:] at 1;4; she said it while playing by herself, but only as a mechanical exercise; the word had no meaning for her. Naturally enough it had disappeared by 1;5. It became active again six months later (1;11), infrequently,²⁰⁹ but now in its correct grammatical function: [dak, bait', mi], *duck bites me*; "Catch the meow," answer: [bait' mi]. Soon more freely with other verbs: [baba, buʃ mi], *papa, push me* (on the tricycle); [mei'a ʔaɪ, mi], *Mary Alice rides me* (narration referring to a past event); [l'daʃ 'mi], *dress me*. Stress and pause in these examples indicate that the grammatical function had not yet become completely standard. [mi'ʔau ʔa wet mi], *Miau all wet me* = "the cat made me all wet (by licking)" shows this very clearly. [baba ʔā miʔ], *papa, (will you put this) on (for) me?* must be similar; "on me" was not yet the idea. A little later than "me," the word "my" was also used in the same function: "feed my"; at first I took it for a slip of the tongue because "me" was well established. But other instances soon occurred, and later "my" became frequent. ("Me" and "my" continued side by side 2;1. "Me" occurred often in the accusative with infinitive construction: "watch me string beads"; "you watch me open (the) sandbox.")

*mi, mitten 1;5-10. At 1;5 she said [mi:],²¹⁰ but also understood "Handschuh"; "glove" was not used by the adults for her mittens. The form was recorded as [mi:] 1;6; [ʔa: mi], *other mitten*. "Mitten," [mi:], was homonymous at B 1;6 with "Milch, milk," at 1;8 with "mit." At 1;10 she once echoed [hadʒu], but [mi] was still regular. By 1;11 [mi] had disappeared; [haudʒu] had taken its place. (At 2;1 "mittens" in the story of the three little kittens was at first translated into [haudʒu], but then reacquired as [mɪtiʃ].)

*mia, measles 1;10; for a short time during an epidemic: [da mia], *Jack (has the) measles*.²¹¹ (At 2;1 [mia] meant "finger," derived, on account of the second syllable, rather from German "Finger"; the form is less irregular than it seems: [-ŋ-] remains unrepresented, and the voiceless buccal labial continuant [f] is replaced by the voiced nasal labial continuant [m].)²¹²

²⁰⁹ Karla said "me" occasionally 1;8. The meaning was not clear, but somehow she seemed to indicate by it that she wanted attention, to be carried, etc.

²¹⁰ Karla started with [mi:], B 1;7; also [mi:].

²¹¹ Karla refused to be taught this word B 1;8, when Hildegard had the measles. She obstinately called her sister's trouble [bum], *bums*, the interjection associated with falling. Nor did she learn it a little later (1;8), when she had the measles herself.

²¹² Wundt³ v. 1, p. 289 reports the same form "Mia" for "Finger" for a girl before 1;7; Preyer's boy (p. 153) had "Wiër" at 2;0. Karla 1;10 [Φɪŋə].

mi^lʔaʊ, *miau*, *meow* 1;8. She indicated the mewing of a cat by [mi^lʔaʊ] 1;8 as a reaction to a German ("Katze") or an English question ("kitten"); the onomatopoea was of course secondary, *i.e.* it had been presented to her in this form and did not result from her own observation of the animal's sound.²¹³ A little later it was recorded in the same function as [mi^laʊ], which amounts to the same thing in a little finer transcription. But from the last day of 1;8 on she gave it the less standard form [me^lʔaʊ]. Since on its first occurrence it referred to a cat which she saw repeatedly jump up on an outside window ledge, this form was thought to contain a child etymology, "mehr auf." The difficulty in this explanation is that "auf" was used until 1;11 only in the sense of "aufmachen," "open," the English "up" serving regularly for "hinauf" since 1;4. But I have found no better explanation, and an explanation is necessary, not so much for the vowel of the pretonic syllable, but for the surprising glottal stop in the middle. Support for the interpretation of the first syllable came at 1;10: once she said [meə, me^lʔaʊ], just as she would often say "mehr" twice when asking for more of something she liked. By this time [me^lʔaʊ] was also the designation for a cat (not only a reproduction of a cat's mewing), at once also applied to our own cat, which we got at that time; the call "kitty" was used only as an echo. At 1;11 [me^lʔaʊ] was the designation of the cat, [daʃ], *Katz* was the call addressed to it, and [mi^lʔaʊ] the imitation of its voice; [me^lʔaʊ ʔap baʊ], *Miau up Baum*="the cat climbed up the tree"; [me^lʔaʊ ʔetʃ], *Miau in*, putting the cat in her little rocking-chair; [mama dɔ, mi^lʔaʊ], *mama calls (the) meow*, etc. Later, when [daʃ] had developed into the name of the cat, [me^lʔaʊ] was also used to call it, "kitty" remaining a sporadic echo-word in spite of frequent presentation. [me^lʔaʊ] and the simplified [me^lʔaʊ] (once [məʔaʊ]) alternated, but in the second half of 1;11 the improved form [mi^lʔaʊ], still with the glottal stop, became regular; [mi^laʊ] without glottal stop was not recorded after the first days of the month. (2;1 [mi^laʊ] was regularly substituted for "kittens" in the story of the three little kittens: [wi mi^laʊ]="three little kittens"; [ʃu ʔnoʔi mi^laʊ]="You naughty kittens.") Compare [daʃ], *Katz*; *[drti], *kitty*; *[miti], *Miezi*. For blendings with other words, see [meə], *mehr*, [me^lʔa], *Mary Alice*, *[me^lʔɔɪno], *Leona*.
mɪk, *milk*, *Milch* 1;6. At B 1;6 [mɪ·] stood for this word as well as for "mitten."²¹⁴ 1;7 [mɪə]; the [ə] may represent either the German palatal or the English velar [ɫ]. Later 1;7 always [mɪ], frequent.

²¹³ Karla learned the word in the same manner at 1;5, but in a less perfect form of the vowels; [mi^laʊ] 1;9.

²¹⁴ Karla the same 1;7; both words also [mi]. "Milk" was in Karla's speech [mɛək] 1;9, [mɪək] B 1;10; [ʔmɪək ʔmæn], *milkman*, also for "mailman"!

1;9 [me meə] (second [é] short), *mehr Milch*, unless it really meant "mehr, mehr"; "mehr" in final position had a different form from "mehr" as adjective. 1;10 [mɪk balu], *milk bottle*, once also for a bottle with white tooth-powder; [dɪk mɪk], (*the cat*) *drinks milk*. 1;11 [mɪk].

*¹miki ¹maɪʃ, *Mickey mouse* 1;10, a figure from a popular moving-picture cartoon, used in numerous toys; in that form she first became acquainted with it in Germany, about 1;0. The word "Maus," "mouse," which she heard also independently, was active 1;7. "Mickey mouse" is recorded only once 1;10 as [¹miki ¹maɪʃ], also with [-t-]. [maɪʃ] was also the form of "Maus" at 1;8; the level stress shows that she recognized the identity of the second element of the compound. The presentation was the same in English and German.²¹⁵

mit', *meat* 1;10. The word appeared at once with the final consonant, as did "eat" at the same time.²¹⁶ At first (1;10), the [t] was strongly aspirated, with the exaggeration typical of the first final consonants; the aspiration sometimes even took the form of a homorganic fricative, [ç]. The aspiration was reduced by 1;11. Once she said [ʔotəmit], *oatmeal*, a blend with "meat."

*mit', (*komm*) *mit* 1;8-10. The preposition "mit" did not occur in the first two years. Her "mit" always stood for "komm mit" and should be interpreted as the phonetic equivalent of it, the pre-tonic syllable remaining unrepresented, just as in [ma], *come on*. At 1;8 the form was [mɪ'], 1;9 [mɪ], 1;10 [mɪt']. It was always accompanied by the name of the person addressed 1;8-9; the name usually preceded, sometimes followed it. At first (1;8) both words separately were given an interrogative intonation, which at that time was regular for requests: [mama? mɪ'ʔ], [mɪ'? baba?]. It was replaced 1;9 by an exclamatory tone. At 1;9 she added an explanation to the summons to accompany her, like [mama, mɪ! ʔɔɪɔɪ, wauwau], *Mama, komm mit! (Der) Onkel (hat mir einen) Wauwau (mitgebracht)*. At 1;8 the form resembled that of "Milch," "milk"; but the [ɪ] of "mit" was somewhat longer and lower, tending toward [e]. Shortly after the form [mɪt'] had been reached 1;10, the German word was completely replaced by the English "come on," [mɔ], later [ma]. Both "kommen" and "come" remained below the threshold.

*miti, *Miezi* 1;11. As a name for the cat she often joyfully repeated this word, which a German-speaking friend said for her, but she did not use it spontaneously.

?m'm, the idiomatic American colloquial negative, phonetically very in-

²¹⁵ Karla learned "Mickey mouse" 1;8 and used it more frequently. At 1;9 she volunteered it when she heard an excited conversation about a real mouse.

²¹⁶ Karla [mi'] B 1;7.

teresting because its only distinctive element is the second glottal stop (the first is very frequently replaced by [h] or voiceless [m], and vowels of many shades can take the place of the [m] in both syllables),²¹⁷ became active at 1;6 along with [nɔ:], *no*, and occasional [nar-nar], *nein*, *nein*. It is recorded only once, but was not considered extinct at 2;0.

*mɔ, *more* 1;6, on demand, alongside [mea], *mehr*. Only the German word became really active²¹⁸ and remained so in very frequent use throughout the period in which English was predominant.

mu:, *muh!*, *moo* *1;2, 1;7. On the return trip to America, she was interested in cows which she saw from the train between Hamburg and Kuxhaven. At first she greeted them with the double falsetto sound which she used for dogs and secondarily for other animals (see *[ʔaʔa]). But soon she learned [mu:] and used it every time she saw cows. Then the term was forgotten. At B 1;7 she again repeated [mu:] when it was presented to her. It was not until 1;9 that she indicated various animal voices on request, [mu:] again being recorded as new.²¹⁹

*na:, *banana*, *Banane* 1;11, once.²²⁰

na, *now* 1;8. Occasionally 1;8 [naʊ dɪt] for the maid's "now this." 1;9 [na dɪ].

*naxt, *Nacht* 1;11: [naxt, baba], (*gute*) *Nacht*, *Papa*. Not a noun, but an interjectional greeting, the pretonic "gute" remaining unrepresented; rarely instead of the regular "night."²²¹

*nar, *nein* 1;6-9. She understood the warning "Nein, nein" E 0;11²²² and always obeyed it. At 1;3 she shook her head when she heard "nein," just as she nodded for "ja." But this gesture was only a reaction to a linguistic stimulus; it was not used spontaneously to express negation. At E 1;3 she would still resort to crying or ill-humored squeaking to indicate her unwillingness. At 1;4 the condition was the same; she also shook her head upon the request, "Say 'no'," but not spontaneously; the reaction was still mechanical. Finally at B 1;6 the word became vocal at the same time as the English equivalent. Her mother told her not to do something; when Hildegard did not obey, her mother asked reprov-

²¹⁷ Cf. the crude popular attempt to spell this sub-standard word: "uh-uh."

²¹⁸ Karla said [mɔ:], with a muffled neutral vowel, frequently B 1;7, and only rarely [me], echoing me. At 1;8 [mɔ:], still with a strangely muffled vowel, was active, usually for "more to eat" or "more of this game," [me] being frequent only as an echo. B 1;9 [mɔ:, me] used together. 1;11 [mo], echo [me].

²¹⁹ Karla learned several animal voices 1;5, "moo" among them, while looking at picture books.

²²⁰ Karla [næ-na], *banana* B 1;10, often.

²²¹ Karla said [t'a], (*guten*) *Tag* instead, 1;8 or even 1;7. "By-by" also served the same purpose.

²²² Karla at the same time.

ingly, "What did mama tell you?" She answered, "No, no." Continuing the lesson, the mother asked the rhetorical question, "Don't you know what 'no, no' means?" Hildegard, not familiar with rhetorical style, took it for a real question and answered, [ɲar-ɲar]—the first instance of conscious translation. But later during 1;6, "nein" and "no" were still characterized as not really active; they were used only in answer to a real or imaginary question like "What did mama say?" or "May you do that?" to indicate refusal of permission; her own objections were still symbolized by crying. Still later 1;6, "no" became meaningful,²²³ but the German equivalent was almost forgotten; once she echoed it roguishly as [nar-nar]. At 1;7 it occurred only when she quoted me, as answer to the question, "What did papa say?," [namar]; occasionally she echoed my "nein" even with the final consonant, [nam]. At 1;8 "nein" was used with meaning, especially when she questioned herself whether she should or might do something; the question was then [hm?], the answer either [ja] or [nam], the latter often with clearly and consciously articulated final [n]. At 1;9 [nar], as a playful alternative of the ordinary [no], was used as a negation addressed indifferently to her mother or her father. Thereafter "nein" yielded completely to "no."

*narʃ, *knife* 1;11, only one day, with substitution of the familiar fricative for an unfamiliar one; variant: [narʃʃ].

narʃ, *nice* 1;10. At 1;11 [narʃ gek], *nice cake*, was her stereotype remark when she had made a sand cake.²²⁴

nartʰ, *night* 1;5, only in the "good night" wish, the pretonic "good" remaining unexpressed. First presented to her in the nursery form "night-night"; consequently Hildegard's form was reduplicated 1;5-10, with the strikingly falling intonation of the presentation. At 1;5 she answered even the German "gute Nacht" with [ɲarnar], whispered or voiced.²²⁵ The [n] still had the imperfect form [ŋ] at B 1;6. 1;7 [namar mama], the name being closely connected with the greeting by intonation. At 1;10 simple [nartʰ] with a name appeared occasionally for the usual [namar], which always lacked the final consonant. At 1;11 [namar] was no longer heard; [nartʰ] was the regular greeting, the German [naχt] being occasionally addressed to me.²²⁶

²²³ Karla 1;4 [na], 1;5 [næ:], roguishly refusing to obey; no trace of the affirmative at that time. A month later "no" gained the upper hand. 1;8 [nar(nar)] only as an echo of her father; 1;9 [nam], imitated. E 1;10 sometimes spontaneously, but much less frequently than "no."

²²⁴ Karla 1;11 [nar mæn], *nice man*. E 1;11 [nar(t)].

²²⁵ Karla [tʰa], (*guten*) *Tag* or "by-by" instead, 1;7-8. At 1;9 also "night" as echo.

²²⁶ Karla used "Nacht" occasionally from 1;5 in a mutilated form, about [naχ]. English "night" remained inactive for months afterwards, although she used less German words than Hildegard. At 1;10 [nart] was regular, [nak] rare (echo).

**nak*, *knock* 1;11, recorded once: [bi(ə) haʊʃ, nak daʊ] ("corrected" into [da]), (*I want to*) *spiel(en) Haus* (with building-blocks), (*then*) *knock (it) down*.

naʃ, *nass* 1;8. At B 1;8 she once noticed that my overcoat was wet and stated the fact excitedly, [na]. Shortly after, "wet" became active as [wɛ], [we], and "nass" was no longer heard. But at the end of the month [naʃ] occurred again rarely instead of the common [wɛ], *wet* or [ʔaʊ wɛ], *all wet*. At 1;10 [naʃ] was not infrequent; once [ʔa naʃ], *all nass*. At 1;11 when I was sprinkling the garden she stated [dɪ, naʃ], *this (is) nass*, although [wɛʔ] was more frequent; a neighbor child who knew no German misunderstood and asked, "What is nice?" (When I returned from New York 2;1, I found the word entirely displaced by "wet.")²²⁷

nat, *not* 1;11; the standard American pronunciation is [nat]. The first occurrence was in [no, nat da:], *no, (it is) not da*. After that she used [no, nat] as a reinforced negative. In the second half of 1;11 she consciously practised the contrast between affirmative and negative statements: [miʔaʊ 'da: — miʔaʊ 'nat' da:], (*the*) *Miau (is) da — (the) Miau (is) not da*. For other negatives see [na], [no], and [dot]; "nicht" did not occur; "no" (1;6) was also used with the force of "not" at 1;9.

**nat-nat*, *natt-natt!* B 1;6, secondary German onomatopoea for the sound ducks make. For a short time she used it to refer to her toy duck, instead of the usual [da], *duck* (see [dak]).

**ne:*, *Schnee* 1;6-9. Fascinated by the new experience of snow, she learned to repeat the word [ne:] 1;6; but in the afternoon of the same day she also learned [no:], *snow* from the maid.²²⁸ I once (1;8) showed her the last empty pages of a picture book and said, "weiss." After a moment of reflection she said [neʔ no:], *Schnee? No!* I had half expected such a reaction, because I had previously used the adjective only in connection with snow. 1;8 [bɪʔ ne], (*a*) *big (piece of) Schnee*; immediately after, "Schnee" was again displaced by "snow," but now and then it bobbed up again. 1;8 [waʔ neʔ jaʔ], *walk? (Im) Schnee? Ja?* A week after the snow had disappeared (1;9) she still played [bʊ, ne], *bums (in den) Schnee*, abruptly sitting down on the rug in imitation of the outdoor game. Two weeks after, [ne] was still induced by the word "by-by," the two ideas having become closely associated. The English word lasted a little longer, 1;6-10; but both became inactive because the snow did not last until July.

**nea*, *nails* 1;11, once: [dɪ nea], *this (is for the) nails*, namely a finger-nail file; she was trying to use it on her nails. Phonetically the German

²²⁷ Karla 1;10 [nat] alongside [wɛt].

²²⁸ Karla 1;7 and 1;8 spontaneously [no:], *snow*; [ne], *Schnee*, only as echo.

"Nägel" could also be the source, and it may have contributed; but cosmetic care was her mother's domain.²²⁹

*nenene E 0;10, a cooing combination which happened to develop a definite connotation, namely scolding as an expression of disapproval; the [e] was short. It was the successor of *[dɪdɪdɪ] and its variants (B 0;9-E 0;10); cf. also [dada], *Carolyn*.²³⁰

ni, *Knie, knee* 1;7. In spite of the perfect agreement with the English pronunciation, the first source was almost certainly the German word, because she learned it from me; [kn] became [n] as [ʃn] in "Schnee" became [n]. 1;8 plaintive statement: [ʔni ʔwewe—da ʔwewe], (*am*) *Knie (habe ich ein) Wehweh, da (habe ich ein) Wehweh*.²³¹

nɪk, *neck* 1;10. [haɪ baba nɪk], (*I want to*) *ride (on) papa's neck* 1;10. [dɪ, ʔā, maɪ nɪk], (*put*) *this (a little bell) on, (around) my neck* 1;11.

no, *no* 1;6. 1) She seemed to understand the warning "no, no" at 0;8²³² and 0;10; but possibly the excited tone of it was more effective than the phonetic form. The German equivalent "nein, nein" was much more definitely followed from E 0;10. The challenge "Say 'no'" produced a shaking of her head 1;4 like the stimulus "nein," but only as a mechanical reaction. At 1;6 she said "no, no" upon the question, "What did mama tell you?" She learned "nein, nein" at the same time and knew that both meant the same, namely a refusal of permission. She used "no" and "nein" only as an answer to a real or imaginary question for permission. In the second half of 1;6 [no:] became really active²³³ with the meanings, "I do not want to," "I am not allowed to," and "it is not so"; "nein, nein" was receding since that moment. The colloquial negative [ʔmʔm] appeared at the same time. At 1;7 [no] was the spontaneous negative; [naɪnaɪ] continued only as a quotation of her father's decision, [naɪ(n)] as an echo.²³⁴ She liked to answer her own questions, 1;8 [baɪbaɪ ʔauto? no!], realizing that in Evanston no auto was at her disposal as it had been during a

²²⁹ Karla [nɛɪ] < "nails" 1;10.

²³⁰ Karla had [nɛnɛ], second half 0;9, and [nana], also for scolding. Cf. Jespersen, *Language*, p. 136: "Many little children use *nene* (short e) as a natural expression of fretfulness and discomfort. It is perhaps so natural that it need not be learnt: there is good reason for the fact that in so many languages words of negation begin with *n* (or *m*)."

²³¹ Karla [ni] 1;9, learned from English "knee."

²³² Karla second half of 0;7, less certainly than "patsch, patsch!", the first stimulus to which she reacted.

²³³ According to Jespersen, *Language*, p. 136, most children learn "no" before "yes." This was definitely true of Karla ([naɪ], *nein* 1;4, when she had no affirmative as yet), but Hildegard learned to say "ja" two months before "no" and "nein" and used it with meaning just before "no," 1;6.

²³⁴ Karla 1;8 [naʊ naʊ] only as a reprimand to children or her dog, with the indignant intonation her mother used. [naɪ (naɪ)] only as an echo of her father. [naʊ], [noʊ] became active as a real negative B 1;9 and was at that time her regular answer to any question.

visit in Milwaukee; [dɪ ha? ja. dɪ ha? no], (*Shall I put on this hat? Ja. This hat? No.* In the second half of 1;8 she had a "no" complex. When asked to do something she answered [no] almost regularly and repeated it playfully several times in the face of insistent "ja"; but then she would go and do it anyway, with or without further urging.²³⁵ Once 1;8, trying to lift a big cake of snow which was too heavy, she said [bɪʔ?], (*too*) *big*, shaking her head; this expression of a negative idea by a gesture alone was unusual; it resulted from the crossing of two ideas, "I cannot do it" and "it is too big for me," with the second idea prevailing. At E 1;8 she answered "yes" or "no" to all questions which called for such an answer, but with no concern for the facts involved, as a semi-mechanical reaction to the suggestion implied in the form and intonation of the question; questions which she did not understand were treated the same way. When the question did not interest her, she sometimes did not answer at all, although she understood. 2) At B 1;9 "Say 'no more'" elicited immediately and regularly the response [no me], *no mehr*. 1;9 [no mama dadi, hɪ mama dadi], (*this is*) *no(t) mama's stocking, here (is) mama's stocking* shows the transition from "no" to "not"; it is probably still the word "no," but in the function of "not," which it could easily assume as in standard "no more," where "no" also stands for "not" from the point of view of descriptive grammar. "Not" did not become active until 1;11, in the form [nat] or [natʔ], at first always coupled with "no": [no, nat da:], *no, (it is) not da*; for a while the combination [no, nat] was used as a reinforced negative. 3) Then "no" began to be used as an adjective: [no buk], *no book*; [no ʔaʔa], *no A-a*, meaning either "I do not want to make it" or "I have finished making it." (The use of the sentence-adverb as an adjective is perhaps only accidentally correct; compare "no bite" below, 2;1, which seems similar to "no A-a.")—"Nein" was used sporadically 1;7 and 1;9 along with "no," but did not gain much ground. "Alle" in the sense of "all gone" was felt as related to the negative; she accompanied the statement [meʔa wewe ʔalə], *Mary Alice's Weh-weh (ist) alle* (1;11) with a shaking of her head, which made the meaning of the sentence practically "Mary Alice has no pain any longer." "No" was used in other standard applications; to deny a statement implied in a question: "Bist du Papas Liebling?" Answer, [no, woʃ witi], *no, Florence's Liebling* 1;11; to refuse permission: intending to go out on the terrace, she desisted, saying

²³⁵ Karla had her "no" complex at 1;9-10, with "nein" as a variant at E 1;10. She answered all questions by "no." If her interest made the inadvisability of such an answer too obvious, she gave the affirmative answer not by an adverb, but by repeating the noun or verb.

[nɔ, ʒu, ʔā], *no* (*I must not do it*), (*I must put*) *shoes on* 1;11 ("no shoes on" would be a misinterpretation, a case which shows how much caution is necessary to arrive at the correct understanding of children's ideas). (At 2;0-1 non-standard uses of "no" still occurred; reinforcement of a less obvious negative: "nobody home, no" 2;0; "no bite" instead of "don't" 2;1. The form was still [nɔ], but at the end of 2;1 also [no].)

*no, *snow* 1;6-10. She learned "snow" half a day after *[ne], *Schnee*. The two words alternated in predominance.²³⁶ At 1;8 she once repeated [nɔ:i], *snowing*, with understanding. Although normally the word was used as a noun, apparently the present participle occurred again 1;10: [no·i, we ʔap], *snowing, way up*; she pointed to the roof; there being no snow in the second half of May, the utterance may have been a reminiscence of snow on the roof, or, by extension, a reference to something white.

*no·i, *kimona* 1;9-10. "Kimona" is universally used in colloquial American English for a dressing-gown instead of the dictionary form "kimono." Toward the end of 1;9 she said "Joey's kimona," referring to a dressing-gown which had been handed down to her from her cousin, but the word after [do·i] was indistinct. By 1;10, after experimentation with [nono], [noni], the expression settled into [do·i no·i]. The forms are not regular; a blend with "Joey" is involved in all probability. Tentative series of transformations: [ki'mona > mona > nona (consonant assimilation) > nono (vowel assimilation) > noni (blend with "Joey") > no·i (further blending)].

no·i, *naughty* 1;5. At first she repeated "naughty, naughty" as [na na], the [n] not yet standard but resembling [ŋ]. At 1;7 she would beat her dolls and say [naɪ], a contraction of standard [na·ti], with lax [t], into one syllable. At 1;11 the form was [nɔ·i], from the standard variant [nɔ·ti]. When she fell over in her rocking-chair she struck it and said [l'nɔ·i ɪwɔkə'bebi], *naughty rock-a-(by,) baby*, putting the blame on an object instead of blaming herself, which she had certainly not been taught to do. (2;0 often [maɪ nɔ·i], *my (= I) (am) naughty*.)²³⁷

noiʃ, *noise* 1;10, only in the combination "Auto noise." I first heard the comment [ʔauto noiʃ] M 1;10, when she made a noise in drinking from her cup. I was doubtful about the puzzling term; however she often repeated it 1;10 in the same connection, but also when she really heard an auto. At 1;11 [ʔa(ʊ)tɔ noiʃ] stood for any

²³⁶ Karla similarly at B 1;7, when she experienced the first big snow-fall; but "snow" definitely prevailed, because there were more English-speaking persons taking care of her than of Hildegard. At 1;8 [nɔ:] was her regular word; [ne] appeared only as echo of "Schnee."

²³⁷ Karla [nɔ·ti] 1;11.

noise of some intensity, whether heard or produced by herself. Since at the same time she refused to walk in the street and, when in the yard, was afraid of the cars in the alley, it became clear that the expression was induced by a frightening experience some weeks earlier, when a motorist had started his motor suddenly, preparing to come out of a garage across the sidewalk on which we were passing. This fear lasted for many weeks; it is interesting that Hildegard felt perfectly safe in the street as soon as she was in her cart, whereas walking she felt exposed to a repetition of the dire experience. The expression "Auto noise," however, was divested of fear-content and bore the ear-marks of an objective statement extended to a variety of noises. The quality of the vowels in [noiʃ] 1;11 is surprising, but it was clearly observed. Unless it is merely one of the frequent slight variations in vowel-quality, it might be explained as an attempt to differentiate the standard [i] from the transition [ɪ] which often appeared in front of [ʃ] with no standard equivalent. In that case close [o] would be a partial assimilation to close [i].

no'jɔ'k, *New York* 1;11. Approximately in this form during my absence 1;11-2;0, reported by her mother as [nu]-, but heard by me after my return as [nɔ]-, with assimilation to the stressed syllable. (2;1 [no'ɪ'jɔ'k], probably from my German "Neuyork.")

noʃ, *nose* 1;8. Once 1;8 [no:] as a spontaneous addition to a guided enumeration of parts of her head. 1;10 [no:ʃ]. 1;11 [noʃ bo], *nose blow* = "please blow my nose," with very free word-order, which looks like German ("Nase putzen!"), but is probably accidental.²³⁸ "Nase" was never tried, although "Hase" occurred once 1;8; she understood it, of course.

nu, *new* 1;11. [mama nu hat'], *mama's new hat*. (2;0 "my new dress," and "new" in "New York," which became "neu" in "Neuyork" 2;1. Otherwise "neu" remained latent.) The presentation was [nu].

nuk, an obscure word for "coat" 1;10. She understood "coat" and "Mantel" 1;3. At 1;10 she always said [nuk] for it, for instance [nuk ə], (*put my*) *coat on*; B 1;11 [nuk bati], *coat button* = "button my coat," with the same word-order as that listed under [noʃ], which occurred half a month later. Her form could hardly be derived from "coat"; the latter took the form [dot] a little later 1;11 in [biti dot], *petticoat* (see [dot]). After examination of the word in the light of the table of sound-correspondences, "Schnucks" emerges as the only possible prototype among words which she heard. I used this term frequently as an endearing address to her, as a variant of "Schnucki." It is strange, but quite imaginable that she came to associate it with her coat in some cryptic man-

²³⁸ Karla [noʊ], [no] 1;9.

ner. She never tried to say either "Schnucks" or "Schnucki" in the primary meaning.

ʔæʔæ, *Grandpa* 1;8.²³⁹ This was for her the name of her maternal grandfather; the adults called him "Dad." (Cf. *[pɑ], *Opa*.)

*ʔɔ:, *oh* (German and English) 1;0-7. The sound varied between close [o] and open [ɔ], reflecting a standard variation. In the colloquial speech which she heard, the close vowel was used as an interjection of astonishment, surprise, and admiration, the open vowel, with falling intonation, to indicate regret and compassion. These are really two different interjections. But the differentiation was not carried out clearly in her usage. On account of its strong emotional appeal, the interjection became active early. At 1;0 she uttered [ʔo] occasionally as an expression of astonishment. At E 1;1 she greeted her doll always with [ʔɔ:] and did not use the sound in any other connection. At E 1;3 [ʔɔ:] is again reported as an interjection of indefinable value, probably astonishment and regret, once almost with close [o]. At B 1;4 [ʔɔ:], with falling intonation, clearly indicated regret; she used it especially when an object dropped out of her hands. At 1;7 [mɛə-ʔɔ:], *mehr—oh*, and [ja-ʔɔ:], *ja—oh*, are listed as of unknown origin; but the [ʔɔ:] was interpreted as a sound of enthusiasm. The use of the interjection remained sporadic. (At 2;0 it is specifically called obsolete; in its regretful value it had been replaced by [pu], *poor*, followed by the name of the object of her compassion. At 2;1 it reappeared in fixed combinations as [ʔo]: "oh my gosh"; "oh mammy dear," in a rhyme.)²⁴⁰

ʔɔɪlo, *oil* 1;6. [ʔɔɪ], terminating in an unsuccessful attempt to pronounce the [l], 1;6, was taught her for "cod-liver oil"; she transferred it spontaneously to oily preparations used on her skin and in her nose. At 1;7 the struggle to master the [l] continued; the form was [ʔɔɪə], with variants including [ʔɔɪlə], the [l] articulated with the back tongue raised, in the English manner. 1;9 [dɪ ʔɔɪəbu], *this (is the) oil-spoon* (for cod-liver oil). 1;10 [ʔɔɪlo].

ʔɔɪno, *Onkel* 1;8. At M 1;8 friends of the family were called "Onkel" for her instead of "Herr" or "Mr."; "Onkel" was always followed by their first name. In spite of the weak stress of the word in such combinations, she did not use the (stressed) name, but the prefix in the form [ʔɔɪnɔ], first for "Onkel Rudolf," soon (1;9) also for "Onkel Joseph," once even, in free extension, for "Tante Matilde." The [ɪ] of the first syllable was sometimes faint; the vowel of the second syllable varied to [o] and [a]. Later the term

²³⁹ Karla [dɛdɑ(ŋ)] M 1;4 ephemerally for "Grandpa," when he came for a visit. E 1;8 [næ-na]. E 1;9 [næ-ma]. 1;10-11 [næmpa], rare variant [nænta].

²⁴⁰ [ʔɔ:] was not observed in Karla's early speech.

became specialized for Onkel Rudolf, because the family adopted [ʔɔmo] as a nickname for him and has continued to use it to this day. This exceptional procedure stopped the further development of the form. At 1;10 she accused people of having a "fat tummy" (see [baʊkʰ]); Onkel Rudolf, who liked to make her say it, was most often the target of the game himself: [ʔɔmo, dike baʊkʰ]. No term corresponding to "uncle" was learned for her real uncles, the family practice being to address them by their names only (see *[a·i], *Alex*). The general meaning of [ʔɔmo] was not quite forgotten after its specialization, witness the fact that she transformed the name "Leona" into *[meʰʔɔmo], *mehr Onkel*, E 1;11, because its bearer fell under the classification "Tante." But what form the word "Onkel" might have taken if its evolution had not been stopped, was shown when, a few days earlier, another friend was introduced to her as "Onkel Peter" and she tried to render this name by [ʔɔkuʰbebi]; this form, to be sure, was deflected from its natural course by an association with "baby," not unlikely even with [ʔɔkəʰbebi], *rock-a-(by,) baby*, her name for a rocking-chair. ("Onkel Peter" was improved in form 2;0, but the exact form is not available because of my absence from Evanston; the name "Peter" took the form [petə], according to the authentic transcription of the "victim," Peter Hagboldt.²⁴¹ Onkel Rudolf's wife Theresa (see [dita]) was occasionally called [ʔɔma], a form which was also adopted by the environment; the feminine ending was surely not so semantic for Hildegard as it became for the adults, who took it over with a distinctive function.)

*ʔotəmit, *oatmeal* 1;11, once in the sentence [meʰʔaʊ ʔotəmit], (*the Miau (eats) oatmeal*). [t] for [l] is irregular, probably a blend with "meat," [mitʰ] 1;10,²⁴² or an assimilation to the first [t].

*pa, whispered, *Opa* 1;0-1, during her stay in Hamburg, where Opa, her paternal grandfather, lived (cf. [ɣæɲæ], *Grandpa*; she had no grandmother living). She had identified him E 0;11, a few days after the arrival in Hamburg, that is, she understood who was meant by "Opa" (of course a standardized nursery mutilation of "Grosspapa," "Grossvater"). At E 1;0, while her parents went away to Berlin for a week, leaving her with the relatives in Hamburg, she was said to have learned to say "O-pa"; what I heard myself was voiceless [pa] addressed to him. 1;1 [pa-o], still whispered; but forms were so unstable at that period that [ba], *Ball*, [papa], *Papa* and [pa-o], *Opa*, all three with voiceless vowels, could not always be clearly distinguished. Among the relatives the memory of the form "Pa-o" remained alive until the next

²⁴¹ Karla reproduced "Onkel Peter" 1;10 simply as [pe]; she had not learned "Onkel."

M 1;11 [pita] for English *Peter*. She learned "uncle" and "auntie" E 1;11.

²⁴² Karla [ʔot ɱil] E 1;11.

visit four years later; therefore it probably occurred fairly frequently. A little later 1;1, listening for the [o], I did not hear it, but observed in place of the first syllable a pause, giving about the effect of [o-pa]; the vowel of the second syllable was still voiceless. By the end of 1;1 she had given up the experiments with the word and instead used [baba] and [papa] also for "Opa," which may mean either an extension of "Papa" or, more likely, a reduplicating modification of "Opa."

*patʃ, *patsch!* 1;11. [paba patʃ] or [baba batʃ] = "papa spanked me." I did not remember having used the word "patsch," certainly not in this meaning. Much earlier, from 0;10 on, "patsch, patsch" was the stimulus for making her clap my palm with hers.²⁴³ But I must have used the word occasionally in the meantime, just often enough to keep its memory alive. Its active emergence was sudden and spontaneous; but it did not become habitual. Cf. "bite," 1;10.

pik, *pieks!* *E 1;1, 1;11. This interjection is used in German to accompany a teasing prick with a pin or other sharp objects, secondarily to warn against the dangers of such objects. At E 1;1 she asked for my pencil with something like [by], the interjection with its charge of emotion being more impressive than the name of the object (later [dadi], *Bleistift*, 1;6). The interjection was not listed as active B 1;4, but must have occurred again later; for at B 1;7 it was expressly stated that it had disappeared. At 1;11 it suddenly emerged again for a highly original description of, or statement about, a medicine dropper, for which she had no specific name: [balu pik, wewe], *bottle pieks, Wehweh*, "bottle" standing for any glass receptacle, "pieks" indicating its pointed shape, and "Wehweh" echoing the warning against pointed objects which she had so often heard.²⁴⁴

pik(ə)bu, *peek-a-boo* *1;4, 1;8. She was familiar with this beloved game at 0;9, upon the German cue "Kuckuk (Guck-guck)" and the English, "peek-a-boo"; she often did it spontaneously with a blanket, etc., but never tried to say it. In Hamburg she learned to say the Low German equivalent "kiek" (see *[ti]) 1;1, which persisted until 1;3. At 1;4 the English term gained the upper hand; among its several meanings, [bi] stood also for "peek-a-boo." At 1;8 the form was improved, [br:(ə)bu:]. But she rarely said the word; usually she played the game silently. She still loved it at E 1;11, but the vocal form [pik(ə)bu] remained rare.

*pi-pi, *piep, piep!* 0;11-1;9. At B 0;10 the relatives claimed to have heard

²⁴³ "Patsch, patsch!" was the first stimulus to which Karla reacted, second half 0;7.

²⁴⁴ Karla [pipipi] with falsetto voice 1;4, [pi] about 1;6, for pins and other pointed objects. She learned [pʻɪn], *pin* E 1;8, but [bi], *pieks* continued 1;9 for the points of knives and other pointed objects; M 1;9 [pik].

the word "birdie," with reference to a canary, during a visit in Milwaukee. The word did not become established, since in Evanston we had no bird in the house. She saw canaries again in Hamburg 0;11. She reacted to the stimulus, "Call the birdie," with a click, which she had learned for calling squirrels; she continued to use it upon the cue "squirrel," but also occasionally called persons with it. Surprisingly, she used the same symbol at the first attempt upon the challenge, "Ruf den Vogel!" in a situation, to be sure, which helped the understanding. At B 1;0 she understood "birdie" and "Vogel" equally well, although she did not hear much English at that time. At E 0;11 she once seemed to repeat [pip] for "Piepvogel." One of the canaries in the house had the name "Piepchen," and at the end of 1;1 she practiced this name, first as [pi:], then once [pi:-p], finally repeatedly [pipi], the consonant always unaspirated.²⁴⁵ At B 1;3, back in America, she continued to call "Piepvögel" with distinct [bibi], the [b] voiceless.²⁴⁶ At B 1;4 she greeted a new celluloid duck in the bath-tub immediately with [pi-pi] in falsetto voice. She saw the picture of a peacock, woven into a bath mat, and on the following day that of a turkey in a fantastic picture; both of them she greeted spontaneously with [bi:bi:] in falsetto voice. At 1;9 she saw an airplane, for which she had no name as yet (later [ʔɛɪpi] 1;11), and invented an imaginative designation for it, [pi pi ʔauto], *Piep-piep-Auto*. There is no later record of the word; it was thought extinct at 2;0, although neither "bird" nor "Vogel" became active. "Piep, piep" is its chief basis, supported by English "peep, peep"; "Piepvogel" and, for a while, "Piepchen" contributed to the form.

prti, *pretty* 0;10. She learned to say the word in Milwaukee B 0;10, taught by the relatives, as [lpr̥ti], usually whispered, sometimes with full voice; each sound was slowly and distinctly articulated, the [r] being a briefly rolled tongue-tip [r], which had never occurred before.²⁴⁷ Of her early words, this was the first permanent one. (For variations in form and function, see the chapter on the the First Year, 0;10.) At E 0;10, "pretty" was one of her two active words (the other one was [dɛ:], *there*) in the form [prti], usually without voice, always articulated with striking distinctness, often used with the same demonstrative gesture of the right hand as [dɛ:]. The usage was identical E 0;11 in Hamburg; the form was [pr̥ti] with many variants; [p] and [t] were constant, but the sound between them was any palatal rolling sound or fricative

²⁴⁵ Karla [pipi] 1;7, from "Piepvogel," for birds in the yard.

²⁴⁶ Same observation with Karla.

²⁴⁷ Karla 0;9 [pyi], whispered; 0;11 constantly [pʔytʰi], whispered. Around 1;8 [budi], voiced, usually for her dresses.

including [ç].²⁴⁸ [prɪti], [prəti], regularly whispered, remained in full activity in Germany, where she heard practically only German; she never tried "schön,"²⁴⁹ which she often heard, even to 2;0 (apart from one freak occurrence 1;1 registered under [dada], *thank you*). At the end of the sojourn in Germany E 1;1, "pretty" became rare.²⁵⁰ On the boat B 1;2 she understood very little English, even when it came from her mother, but she continued to say "pretty"; the word showed a remarkable vitality. At B 1;3 [pʃiti], whispered, was the only word without reduplication (apart from "baby," which gives the effect of reduplication with vowel-mutation). At B 1;4 [pwiti] was still voiceless and remained so steadily until 1;8. Two days later the form was [pəti], M 1;4 [pyti], with rising diphthong, still used for pictures, which continued to interest her. Once, half asleep on the arm of her mother, she felt her necklace without seeing it and said "pretty"; that was probably not a direct reaction to the tactile sensation, but to the visual impression which was evoked associatively by it. At 1;5 the word had become rare, whispered words disappearing at that stage. But at B 1;6 it was heard again as [pyti] with rising diphthong, this word and "Ticktack" surviving in whispered articulation. At 1;8 it was more frequent again, most commonly used for pictures of flowers,²⁵¹ but also for clothes; it was still whispered, but not nearly so common as before when it had to take the place of specific nouns. Finally, at B 1;9 [pti] became voiced, the [r], which had always been indicated before, dropping out at the same time. Later 1;9 [pwiti bi], *pretty please* with reference to candy which she could not reach; the expression corresponded only accidentally to the conventional "pretty please" of children; the "pretty" was not an intensive to reinforce "please," but an expression of interest in the object, the desire being now isolated from it by the addition of the more specific "please." In the conventional expression, the semantic accent is on "please," in hers, on "pretty." During 1;10 there is no record of it. During 1;11 it became more frequent again, but now usually as an attributive adjective: [bidi daʃ], *pretty dress*, etc. At M 1;11 [bidi dot], *petticoat* was partially a child etymology; the first part was associated with "pretty," but the second part was not her usual word for "coat," which was [nuk]. 1;11 [bidi daʃ ʔaʔ],

²⁴⁸ Karla 0;11 similar, but no pointing.

²⁴⁹ Same observation with Karla.

²⁵⁰ Same observation with Karla 1;3, although no change of linguistic surroundings occurred in her case. She dispensed with the vague term as soon as she had more specific terms at her disposal, namely the names of the objects she admired.

²⁵¹ Karla specialized it for flowers much earlier, about 1;4; at 1;7 she used it for flowers and lamps, sometimes for her dresses. For "pretty" used for flowers, cf. Jespersen, *Language*, p. 116.

(*may I have a pretty dress on?*) The word is listed under the more perfect form with [p], since the difference between unaspirated [p] and [b] was not phonemic; it was more or less accidental.

pu, *pooh* *1;2-4, 1;11. From her stay in Hamburg she said [pʰ], [pΦ] or [pw:], the [w:] being a bilabial vibrating sound. It was traced to "pooh," but may as well have been based on German "pfui!" (pronounced [fui]), unless we used a rudimentary sign of disgust like [pΦ] ourselves without becoming conscious of it; but that is not probable.²⁵² [pΦ] was still active B 1;4; she said it especially when she had had an accident in bed, also when she imagined the same predicament for her doll. At 1;11 she learned "pooh" again in the more perfect form [bu]²⁵³ for "dirty." The form was [pu] B 2;0. (2;1 [bu], [pu] was the established word; [muti] or [buti], *schmutzig*, was repeated only from presentation. In the story of the three little kittens she rendered the idea of "all dirty" by [ʔɔ: pu].)

pu, *poor* 1;10. This word took the place of regretful *[ʔɔ:], *oh* (1;3-4) and *[a], *arm* (1;7), with the same facial expression of pity; it was used only in such exclamations as [po mama] 1;10, [bu baba] B 1;11; [pu] B 2;0.²⁵⁴

*ʃ, *sch!* 1;0-6. Her grandfather in Hamburg played railroad for her with building-blocks B 1;0; he shoved them along the edge of her play-pen railing, saying "sch, sch, sch!" This sound interested her more than the game. Her attempts at imitating it were rather unsuccessful; at first an [s] came out; on the next day it became more like [ʃ]. She tried it only in a low whisper, timidly, apparently conscious of the difficulty of the new sound. At M 1;0, strangely enough, she used [ʃ-ʃ] also to call attention to music, continuing to raise her right index finger, which had been her stereotype gesture for this purpose. At E 1;0 [ʃ] with the locomotive game, usually with building-blocks, was still active; it was articulated softly, but with approximate correctness. At B 1;4 in America she articulated [ʃ-ʃ] more confidently with reference to cars and elevated trains, also when she was pushing her little chair around the room;²⁵⁵ the reproduction was not entirely from

²⁵² Karla's [pΦ], emphatically articulated, 1;1, came from "pooh"; thus it was probably an over-aspirated [p] in Hildegard's case as well.

²⁵³ Karla used [bu:] regularly from B 1;4 on to call attention to physical needs or accidents. Also [pΦ] B 1;4, which however later became associated with "hot." "Pooh" remained her regular word for physical needs, both as a statement and a warning: [pʰu:]. Her [ʔa: ʔu] = "all dirty" became [ʔa: ʔdɔ:tʰi] B 1;11.

²⁵⁴ Karla [pu] 1;11: [pu ka:la—karl], *poor Karla!* (She) *cried*. Hildegard did not express pity of herself thus.

²⁵⁵ Karla did not learn [ʃ], although I intentionally presented the game to her one day in the form which had induced [ʃ] with Hildegard. She used [tutu] instead. She did not produce the sound [ʃ] by B 1;9. In fact, even at the end of the year it was imperfect and resembled [ç].

memory, but also from renewed presentation in train games. The reference was primarily to the motion. By extension she also used it for a wrecked car standing still. A little later 1;4 she recognized very small cars in an advertising picture and said [ʃ-ʃ]. She used the same sign for a toy wheelbarrow and for the picture of an old-fashioned carriage of a type which she had never seen. Anything that rolled on wheels or could be pushed was [ʃ-ʃ]. 1;6: "Wie macht das Auto?" Answer: [ʃ], at that stage often varied to [tʃ] or [tʰ]. It did not bother her that [ʃ] stood also for "shoe" and for "sleep," the latter accompanied by a raised index finger. Thereafter [ʃ] disappeared, being replaced by more specific terms like "Auto" 1;5, "choo-choo" 1;7, "ride" 1;8. At B 2;0 [ʃ] meant only "sleep."

ʃ, *sh!* 1;6. She understood "hinlegen und schlafen!" as early as 1;2.²⁵⁶ The interjection "sh," probably presented with a raised index finger, as an admonition to be quiet and to go to sleep, was taken up with the same gesture, which distinguished it from the homonyms meaning "ride" and "shoe." It functioned like the verb "sleep" 1;8: [ma ʃ], *man sh!*, meaning "the woman (in a picture) is sleeping," no longer with an imperative idea, but as a dispassionate statement of a fact. 1;11 [mama ʃ meə], corrected into [mama meə ʃ], *Mama (will) mehr schlafen*; the correction meant either a shift from English to German word-order: "Mama (wants to) sleep mehr" > "Mama (will) mehr schlafen," or an improvement of an imperfect expression: "Mama schläft mehr" > "Mama (will) mehr schlafen"; the situation was that her mother decided one morning not to get up, but to sleep some more. It seems probable that the first consonant [ʃ] of "schlafen" helped to keep the word so long in this abnormally primitive form; it corresponds to German "schlafen" more exactly than to English "sleep," in spite of its origin in an English interjection. It remained [ʃ] B 2;0 (and 2;1: [dot ʃ], *don't sleep* 2;1). She did not learn either of the standard verbs in the first two years.²⁵⁷

3u, *Schuh, shoe* 1;6. The word was understood, in English and German, as early as 0;11. At 1;6 it had the form [ʃ], homonymous with "riding motion" and "sh" = "go to sleep." With the best intentions she did not succeed in adding the vowel, 1;7.²⁵⁸ The usual

²⁵⁶ Karla understood "hinlegen!" and "lie down" at 0;11. She said "lie down" as one of her earliest words in approximately standard pronunciation and with exactly the same intonation as her mother; it remained one of her favorite words. She addressed this command to herself every time she was put to bed, the situation in which she had learned it. Hildegard learned it about a year later than Karla.

²⁵⁷ Karla [hip], *sleep* 1;9; [hipi], [ʃipi], *sleeping* 1;10. [ʃ! ʃipi], *sh! (the doll is) sleeping* 1;11.

²⁵⁸ Karla E 1;4 on the contrary said the vowel without the consonant, [u:]; variation 1;6 [wu:]. At 1;7 she articulated the fricative, but in the wrong place: [ʃu]. 1;9 [ʃu], with

[ʃ] was sometimes varied to [ʔɪʃ] and [ʔɪʒ] 1;7, the vowel of which was a prothetic vowel for the palatal fricative, not uncommon in other cases. At 1;8, instead of the correct vowel, this prothetic vowel was placed behind the consonant: [ʒɪ? mama ʒɪ], the second part with the falling intonation of an answer to the question: "(A) shoe? (Yes,) mama's shoe." Singular and plural were not distinguished: "Was tut Dada?" Answer: [jɪ ʔaʊ?], (*Sie zieht mir die Schuhe aus* E 1;8. On the last day of 1;8 the form was improved to [ʒu], the consonant wavering between [ʒ] and [j], articulated faintly and always voiced, although [ʃ] was a common sound. 1;10 [maɪ ʒu baʃ], *my shoe brush*, or rather, "brush my shoe"; the [ʒ] occurred only in this word during 1;10. At 1;11 the plural [-z] was added in several words in the form [ʃ], [ɪʃ]; therefore [juʃ] B 1;11 (notice the dissimilation of [ʒ] back to [j]!); soon improved: [wi tu ʒuʃ], *three two shoes* = "two shoes" 1;11. But the plural was not stabilized, [ʒu] continued along with [ʒuʃ]; but of course, [ʒu] might represent the German plural "Schuhe"; thus perhaps in the second half of 1;11 in [ʒu, ʔā], (*I must put*) *Schuhe on*. ([ʒu ʔʒu batə maɪ ʒu], *you, you button my shoe* 2;1, singular. [ʒu], also [ju], was new 2;1 for "you" and "your.")²⁵⁹

*ʒuʃ, *church* 1;10-11; only in the rhyme, "This is the church . . ." 1;10 [dɪ dʒuʃ]; 1;11 [hɪ ʒuʃ], *here (is the) church*, spontaneous modification of the wording. The [ɪ] was prothetic for [ʃ].

ʒuʃ, *zu* 1;11. [do juʃ], (*the*) *door (is) zu*. [buʃ ʔet'—ʒuʃ!], *push in* (a drawer)—*zu!* [dɪ, ʒuʃ], strongly falling intonation, *this (is) zu*, with reference to a door. She used "zu" only as a predicative adjective, as in colloquial standard German; for "too" as an adverb of degree, see [du] 1;10; for a very doubtful case of "to" as a preposition, see [do], *go*; "zu," "to" before infinitives did not occur. The consonants could also be traced to English "closed," but hardly the vowel. On the other hand, the final [ʃ] does not agree well with German [tsu]; but the initial fricative might represent the German affricate, the [s] sound being added again by metathesis at the end in the regular substitute form [ʃ]; there is some supporting evidence for such an explanation. A blend between "zu" and "closed" must be kept in mind as a possibility.²⁶⁰ (First perfect pronunciation of "zu" as late as B 4;1; before that, [ts-] was always [s].)

the fricative voiced again by assimilation, at the same time that she learned [fut], *foot* correctly. She had no [ʃ] at that stage. [ʒu] B 1;10. [ʒu] and [ju] 1;11. The [ʃ] began to develop M 1;11: [ʰau ʰʒu], *house-shoes*.

²⁵⁹ Karla used "you" for the first time on the last day of the second year: [vira mek nem'nem fə ju], *Vira makes lemonade for you*.

²⁶⁰ Karla [t'ʊ:] M 1;9, from "zu"; E 1;9 [t'ʊ] and [tʊt'].

*taʃ, *Tasche* 1;10, once. Otherwise *[bakə], *pocket* 1;10. Earlier in the compound *[dadi], *Taschentuch* 1;7.

te, *train* M 1;11, only in the combination [dʒudʒu te], *choo-choo train*; her earlier word was [tʃutʃu] alone. The [t] was unaspirated, almost [d]. She understood the word much earlier, as seen from a curious misunderstanding 1;8: her mother said to me in the course of a conversation, "You would be a good one to train her"; Hildegard at once reacted to the stimulus by saying [tʃutʃu]!

*ti, *kiek* 1;1, 1;3. This Low German word meaning "look" served as the cue for the peek-a-boo game in Hamburg. She played this game from 0;9 upon the English or the German stimulus ("Guck-guck, Kuckuk"), or without a stimulus; but she went silently through the motions for which the game called. In Hamburg, E 1;1, she reproduced the new cue "kiek," which must have appealed to her by its simpler form, approximately as [ti]. After the return to Evanston it appeared again as [t'i:] B 1;3. But it never took root. At B 1;4 it was listed as inactive. Soon thereafter [bi] appeared in the function of "peek-a-boo," in more perfect form 1;8 and again E 1;11 (see [pik(ə)bu]); but strangely enough, no term for the beloved game ever became rooted up to 2;0; "Guck-guck" was never attempted.²⁶¹

ti-ta, *Ticktack*, *tick-tock* 0;11. As customary in speaking to children, I had many times said "Ticktack" when showing her my watch. At B 0;11, when I asked her, without preparation, "Wo ist die Ticktack?," she immediately turned around to look at my wrist-watch.²⁶² Toward the end of 0;11, in Hamburg, I once heard her say distinctly [tak],²⁶³ while she was looking at my watch, without being sure that it was more than an accidental combination. At E 0;11, questions about the tick-tock made her look either at my watch or at the wall-clock; whichever she had seen last seemed to determine the choice. She tried repeatedly to imitate [tiktak]; once she succeeded fairly well, without voice; but later she simplified it into a double click. At B 1;0 she covered four or five quite different watches and clocks with the term "Ticktack," which was then, aside from "pretty," the only word on the pronunciation of which she was working. [t'i-t'a] with very short vowels, simple [t'a] with voiceless short vowel,²⁶⁴ and [t'-t'] were among

²⁶¹ Karla did attempt it about 1;6, but it did not become established. She also played the game silently, expecting us to say the word. "Kiek" was not used with her.

²⁶² Karla also 0;11.

²⁶³ Charlotte Bühler, *Kindheit und Jugend*, p. 95, describes how her daughter Inge learned to repeat "tick-tack" at 0;9 as whispered "ta ta." Pavlovitch reports an interest in watches as late as 1;1 (§33); his child said "tas" from "tic-tac" at the turn of 1;1/1;2 (§37). Karla did not learn the word until B 1;4.

²⁶⁴ [t'a], always in excited repetition, and almost the only word without voice in her early vocabulary, was regularly Karla's form. She started it later than Hildegard, B 1;4.

the results; in the latter form, the [t] was, as in Danish, so strongly aspirated that it almost passed over into [ts]. Voiceless [tʰɪ-tʰa] was the form a little later 1;0, the term then being one of her three active words. Once she was studying a gas meter in the apartment at Hamburg; I told her, "Das ist eine Uhr, eine Gasuhr"; she reacted with [tɪ-ta], recognizing the word "Uhr," which had not been presented frequently to her, or associating the round shape of the object with a clock (the most familiar time-pieces were not round, however!), or both. At 1;1 most of her words appeared usually in whispered form; "Ticktack" continued to be voiceless regularly until 1;4, usually so until 1;7; it did not become regularly voiced until 1;8. On the boat M 1;2 there was a big red spool outside the cabin door, on which the fire hose was wound; she insisted on calling it "Ticktack" and often ran toward it with an enthusiastic [tʰɪ-tʰa] in many repetitions even before she could see it. In Evanston 1;3, when we were inspecting a house preparatory to buying one, she spied a bathroom scale and called it [tʰɪk-tʰak]. But that was an isolated occurrence of the final consonant. By B 1;4 she recognized clocks in the street. Once she called the picture of a multigraphing-machine [tʰɪ-tʰa]; when I said "nein" disapprovingly, she pointed to a control-disc on it, which indeed looked similar to a clock-dial. At B 1;6 "pretty" and "Ticktack," the two oldest words, continued alone in voiceless form; the latter was again [tɪk-tak], but only ephemerally. At 1;7 the word temporarily lost its vowel-gradation and became reduplicated [tʰɪtʰɪ]. Later 1;7 it became atrophied as [tʰa]; only upon demand she repeated [tʰɪtʰa], now also with voiced vowels on the demand "laut." Finally 1;8 [tɪ-ta] became spontaneously voiced under the influence of a beloved English nursery song, in which "tick-tock" occurred as a refrain. At B 1;9 she called a round eraser for typewriter [tɪ-ta] and tried to hold it to her ear, but with a facial expression of doubt. There is no later record of the word, but it was considered alive at B 2;0. None of the more standard terms became active. The word was first learned from German presentation, but the identical English term supported it and eventually induced the voiced form.

titī, *sticky* 1;7. At 1;6-7 [titī] with unaspirated [t] stood for "cookie(s)," which was improved 1;10, by elimination of the vowel assimilation, to [tutis]. At 1;7 "sticky" had identical form, but occurred only in the combination [lʰa:titī], with a curious stress indicating one tri-syllabic word, whereas the presentation was [ɔ:l ʰstɪkɪ], but probably with a pitch accent on the first syllable.²⁶⁵ 1;11

She applied it to my wrist-watch and obstinately also to a mechanical pocket lighter and a hygrometer. Later [tɪkətɪkə], voiceless. B 1;9 voiced [tʰɪ-tʰa].

²⁶⁵ Karla [dɪkɪ] 1;10, without "all."

[ʔa dɪk da:ɪ] (variant: [dɪç]), *all sticky candy*, when her hands were all sticky from a piece of candy. Was this mutilated form due to vowel dissimilation? A blend with [dɪk], *stick* 1;10 does not seem probable.

*tɪtsə, *kritzel* 1;1-4. In Hamburg 1;1 she liked to play in the bath-tub with a hand-brush and enjoyed seeing the water squirt off the bristles. Aunt Gertrud said "kritze-kratze" for this game, and Hildegard repeated [tɪtsə] without voice, the [s] not being clearly different from [ʃ]. In Evanston B 1;4 the word was still active in the same form; it stood for "hand-brush" and "brush the fingers." Then it disappeared; "brush" came in at 1;5.

tʃʊtʃu, *choo-choo* 1;7. The first sound to accompany railroad games was *ʃ [ʃ] 1;0-6. At 1;7 she heard "choo-choo" often from her mother; she once said [dudu], when she heard a train from a distance.²⁶⁶ At 1;8, after the experience of a train trip, she sometimes added [dʒʊdʒu] to "by-by," as a variant to "by-by Auto?" [tʃʊtʃu] and [tʰ! tʰ! tʰ!] were other forms at the same time, the latter probably a first- or second-hand imitation of the sound of a starting train. [tutu] was also heard; I was not certain that we had ever presented the German "tut, tut!" (or the English "toot-toot") to her. Once she said [dʒʊdʒʊdʒʊdʒu] while pushing her doll-buggy. At B 1;9 she tentatively called the illustration of a Bradyscope, a complicated psychological apparatus, [tʃʊtʃu], then [ʔauto]; it resembled neither. The word had to serve for all kinds of purposes very vaguely reminiscent of trains: for an airplane 1;10, for a wheelbarrow 1;10, for a street-car 1;11, for a trunk 1;11; for several of these words, [tʃʊtʃu] was the first designation before they received specific names. At 1;10 she used in a routine dramatic recital of a trip to Milwaukee both [tʃʊtʃu] and [tʃ, tʃ, tʃ], the latter doubtless being in the same category as [tʰ! tʰ! tʰ!] (1;8). At 1;11 the form was again usually [dʒʊdʒu], the consonants being voiced by assimilation to the vowels. The transition from the nursery-word to the standard term began M 1;11 with the combination [dʒʊdʒu te], *choo-choo train*.

tu, *through* 1;11, only as an adverb and only in the combination "all through" = "all finished"; [ʔa du] B 1;11; [papa ʔa tu itʰ?], *papa, (are you) all through eat(ing)?*

tu, *two* 1;10. When she was lifted down from a chair, the ritual of counting "one, two, three" in preparation caught her fancy. Soon the stimulus "one" induced her to continue [du, wi]; she learned the same procedure in German at the same time (see [waɪ]). 1;11 [wi tu ʒuʃ], *three two shoes* = "two shoes"; [wi tu ʔauto], *three*

²⁶⁶ Karla also [dudu], in the same situation, but much earlier, about 1;4; later [tutu], with unaspirated consonants. "Tür zu," which Hildegard did not learn, Karla said with approximately the same sounds for a while.

two Autos = "two (toy) autos." Counting was chaotic: once [wi dai tu], *three drei two*. (At 2;1 [wi tu wai dai], *three two zwei drei*, was her fixed form to announce that she was going to jump or do something else suddenly. Seeing many fishes in the Aquarium in Chicago, she used the same weird combination to inform me that she was impressed by their number. But [tu] alone was at that time also used with correct numerical meaning.)²⁶⁷

tuʃbaʃ, *toothbrush* *1;6, 1;10. The first form was [buba] 1;6, with assimilation of the initial consonant of the first syllable to that of the second. It is interesting to note that the vowel of "brush," which was [bə] since 1;5, was improved in this compound a little earlier than in the simple word. The word remained latent until 1;10, when it had the much improved form [ʔtuʃ ʔbaʃ], accentuated not yet as a compound, but as two words. 1;11 [mama datʔ tuʃbaʃ], *mama forgot (the) toothbrush*, meaning "mama forgot to brush my teeth"; not an original expression, but learned from her mother in this form. "Tooth," "teeth" did not become active alone, although she understood it.²⁶⁸ "Zähne" was also understood, but suffered repeatedly from confusion with "Zehen"; at 1;8 she even tried to brush her toes with the tooth-brush! (This confusion continued to occur for years in the active use of the two German words.)

tutiʃ, *cookie(s)* 1;6. The form was [titi] 1;6-7, with unaspirated consonants, the first vowel assimilated to the second vowel, a convenient reduplicated form resulting from the interplay of normal consonant-substitution and natural vowel-assimilation. At 1;10 this stabilized form, then recorded as [didi], gradually gave way to the much improved form [tutiʃ]; B 1;11 [dudiʃ] (2;1 [tutiʃ]).²⁶⁹ Hildegard understood the German equivalent "Keks" as early as B 1;2, but never used the word, perhaps because English "cake" (see [gek]), the etymological basis of the German word, was firmly associated from 1;6 on with a sufficiently different meaning. *[duko], *Kuchen* 1;10-11 competed for a while with "cake." It is really remarkable that the complicated etymological kinship and semantic divergence of Keks/cake and cookie/Kuchen did not cause any confusion.

ʈ, *tsk, tsk, t, t!* 0;10. This palatal click, quite current in colloquial English and German (palatal or alveolar), but difficult to indicate in standard spelling, was learned early in its several standard functions. It was one of her spontaneous babbling sounds; at 0;10 her

²⁶⁷ Karla used [tu] correctly 1;11: [tu bebi], *two babies* with reference to two dolls.

²⁶⁸ Karla said [ti:] B 1;9.

²⁶⁹ Karla [gugu] 1;3; also [gaga], from "cracker," in the same meaning. [gugu] was extremely frequent B 1;4, later [gaga] became by far the more common term. At B 1;8 she was taught to say "cookie" correctly and, being much more willing to imitate than Hildegard, learned to say [kʔukʔi] very distinctly.

mother made it meaningful by using it to call squirrels. Challenged "Call the squirrel" without immediate preparation, she indeed reacted with this sound. In Germany 0;11 she continued to use it on the cue "squirrel," but also called a canary with it on the command, "Call the birdie" and "Ruf den Vogel"; occasionally she even used it for persons. Ephemeral E 0;11, the double click stood for "Ticktack." At 1;6 the double click was still used to call squirrels and dogs, but also in the entirely different standard meaning of good-natured disapproval;²⁷⁰ she used the interjection in self-criticism when she had done something she was not allowed to do. Again at 1;7, she used the palatal click, when going through the motions of horseback riding, to spur the horse, as she had learned to do on a visit to the maid's home.

**u:*;, *hoo-hoo, huhul* 1;5-6. She repeated this interjection, used to call persons at a distance, in the high tone and falling intonation of the presentation; it was at the same time the first successful [u] and remained isolated as such, while [ʊ] was frequent at 1;6. At 1;6 the friendly call began with a glottal stop.²⁷¹

?*utʃ*, *Fuss* 1;11. At 1;10 she was not certain about "Fuss," although she must have understood the word and English "foot" much earlier. I asked her, "Wo ist dein Fuss?" and she showed her teeth; it seemed that she did not even hear the difference between final [s] and [θ] in "Fuss" and "tooth." But at M 1;11 she said [mama ?*utʃ*], *Mamas Fuss*. [tʃ] for [s] was irregular, but not unique. A week later she still used [?*utʃ*] for the singular, but [wiʃ], *Füsse* for the plural. The English plural was [wi] 1;10, [wiʔ] 1;11, one day after [wiʃ]. It is possible that [wiʃ] did not render "Füsse," but "feet" with an added analogical plural [s]; but it is not very probable. The English singular "foot" did not become active.²⁷²

wai, *fly* (noun) 1;11. "Fliege" was not attempted.

**wai*, *why* 1;10 for a few days in the sense of "why should I not do that?" ([*wai*] was one of her three interrogatives at 2;1.)

wai, *zwei* 1;10 she learned at the same time and in the same situation as "two" (see [tu]); they continued in parallel use. On the cue "eins" she counted [*wai dai*], *zwei*, *drei* 1;10. 1;11 independent counting, [*ʔai*(ʃ) *wai dai*], *eins*, *zwei*, *drei*. But usually she omitted "eins," which she heard so often as a cue; she did not see the need of

²⁷⁰ Karla B 1;9; not observed before that time in any function.

²⁷¹ Karla called [u:] with the same intonation very early; at 1;2 nothing but the intonation was standard; the vowel was any neutral tense vowel, [o:] being the best variety. [u:] B 1;4; still about the same B 1;9.

²⁷² Curiously enough, Stern (p. 23) reports for his monolingual child the same anomalous situation with regard to the initial consonant, but in reverse: M 1;5 singular "fu" (short), later "fuss"; plural "isse" (first vowel short), later "fisse" (same). Karla 1;9 [fʊt], at once correctly.

repeating it in her series. Once she said [waɪ daɪ wɪ], which I understood as "zwei, drei, vier." But at that time I had no experience with the bilingual stew of numerals which she was beginning to concoct; [wɪ] was probably "three." ("Vier" was new and still unstable at 2;1: [viə], [wiə].) A week later (1;11) she imitated the slow emphatic counting "eins, zwei, drei," announcing a jump, with the same stress and intonation, but with a care-free re-arrangement of the numerals: [wi:: tu:: ˈwaɪ], *three, two, zwei*. (For [waɪ] 2;1 see [tu].)

*waɪʃə, *weisser* 1;9, once. At 1;8 she understood "weiss," but associated it only with snow (see *[ne]), *Schnee*). At 1;9 she distinguished colors well. After practising the selection of green blocks, she showed me a white one. I said: "Ja, das ist ein schöner weisser." Immediately after that, she came with another one of the same shape and color and said excitedly [waɪʃə!]. But the word did not become spontaneous; it was the only adjective of color she ever said before 2;0.²⁷³ [noːi, we ʔap], (pointing to the roof), 1;10, at the end of May, was possibly a devious way of calling attention to something white or bright ("snowing").

waɪtʰ, *right* 1;11, rather late in the month, not infrequently in the combination [waɪtʰ da], *right da*, an English idiom with substitution of German "da" for English "there." Much more frequent in "all right" 1;8 (see [ʔaˈwaɪ]).

*wakə wakə, *watschel, watschell* 1;11, once when she was pulling her toy duck through the room. I had frequently accompanied the waddling movement of the duck, which rolled on eccentric wheels, with this word.

walu, *water* 1;7. First unstable forms 1;7: [wa], [wɔːɪ], [wadə].²⁷⁴ 1;8 [waɪə] ([ɔ] short), with slight variants. The uncertainty about the sounds kept the word in abeyance for several months. B 1;11 [walu], M 1;11 [waju] > [walu]; later the most frequent form was [walu], variant [wɔlu]. The presentation probably hovered between [waˈtr] and [wɔˈtr], with American lax [t], which resembles [d], but not [l]. Hildegard's earlier [j] also stood for [l]. The [l] is not due to regular substitution, but to a blend with [balu], *bottle*, which had an [l] substitute at 1;8, real [l] since 1;9. Since she used "bottle" for any glass container, the association with water was not far-fetched.

waʃ, *waschen, wash* (verb and noun) 1;8. [ˈdada ˈwaɪʃ], *Dada (Carolyn)*

²⁷³ Karla learned to distinguish colors at B 1;10, and at the same time named many of them correctly: [ʌŋk], *orange*, [pə:pə], [ˈpə:pl], *purple*, [ɡɪn], *green*, [jɛə], *yellow*, [bu], *blue*. Yellow and blue were often confused. She had difficulty with red, [wɛt]. Deville's daughter learned to distinguish colors at 1;7 (v. 24, p. 37).

²⁷⁴ Karla 1;8 [nɪnɪ], [nɪn], *drink*, also for water in general. E 1;10 and 1;11 [wa:k], *water*.

wäscht, an excited communication. E 1;8 frequently [waʃ], often improved to [waʃ], which was practically the form of the presentation. At 1;9 [waʃ] meant both "wash" and "watch." The form was regularly recorded with back [a] E 1;8-10, once with an added velar transition vowel, [waʃu bebi daʃ], *wash baby's dress*. But at 1;11 it was again listed several times with front [a]: [waʃ ʔiə], *wash ear*, [waʃ ʔa daɪ], *wash all dry*, but also, contemporaneously with the last example, with [a] once more: [mama waʃ hā], *mama washes (my) hands*. The difference between front [a] and back [a] was difficult to observe; thus the variation in the vowel of the recorded forms may not mean anything. If it does have significance, one might think that the German model with its slightly more fronted [a] might have resulted in [a], the English in [a]. But note that the first use of the word as a noun 1;11 is given with [a], although the prototype was probably English, not so much for phonetic reasons ([ɛ] of "Wäsche" could also result in [a]), but because she heard about this household item more from the women than from me. I assume that throughout the history of this word the English model was more powerful; but the German supported it.

waʃ, *watch* 1;9. [waʃ mama], *watch mama* 1;9. [waʃ bek gek mama], (*I want to watch mama bake (a) cake*, with loose word-order. (At 2;1 the construction of the accusative with the infinitive was fully developed and frequently used with this verb, which still had the form [waʃ], but started to become [wɔʃ].)

wa·ti, *Milwaukee* 1;10. This name occurred earlier in the form [wauwi], but with the very vague meaning "far away." The two are here treated as different words, because they existed side by side in different forms. At 1;10 she liked to recite the dramatic story of a train trip to Milwaukee, which her mother had presented to her; in it occurred "Milwaukee" in a mutilated form which was not [wauwi]. Later in the month she shouted [wa·ti] in the same connection. The idea connected with it must still have been vague. (At 2;1 she still used it in train games, in the improved form [(mə)l¹wɔ·ki].)²⁷⁵

wau, *flower* 1;11 along with [bu], *Blume*.²⁷⁶

wau, *Frau* 1;7. At 1;5 she began to say "Mann" when looking at pictures, but did not try to repeat "Frau," which I had told her at least as often as "Mann." She understood it, but seemed to be conscious of the phonetic difficulty. Later 1;5 she called women in pictures "Mann." At 1;7 she repeated [ʔau] for the first time. Immediately after, with another picture, she again said [ma],

²⁷⁵ Karla [wɔ·ki] 1;11, apparently in standard usage.

²⁷⁶ Karla 1;11 [fa:] and [bum].

but corrected herself, [ʔau]. During 1;8, [ma] was still her spontaneous designation: [ma ʃ], *man sleeps* with reference to a sleeping woman in a picture. But when I showed disapproval, she corrected herself, first [wa], later [wau] or [vau]. At the end of 1;8 the word finally appeared spontaneously, always when she was looking at pictures, her favorite pastime: [wau ʔm], (*die Frau isst*. At M 1;11 she repeatedly said [mawau] for "woman," which proved that "Frau" was not yet detached from "Mann" in her subconscious mind. (In fact, she still used [mā] for "woman" at 2;1.) No English equivalent developed.

wauwau, *Wauwau* 1;1. She was familiar with this German nursery designation as early as B 1;0. Her mother used it in the same form, with [w] instead of [v], but not (or not often) in the ordinary English form "bow-wow." At E 1;0 Hildegard used [ʔa ʔa] to speak to dogs,²⁷⁷ an interjection which had previously served to call attention to something (see *[ʔaʔa!]). At E 1;1 she identified dogs in pictures and "barked" at them with falsetto [ʔaʔa] (but also with [wawa]²⁷⁸ in the same kind of voice); by extension she used the same form to ask for the picture book. In Hamburg she asked for a stone lion with the same symbol (see [bitə]). The vocalic symbol persisted at B 1;2, but at 1;3 [wuwuwu], with ordinary voice, gained ground. She said it especially for her soft slippers, which had glass buttons and a pattern resembling a dog's face on them; they reminded her of her toy dog, which was also made of soft material. She greeted two bronze horses, bookends, with the same sounds, but in falsetto voice. This form probably does not go back to "Wauwau," but to my variant form [wuwu], with which I may have imitated dog's voices — big dogs with low, hollow [u], small dogs with falsetto voice. She used it for dogs of all kinds. At B 1;4 [wuwu], with variations of the vowels, still served for dogs, occasionally for other animals, and for her suede slippers. At M 1;4 she greeted dogs in pictures always with [wuwu], but also the illustration of a fur-clad old man representing Winter in an automobile advertisement. Hearing dogs bark in the street, she said [wuwu] in the house. E 1;4 [wiwiwi] with falsetto voice for horses and dogs, which she recognized even in the most fantastic pictorial representations. Once, in the waiting-room of a station, a lady gave her a very futuristic dog picture, which she called "doggie"; Hildegard used it at once for her favorite game of making a dog bite people. At B 1;6 the word returned definitely to a more nearly standard form, about [wawa],

²⁷⁷ Pavlovitch (§34) seems to note interest in animal voices also at 1;0.

²⁷⁸ Karla imitated "Wauwau" from presentation as [wawawa] E 1;1 and used it spontaneously for the barking of dogs 1;4, [wawawawa] in low pitch, and obstinately also for cats, etc. The word did not become so important for her.

which soon improved to [wauwau] 1;6. It still served also for horses, although she understood the word "Pferd." She also used it with reference to an ashtray in the shape of an elephant. Hearing a horse in the street, she called attention to it in the house with [wauwau].²⁷⁹ At B 1;7 she learned from me to say [ʔa: wauwau], (*der*) *arme Wauwau*, for a porcelain dog which had lost its tail; she transferred it spontaneously to a porcelain elephant which she had damaged and said it again and again in this application. Extension went a long way in the use of [wauwau] for her own baby pictures 1;7, because on one of them she held a toy dog in her arm. At 1;8 she greeted a sloth in a picture with joyous barking, [wau wau]. After Easter 1;9, "Uncle" Joseph brought her an Easter lamb made of cake and covered with white sugar frosting. Excitedly she went to fetch her mother: [mama, mi! ʔɔino, wauwau], *Mama, (komm) mit! Onkel (hat mir einen) Wauwau (mitgebracht)*. At 1;11 the real word [doti], *doggie* came in without displacing [wauwau] at once. After M 1;11 she heard a dog barking and called attention to it with a fanciful explanation: [wauwau! mi! ʔaʊ bart wauwau], *wauwau! (a) Wauwau bites (a) Miau*, with reckless word-order. This example shows that "Wauwau" was both a conventional onomatopoea and a noun, as in the presentation. *[do], *dog* appeared three days later, without becoming established at once. "Hund" was not attempted.²⁸⁰

wauwi, *Milwaukee* 1;8. The word was different from [wa:ti] (1;10), which was really an attempt to reproduce the sound of "Milwaukee." In the form [wauwi], the prototype suffered from the phonetic and semantic interference of "way," "away," "far away." At 1;6 a favorite recital of hers was [mɛ-mɛ? dɔ-dɔ? we::], *Marion? Dodo? (Far) away!* This referred to her cousins in Milwaukee, and once she said it spontaneously when she heard the name "Milwaukee" used inconspicuously in a conversation. At B 1;8 this recital had the form [meme — doi — we::ɪ], *Marion, Joey — (far) away!* But then the last word was replaced by a hollow [wau(wau)], which however by the test of intonation (rise and striking fall) had the same meaning, "far away." Later the sweeping motion of the arm, indicating great distance, of [we::ɪ] also was used once with [wauwi], which underscored the identity of meaning. [wauwi] was an approximation to "Milwaukee" (presented always with [ɔ:] or [a:]), with persevering assimilation; but it was also influenced by "(far) away." At 1;10 the new form

²⁷⁹ Karla also called horses [wawa] from 1;5; in her case it was traceable to the mischievous suggestion of an uncle, who enjoyed the joke of it. Karla had in addition the name of her dog "Bonnie": 0;11 [bi(bi)], short, with several variations of the first vowel; later [ba(n)i], [baji] 1;5; [bani] (rarely [muni]) E 1;9. Strange dogs were only called [wawa].

²⁸⁰ Karla tried "dog," "doggie," and, as an echo, "Hund" B 1;9.

[wa:ti] appeared, while [wauwi] continued in the meaning of "far away." There is no later record, but the word was held to be still alive at B 2;0.

we, *way* (adverb) 1;7. This word is very difficult to separate from "away," with which it is etymologically related. In the early stages the pretonic vowel of "away" was regularly omitted, making it homonymous with "way." In this record, instances of [we] which go back to "away" are reported under [ʔəwe]; but colloquial "way" in "way up" and "way down" was distinct in the presentation and must therefore be treated as a separate item. The [we:] (1;6) referred to under [wauwi] will be found under [ʔəwe]; but the etymon is doubtful — it might also come from the first part of "way, far away." [we ʔap], *way up* 1;7 definitely contained the intensive adverb of colloquial American.²⁸¹ [we:ɪ] B 1;8 stood for both "way" and "away." [ʔəweɪ] came in before M 1;8, but [weɪ] also continued in the function of "away." At 1;9 she referred to an airplane which she heard, as [we:: ʔap] (see [ʔɛɪpi]). She stated about a piece of candy which she longed for that it was [we ʔap] on the mantel of the fire-place. At 1;10 [we ʔap] was a current expression. Toward the end of 1;10 she used it both with the implication of motion and as an adverb describing a position; when she used it to point out the size of a poplar in our garden, she stretched the second meaning rather far. [we da], *way down*, 1;10 with reference to a playground slide and as an indication of her wish to go down the stairs, was probably an independent transfer from "way up" to its opposite. She used it also with no motion implied, [(maɪ) baɪ we da], *my buggy (is) way down* (in the basement). At 1;11 I once misunderstood her [baɪ bu!] as "(der) Ball (ist) kaputt"; she corrected me, [bu we ʔap], *balloon way up* in order to explain that she meant "buy (a) balloon" (see [baɪ, bu]). Similarly she used [we ʔap' haɪ], *way up high*, 1;11, to refer to a window-shade, taking her clue from its impressive motion; previously (1;10) she had called it more emotionally [duko], *dunkel*. [we da biʔ], (*let us go way down (to the) beach* E 1;11 was a less concrete use of "way down," with an adult prototype. ([we] for "away" was not even extinct at 2;1: [wo we], *throw away*, where to be sure the full vowel at the end of the first word favored the absorption of the unstressed [ə].) "Way up" probably influenced "wake up," which was [we ʔap] 1;10 and retained the non-standard glottal stop through 1;11. Of course, "way up" has usually no glottal stop either, but it may have been used in slow, deliberate presentations and furthered by sub-conscious etymological linking with the isolated "up."

²⁸¹ The OED calls it "U. S. slang." The term "colloquial" would seem to describe its use better.

we, *where* 1;11. First half of 1;11: [we maɪ bau? da maɪ bau], *Where (is) my ball? Da (is) my ball.* This first appearance of an interrogative was so surprising that I thought [we] might stand for "away." In the second half of 1;11 it occurred again: [daʃ, we hɪtaʃ], *Dasch (Katz), where (is) Hildegard?* She was playing hide-and-seek with the cat, a game which I had played with her; thus "where" was translated from my "wo." Even at that time I still thought at least of a blend with "away." But later developments proved that this was really the first interrogative. (At 2;1 [wɛ], still followed by the object of the search without copula, was the most frequent of her three interrogatives. She misunderstood at first my German questions with "wer"²⁸² and answered "da"; this was after my six weeks' absence.)

*wea, *radio* 1;10. She had a gesture with which she called attention to music; it does not appear in this vocabulary, because it was not linked with any definite vocal symbol (but see *[ʔə?] B 1;0 and *[ʃ], *sch* M 1;0). For any kind of music, or what she thought was music, she raised her right index finger with a serious facial expression of admiration. She did this often B 1;0-B 1;4, and isolated recurrences of it were observed 1;8 and 1;11. By a rather surprising extension, she used the same sign B 1;4 when she heard a speaking voice in a neighbor's radio, thus distinguishing radio speaking from ordinary speaking. At 1;8 her mother told her in English to shut off the radio; I repeated the direction in German. From her undecided attitude we noticed that she did not understand, or was not sure, because she was usually not allowed to touch the radio. Then I spoke to her, very exceptionally, in her own type of speech: "Hildegard — Radio — alle." Immediately her eyes showed the gleam of understanding. With glances asking for confirmation she went to the radio and shut it off; happily, she repeated a couple of times [ʔaʃ ʔaʃ]. Thus she understood the German "Radio" at least as well as the English "radio." But at E 1;10 she said, on the English basis, [wea ʔā], *radio on*, especially as a request for permission.²⁸³ The word did not become established, however; soon (E 1;10) she used instead the more primitive expression [dɪt ʔāʔ] (*may I turn this on?*) (The word was difficult for her; at E 2;10 its form was still garbled, [wedadi].)

*wek, *weg* 1;10. [wek], based on standard [vɛk], was sporadic; once she

²⁸² Karla misunderstood "wer" as "where" E 1;11 (and 2;5). She said "where" four days before the end of the second year: [we mamaʔ], *where (is) mama?*

²⁸³ Karla had the word much earlier, 1;6, in garbled forms, of which [na] was most frequent. Hildegard was much more reluctant to use difficult words. Karla also did not use the word often in succeeding months, although her interest in the radio was lively. At 1;11 she used [næ:na] and [weto] (unaspirated [t]) in the course of the same "conversation" — a persisting infantile term, and a new form closer to the standard.

said [wetʃ], based on my variant [veç]. The word did not make headway against her extended use of "alle," which she employed to state that something or somebody was gone. Cf. also [dɔ], *gone*, 1;10. In the instances where "weg" did occur, it indicated a wish: [dɪ ʔɔlo wek], (*put*) *this oil weg*.²⁸⁴ In this function it did not gain ground against [ʔəwe], which had been well established for several months.

wek ʔap, *wake up* 1;10. [bitə deʃ, maɪ we ʔap], *bitte dress (me), my (=I) wake up* 1;10, present tense for immediate past time. The verb being new, it was misunderstood as "way up" and interpreted as an expression of her wish to get up. It probably was really associated, phonetically at least, with "way up," witness the non-standard glottal stop (discussed under [we]). But the new verb soon occurred again in improved form: [mama wek ʔap] 1;10, also with [t] substitute. At 1;11 she regularly said [maɪ wek ʔap] (also with [t]) after really or fictitiously waking up. Later often [wek(ə) ʔap] in the same meaning and situations; also as imperative: [baba dia, wet ʔap], *papa dear, wake up*.

wet, *wet* 1;7. First form [we] 1;7, with short vowel.²⁸⁵ From 1;8 to 1;11 the word had to fight the competition of German "nass" (see [naʃ]), but generally prevailed over it. 1;8 [we] and [we]; [lʰa ʷwe], [lʰau we] (vowel short), *all wet*, difficult to distinguish from [lʰauwɪ], *Augenblick*. The final consonant was added 1;10: [baba ʔa wetʰ], (*I made*) *papa all wet*; [dɪkə ʔa wet], (*mein*) *dicker (Bauch is) all wet*. 1;11 [wetʰ]; [mɪlʰau ʔa wet mɪ], *meow all wet me*, when the cat had licked her; it would be rash to call "all wet" a verb in this example; the agent ("meow") and the personal reference "me" were added loosely to the familiar statement of a condition, not unlikely with a realization that "meow all wet" would convey the idea that the cat was wet. The vowel remained raised higher than the standard to the end of the period under consideration. (At 2;1, after my stay in New York, [wetʰ] had won out completely over "nass.")

wetʰ, *wait* 1;11. First [wɛ:tʰ], then [wetʰ] (homonymous with "wet"); it replaced the earlier [ʔauwɪ], *Augenblick* (1;7-8), which occurred only once afterwards in the improved form [ʔauwɪk] (which see).

wewe, *Wehweh* 1;8. This convenient German nursery-word for a pain, ache, or sore was also adopted by her mother, but with English [w] substituted for German [v]; even without that, Hildegard would have substituted [w]. She heard it from her grandfather in Germany (0;11-1;2), but did not say it until much later, with a correct German vowel, not with the English diphthong of

²⁸⁴ Karla tried [we] as echo in this sense 1;8. Her usual term was [bæbæ], *back-back* <"put it back." She did not say "away" at that time.

²⁸⁵ Karla 1;8; [βet], [βet] E 1;9; [wetʰ] 1;10.

[we:ɪ], *way, away*, which, I am afraid, her mother also substituted. The word was a valuable acquisition, because she then could complain in a more rational manner than by crying: [wewe—daɪ] (putting her finger in her mouth)—ʔaʊ, *Wehweh—da—aul* 1;8.²⁸⁶ The interjection “au” was new also. This reference to the ache of teething was a quiet statement, not a lament. With intonation of complaint: [ɪni ɪwewe—ɪda ɪwewe], *Knie Wehweh—da Wehweh* 1;8; [wewe ʔaɪ], *Wehweh eye*. Usually “Wehweh” was used like a noun, possibly sometimes like an adjective (she never said simple “weh,” as in “es tut weh”), but during 1;8 also like an interjection in preference to “au.” 1;11 [balu pik, wewe], *bottle pieks, Wehweh*, an awkward, yet ingenious paraphrase for a medicine-dropper, singling out its characteristic pointed shape for her description. [meɪʔa wewe ʔalə], *Mary Alice’s Wehweh alle* = “Mary Alice has no longer any pain, is no longer ill.” (2;1 [ʒu dɪʃ maɪ wewe], *you kiss my Wehweh*, imperative—an effective remedy for pain!)

wi, *feed* 1;11. [baba wi maɪ], *papa, feed my* (=me), a frequent wish (2;1 [ju wi maɪ], *you feed me*, imperative).

wi, *read* 1;11. [ɪmama ɪwi: ɪbɒk], *Mama reads (a) book*. Once when she was refused a wish while in the bathroom, with the explanation, “Nein, Papa muss arbeiten,” she agreed, expressing her own conception of my work: [baba wi bɒk].²⁸⁷

wi, *three* 1;10.²⁸⁸ The chaotic condition of her counting is described under the headings [tu], *two*, [waɪ], *zwei*, and [daɪ], *drei*, with one or several of which “three” was always combined. While she used “two” with some approximation to correctness, “three” was nothing but an item in a mechanical series, not even with a definite position in it. It was frequent during 1;10 and 1;11, with no variations of form except over-length in its use in a series to announce that she was going to jump. (At 2;1 [wi] occurred for the first time alone, [wi miʔaʊ] being her version of “three little kittens.”)

wɪ, *ring* (verb) 1;11: [wɪ baʊ], (*I want to ring (the) bell*—a new passion of hers (2;1 [wi bɒ]).²⁸⁹ For “ring” (noun) see [wiə], *wheel*.

*wɪbaʊ, *wheelbarrow* 1;11. Cf. [wiə], *wheel*. At 1;10 she used [wɪə], *wheel* once for a wheelbarrow, otherwise the vaguer [dʒʊdʒʊ], [tʃʊtʃʊ], *choo-choo*.

²⁸⁶ Karla did not say “Wehweh,” but from B 1;8 on spontaneously used [bʊm], *bums*, for the same purpose. Falling being her first experience with pain, she adopted the interjection associated with it to refer to her own aching arm and to her sister’s measles. At 1;10 she learned [hoət], *hurt*: [ʔaɪ hoət], (*my eye hurts*). E 1;10 also ephemerally [ʃe(ʃe)].

²⁸⁷ Karla [wit] 1;10.

²⁸⁸ Karla [wi beɪ], *three bears*, E 1;11.

²⁸⁹ Karla [wɪŋ beɪ] B 1;11.

wia, *wheel* 1;8. At one time 1;8 she said repeatedly [wɪ] for a wheel of her wheelbarrow, at 1;10 once [wiɐ] for the wheelbarrow itself, by semantic extension or phonetic clipping. At 1;11, "wheelbarrow" occurred in the perfected form *[wibaʊ]. But [wia], [wia] was not yet restricted to its standard meaning; she also used it for her toy wagon and at least once for a ring: [wia, mama], (*I have a ring; mama (gave it to me)*). I struggled for years with the explanation for the irregular form of [wia] as a substitute for "ring," "Ring," especially as compared with the verb "to ring," [wɪ], until it finally dawned on me that it was not based on "ring," but represented an extended use of "wheel," which is natural enough in view of the circular shape of both objects. (2;1 [hek, baba, maɪ ʔaʊtoˌbiə ʔā maɪ wia], *look, papa, (I hold) my automobile on my wheel*: she was leaning out of her stroller and holding the toy against its turning wheel.)

*wɪʃ, (*ab*)*wischen* 1;8, 1;11. At 1;8 [wɪʃ], *wischen* in the function of "abwischen." 1;11 [wɪʃ ʔap], *wisch ab*: she was wiping sand from a bench. About this unique occurrence of "ab" see *[ʔap]. She understood "Mund abwischen" as early as 1;3, "wipe your mouth (off)" from B 1;4. She never said "wipe."

witʰ, *feet* 1;10. Once [maɪ wɪ], *my feet* 1;10. Second half 1;11 [wiʃ], probably "Füsse," but possibly "feet-s," that is, "feet" with analogical plural [s]. The former is more likely; the singular was at the same time [ʔutʃ], *Fuss*; "foot" did not occur. A day later: [witʰ], definitely English.

witʰ, *fix* 1;11. [mama witʰ betʰ maɪ], *mama fixes my bed*, first half 1;11, when her mother was making her bed; "my" after the noun was unusual (see [maɪ]). The verb was not identified at the time of the diary entry, but became clear at 2;0, when she used "fix" repeatedly. ("I fix my dress," for instance. The forms reported by her mother at 2;0 were unreliable; at 2;1 it was [wɪʃ].)²⁹⁰

*witi, *Liebling* 1;11, once as echo: "Bist du Papas Liebling?" Answer: [nɔ, woʃ witi], *no, Florence' Liebling*. Only the first vowel is regular. The word was probably influenced by the older [witi].²⁹¹

witi, *Fritzchen* 1;8, the name of a rubber doll which she got in Germany. She understood the name to refer to it as early as B 1;2, even in the course of remarks not addressed to her. She said it 1;8 when for a change she played again with the same doll for a day or two; the name [witi] then emerged from memory. The gliding character of [w] was not marked; the sound approached [β]. Neither [v] nor [f] occurred consciously at that stage. 1;11 still [witi]. (At 2;1 [v], hovering between [w] and real [v], regularly stood for

²⁹⁰ Karla [Φɪk] 1;10, [fɪk] 1;11.

²⁹¹ Karla learned [Φitʰa], *sweetheart* 1;10. This word might also have influenced Hildgard's form. Karla imitated "Liebling" as [lipi], [ipti] B 1;11.

[f]. At E 2;1 [witiʃ] meant "fish(es)," probably also influenced by [witi]; cf. [witi].)

wiwi, Rita 1;5. Rita was the name of an older neighbor girl in the apartment, who often took care of her and whom she continued to visit occasionally later on. At M 1;5 Hildegard called her [wiwi], with a faintly gliding [w] as an attempt to pronounce English [r].²⁹² Hildegard used [wiwi] both for Rita and Rita's friend Helen, who never came without Rita, until 1;9, when Helen acquired a name of her own, [haja]. 1;11 [wiwi hauʃ], Rita's house, that is, the apartment of Rita's parents.

wɔ, fall 1;11, only in [wɔ da], fall down.²⁹³ B 1;11 [haudʒu wɔ da] ([a] short), (Das) Taschentuch fall (=fell) down. A week later often [mai wau da] (also [wɔ]), my fall down="I fell down." Again a few days later: frequently [mai wɔ da:], but once [fɔ]; the [f], however, was accidental, resulting from deep breathing due to exertion. (2;1 [ʔa fɔ da], I fall down.)

wɔ, rollen, roll 1;8. I taught her B 1;8 to roll on the rug; I gave the cue "rollen" with it. After a few days of this game she said [wɔə] in similar intonation. At B 1;9 she transferred this use spontaneously to the rolling of a glass: [wɔ:], [wɔ:ɪ], [wɔju], [wɔlu]. 1;11 [wɔ] for rolling on the ground, [wɔ ʔap], roll up for rolling up stockings in the hand. (2;1 [waʃ dit wɔ], watch this roll.) This word presents the only instance of a substitution for German [r] in any position. The origin of her first form in the German word cannot be doubted on account of the definitely German presentation. In the wavering forms just listed for rolling a glass 1;9, the German and the English words seem to be struggling with each other, with the German prevailing: the stressed vowel and the palatals point to German; the [u] is probably developed from English velar [l]. In the later forms, English and German appear rather clearly differentiated in form and meaning: [wɔ], rollen for the rug game, [wɔ], roll for other uses. Rolling a glass was different from and yet strongly reminiscent of her own rolling; so the use of the German form with some interference of the English was natural. To summarize: "rollen" 1;8-11, "roll" (1;9) 1;11.

wɔ:k, fork 1;11. The first time [hok], once; a week or two later [wɔ:k]. "Gabel" not attempted.²⁹⁴

wɔk, walk 1;8. She said [wɔ:] 1;8 when she was riding in her cart, but wished to walk instead. The vowel was faintly rounded approach-

²⁹² A grown-up girl of another family, whose acquaintance we made much later, was still nicknamed [wiwi] for "Rita," because she or her older sister had also pronounced the name that way as a child.

²⁹³ Karla started [fa:] second half 1;7. It was primarily based on German. I often warned her, "Du fällst!" or "Fall nicht!" When she had actually fallen she said [bum], bums, a little earlier. 1;8 [fa:i].

²⁹⁴ Karla [ʔɔ:k] 1;10 or 1;11.

ing [a:], as her mother spoke it. [wa? ne? ja?], (*may I walk?* (*Im*) *Schnee? Ja?* 1;8. B 1;11 [wak], second half 1;11 [maɪ wɔk da:], *my* (=I) *walk down* (the stairs), with short [ɔ], different from the presentation. (2;1 [wɔ:k].) She attempted no German equivalent.

1wɔkə'bebi, *rock-a-by, baby* 1;8. [wa wa], *rock, rock* B 1;8 expressed the wish to be rocked in a certain rocking-chair, to which she pointed emphatically; a week later [wawa].²⁹⁵ At E 1;10 this wish had the form [wɔk, bebi], the addition having become indispensable since her mother had sung her the cradle song beginning "Rock-a-by, baby, in the tree top." At the same time it began to be used, by association, for the rocking-chair itself: [dɪt maɪ wɔk bebi], *this (is) my rock(-a-by,) baby*.²⁹⁶ At 1;11 [1wɔkə'bebi], *rock-a(-by,) baby*, an improved form, which was however still shortened by haplology, was the fixed form serving both as verb and noun. Near the end of the month she twice fell over with the rocking-chair after rocking too hard; she struck the chair, blaming the innocent object for the consequences of her own recklessness, and called it [nɔ:i 1wɔkə'bebi] = "naughty rocking-chair." She understood "schaukeln" and "Schaukelstuhl," but did not try to say them. She developed no other word for "chair." But cf. [aɪta], *high-chair*.

wɔʃ, *Florence* 1;11. After a visit of her aunt Florence, who was addressed and spoken of without the epithet of relationship, Hildegard said [wɔʃ da:], *Florence's dolly*, namely one she had received from her aunt. She loved this aunt very much and designated herself as [wɔʃ witi], *Florence's Liebling*.²⁹⁷ In spite of the fact that [wɔʃ] corresponds to "Florence" neither in the number of syllables nor in a single sound, it is a regular representation of it, in perfect agreement with rules of substitution attested by other cases.

²⁹⁵ Karla used [bi ba], *bimbam!* E 0;11 to accompany her rocking in a small rocking-chair; later (1;8) [bɪmbam] when she wished her mother to rock her.

²⁹⁶ Examples of similar transfers of phrases to objects in child and adult language are given in J. Vendryes, *Le langage*, Paris, 1921, p. 156 f. (English translation, p. 132.)

²⁹⁷ Karla said [wɔʃ] 1;8; [fɔʃən] 1;9; [fʌn:i], *Florence* (diminutive) E 1;9, [fɔni] 1;10; possessive: [fɔni 'hau], *Florence's house* 1;11.

Index to Vocabulary

The index of the standard words, as far as they were represented in Hildegard's speech during the first two years, is divided into three sections: first, a few babbling combinations without standard equivalent which were classified as words because they acquired a definite meaning (for other babbling combinations see the chapter "The First Year"); second, English words; third, German words. The standard word is followed by Hildegard's equivalent, in the last form which it took in the first two years, that is, the form in which it appears in the list of her word-forms. The month in which the word became active is also shown, with the month in which it was last observed added in the case of words which did not remain active (marked with an *asterisk*). The last figure of each line is the page number.

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shoe	ʒu	1;6	122
slide	jaɪ	1;11	95
snow(ing)	*no	1;6-10	114
soap	haʊχ	1;10	89
spill	*brə	1;11	56
spoon	bu	1;7	60
stick	dɪk	1;10	73
sticky	titi	1;7	125
stocking	dadi	1;7	67
stone	doɪʃ	1;11	77
story	*lɔ-ɪʃ	1;11	97
street-car	*dida	1;11	72
sun-suit	jaʃut	1;11	95

thank you	dada	1;3	65
that	*dat 1;11 (drt 1;8) 1;10)		71 (73)
there	*de	0;10-1;0, 1;5	71
Theresa	dita	1;11	75
this	drt	1;8	73
three	wi	1;10	136
through	tu	1;11	126
throw	do	1;11	76
tick-tock	ti-ta	0;11	124
toast	dok	1;9	77
too	du	1;10	78
toothbrush	tuʃbaʃ	*1;6, 1;10	127
towel	daʊ	1;10	71
train	te	1;11	124
tsk, tsk	ʃʃ	0;10	127
two	tu	1;10	126
uh-uh (<i>negative</i>)	see "m-m"		108
up	*ap	1;4	35
wait	wetʃ	1;11	135
wake up	wek *ap	1;10	135
walk	wɔk	1;8	138
wash	waʃ	1;8	129
watch	waʃ	1;9	130
water	walu	1;7	129
way	we	1;7	133
wet	wet	1;7	135
wheel	wiə	1;8	137
wheelbarrow	*wibau	1;11	136
where	we	1;11	134
why	*waɪ	1;10	128
write	jaɪ	1;11	95
yes	*je	1;4	95
you	*ʔaɪə	1;5	34
zwieback	*ba	1;9	42

III. German Words

A-a	*aʔa	1;1	32
ab	*ʔap	1;11	35
abwischen	*wɪʃ	1;11	137
alle	*alə	1;7	34
an	*ā	1;9	31
andere	*ʔa:	1;7	30
Apfel	*apa	1;5	36
arme	*ʔa	1;7-10	31
ätsch!	*ʔɛ:t	1;6, 1;10	80
au!	*aʊ	1;8	38
auf	*aʊχ	1;6	38

Auge	*ʔau	1;7	38
Augenblick	*ʔauwɪk	1;7-11	41
aus	ʔauχ	1;6	39
Auto	ʔauto	1;5	40
Automobil	ʔato biə	1;11	37
Baby	bebi	1;2	52
backe	bakə	1;11	48
Bad, baden	*ba:	1;3-9	41
bäh!	*bæ:	1;5	51
Ball	*baɪ	1;0-9	44
Banane	*na:	1;11	109
Bär	bɛa	*1;7, 1;11	51
Bauch	baukʰ	1;6	50
bauen	baʊ	1;9	49
Baum	baʊ	1;8	50
beissen	*baɪʃ	1;10	47
Bett	betʰ	1;4	53
Bild	*bi	0;9-1;8	54
bimbam!	*bi-ba	1;1-2	55
bitte	bɪtə	1;5	56
Bleistift	dadi	1;6	66
Blumen	*bu	1;0, 1;7, 1;11	60
Boot	botʰ	1;10	60
Brief	bitʃ	1;11	58
Brot	botʰ	1;7	60
Buch	bokʰ	1;6	59
bums!	*bʊ	1;9	61
Butter	*bu:	1;9	60
da	da 1;0, *da:i:ɛ 1;4-5		61, 69
danke	dada	(*1;1) 1;3	65
Dasch	daʃ	1;10	70
dicken	dɪkə	1;10	73
dies	dɪt	1;8	73
donnert	*do	1;11	76
drei	daɪ	1;10	68
dunkel	dukɔ	1;8	79
ei!	ʔaɪ	1;4	32
Ei	ʔaɪ	1;9	33
eins	ʔaɪ(ʃ)	1;11	34
Eis	*ʔaɪʃ	1;7	34
Eiskrem	*ʔaɪfɛ	1;9	34
es	*da:i:ɛ	1;5	69
Frau	wau	1;7	130
Fritzchen	wɪti	1;8	137
Fuss (Füsse)	ʔutʃ	1;11	128
Gertrud	*dɛda	1;1	72
Glas	*daʃ	1;11	70

Haar	ha:	I;10	84
hacke!	*hakə	I;11	87
Hand	hā	I;11	84
Handschuh	haʊʒu	I;10	88
hängen	he	I;11	90
Hase	*haʃ	I;8	87
Haus	haʊʃ	I;8	90
heiss	haʃ	I;5	85
hier	hi	I;9	90
Hildegard	harta	I;11	86
hm?	*hm?	I;8	90
hoch	*hox	I;11	91
holen	*ho	I;11	91
hoppe!	*haba	I;11	84
huch!	*ʔəʊx	I;7	82
huhu!	*ʔu::	I;5-6	128
ist	*da:i:ε	I;4-5	69
ja	ja	I;3	92
kaputt	butʰ	I;10	61
Katz	daʃ	I;10	70
kiek!	*ti	I;1, I;3	124
klappert	*jakə	I;11	95
klingelingeling!	*lɪlɪlɪ	I;5	97
Knie	ni	I;7	112
komm mit	*mɪtʰ	I;8-10	108
kratzen	daʃ	I;11	71
kritze!	*tɪtsə	I;1-4	126
Kuchen	*duko	I;10-11	79
Kuss	*duʃ	I;11	79
Liebling	*witi	I;11	137
Loch	jokʰ, lokʰ	I;10	96, 97
Löscher	*joke, *loko	I;11	96, 97
lutsch(t)	*juʃ	I;10	96
m (= "schmeckt gut")	ʔm:	I;0	97
Mama	mama	I;3	101
Mann	ma	I;5	98
Maus	maʊʃ	I;7	103
mehr	meə	I;5	104
mein	maɪ	I;6	99
miau	miʰʔau	I;8	107
Mickey-Maus	*miki ʰmarʃ	I;10	108
Miezi	*miti	I;11	108
Milch	mɪk	I;6	107
mit	*mitʰ	I;8-10	108
muh!	mu:	*I;2, I;7	109
Nacht	*naχt	I;11	109
Nackedei	dadi	I;6	67
nass	naʃ	I;8	111
natt-natt!	*nat-nat	I;6	111
nein	*nar	I;6-9	109

oh!	*ʔɔ:	1;0-7	116
Onkel (Oino)	ʔɔino	1;8	116
Opa	*pa	1;0-1	117
Papa	baba	1;0	42
Papier	bubu	1;8	61
patsch!	*patʃ	1;11	118
pfui!	(pu)	*1;2-4	121
pieks!	pik	*1;1, 1;11	118
piep, piep!	*pi-pi	0;11-1;9	118
Pudding	bui	1;11	61
quak, quak!	(dak)	*1;1	69, 97
rollen	wɔ	1;8	138
sch!	*ʃ	1;0-6	121
Schnee	*ne:	1;6-9	111
Schnucks	nuk	1;10	115
schön	(dada)	*1;1	65
Schuh	zu	1;6	122
Spiegel	*bi	1;8	54
spielen	biə	1;11	55
steht	*deʃ	1;11	72
Tante	*da-da	1;1	66
Tasche	*taʃ	1;10	124
Taschentuch	*dadi 1;7, haudzu 1;10		67, 89
Ticktack	ti-ta	0;11	124
Toast	dok	1;9	77
tragen	da	1;11	64
t, tl	ʃʃ	0;10	127
waschen	waʃ	1;8	129
watschel!	*wakə	1;11	129
Wauwau	waUwau	1;1	131
weg	*wek	1;10	134
Wehweh	wewe	1;8	135
weisser	*waɪʃə	1;9	129
wischen	*wiʃ	1;8, 1;11	137
zu	zuʃ	1;11	123
Zunge	*du, *ju	1;11	78, 96
zwei	wai	1;10	128
Zwieback	*ba	1;9	42

Word-Count and Analysis of Vocabulary

Most of the studies on child language which have been published are concerned primarily with a count of words known to a child at a certain age. Many of them neglect to state the basis on which the count is made, overlooking the many difficulties for the comparison of different children which arise out of this neglect.¹ I do not think that any of these counts includes words only understood by the child, at least on levels beyond the first year; there is general agreement that the number of words understood is much larger than that of words spoken. A more serious question is whether the count includes only words used spontaneously or also those produced exclusively in direct imitation or even those said as a mechanical echo, without understanding. Specification is needed as to whether the words in the list are all those which the child ever used or only those which became permanent; there is a very considerable mortality among early words, and yet this question is often passed over in complete silence.

Even if these basic principles are made clear, there remains the great difficulty of establishing what is a word. For philosophical and psychological purposes, it would probably be more useful to have a count and classification of the concepts which the child expresses than of the word-forms which he uses to express them. But this consideration is more theoretical than practical; all word-counts are actually based on word-forms—not on the child's forms, but on the standard equivalents, although many of these are represented by homonyms in the child's speech. Thus a word-count does not represent an index of the child's concepts. On this basis, "I," "me," "we," and "us" are certainly four words, and "box" in its various meanings is one. But there are many instances of less obvious divergences, the counting of which must be arbitrary to a certain extent. "All" in "all people" and "all wet" can be counted as one word; but it is hardly felt as one and the same word in standard English, and can therefore also be counted as two. The case is different from the application of "choo-choo" to all kinds of vehicles; here the standard basis is one word, of which the scope of meaning is extended by the child or which is transferred from one function to related ones.

To all these difficulties is added in the present study that of determining what is German and what is English. Not only are many German and English words so closely similar in form that it is difficult to establish which one has served as the prototype or whether both have exerted an equally strong influence. But many words which objectively belong to only one of the two languages, cannot be so designated from the point

¹ Good discussions of the difficulties in counting words are found for instance in Vendryes, pp. 219-224 (English edition, pp. 186-191), and in Jespersen, *Language*, p. 125.

of view of the child. If the German speaker regularly uses the word "cracker" for want of an equivalent in his language; or if the English speaker uses "Zwieback" because this foreign word has been incorporated in the American language, both examples must be considered as bilingual prototypes, because the child cannot scrutinize what is for him the pre-history of the word. The same holds true for the rather large group of proper names which are used by both speakers in the same form. Some vocabulary counts omit proper names, numerals, or other arbitrarily selected word-groups. I see no valid reason for such exclusions. "Papa" and "mama" are for the child as much (or as little) proper names as those so designated in adult classification.²

The practice in this study is as follows: only words spoken by the child with understanding are listed. Mechanical echolalia did not occur. Words used only after immediately preceding presentation (here called "echoed") are included, but characterized as such. Such words were ephemeral, and all non-permanent words are marked with an asterisk (*), the month of their first appearance being indicated together with the month in which they were last observed if they survived for more than one month. All other words are considered as "permanent," which means in this connection that they were alive in spontaneous use at the end of the second year.

Words in the present count are word-forms used by the child which are definitely traceable to certain word-forms of standard speech, disregarding accidental homonymies in the child's speech; the latter are in any case ephemeral, the word-forms being gradually differentiated as the process of approximation to the standard forms continues. A few sound-combinations with no standard equivalent are included, namely those which developed a definite meaning. On the other hand, a word is counted as one if it is derived from one standard model, even though a variety of meanings is connected with it; but all meanings are discussed in the preceding vocabulary analysis. "I" and "me" are treated as two words; so are "break" and "broken." Each of these had indeed to be acquired by a separate learning process, because at this stage morphological patterns had not yet been assimilated. On the other hand, a noun with an added plural -s is not counted as a separate unit, because the child doubtless felt this procedure as a normal modification of the basic word; this grammatical device had barely come into use by the end of the second year. Proper names, numerals, etc., are included; the vocabulary is complete.

In the following classification as to language of origin, words are listed under English (German) when they can be traced only to English (German). The group English-German includes the items which are closely akin in form and meaning in both languages and were presented

² For a discussion of a similar zone of dimness between proper names and common nouns see Vendryes, English edition, p. 189.

to the child in both; also the few non-standard combinations which cannot be assigned to either language. Names and a few other words which were used by both parents in the same form, either English or German, are listed in the same group, whereas the alphabetical vocabulary (and its index) assigns them to the language from which they come objectively. "Cracker" is English for the vocabulary list, but German-English for the count, because the word was presented in German context as well as in English. "Zwieback," however, is German and English in both classifications, because the word has passed into English as a foreign word and is listed in English dictionaries.

Another point must be kept in mind: some words appear repeatedly as new and are counted each time as a new item; "Blumen" for instance was new at 1;0, at 1;7, and again at 1;11; "kitty" at 1;3, at 1;10, and at 1;11. They were really learned anew each time. The subconscious memory of the previous acquisition was no more powerful than the memory of hearing and understanding them was in the case of other words which were learned and retained in active use at once; the active emergence of all words involved a utilization of memory residues. On the other hand, words counted repeatedly appear in the list as permanent no more than once, so that the count of permanent words is not falsified from any point of view.

Chronological Survey of Word Acquisition

The words are given in their standard form. The form which they actually had at the time of their first appearance can be found by consulting the corresponding entry in the alphabetical lists. Figures in parentheses indicate the month of another acquisition of the same word.

<i>German</i>	<i>German-English</i>	<i>English</i>
	0;8	
	*[ʔəʔ] 0;8-1;6	
	0;9	
*Bild 0;9-1;8	*[dɪdɪdɪ] 0;9-1;0	
	0;10	
	*[mam:a] 0;10-1;1 (1;3)	pretty
	*[nenene] 0;10	*there 0;10-1;0 (*1;5)
	t,t! tsk, tsk	
	0;11	
*piep, piep! 0;11-1;9	Ticktack, ticktock	
	1;0	
*Ball 1;0-9	*[ʔaʔa] (dogs) 1;0-2	
*Blumen (*1;7, *1;11)	m ("tastes good")	
da	*[mjamjam] 1;0	
*sch! 1;0-6	*oh, 1;0-7 (2;1)	
	*Opa 1;0-1	
	Papa, papa	

<i>German</i>	<i>German-English</i>	<i>English</i>
A-a	I;1	*Gertrude 1;1
*bimbam! 1;1-2		
*danke 1;1 (1;3)		
*Gertrud 1;1		
*kiek! 1;1 (*1;3)		
*kritze! 1;1-4		
*pieks! 1;1 (1;11)		
*quak, quak! 1;1		
*schön 1;1		
*Tante 1;1		
Wauwau		
	I;2	
	Baby, baby	
	*Carolyn 1;2-10	
	*muh!, moo 1;2 (1;7)	
	*pfui!, pooh 1;2-4 (pooh 1;11)	
	I;3	
ja	*Bad, bath 1;3-9	by-by
*kiek! 1;3 (*1;1)	danke, thank you (*1;1)	*kitty 1;3 (*1;10, *1;11)
	Mama, mama (*0;10-1;1)	
	I;4	
ei!	Bett, bed	down
*ist 1;4-5	Marion	hot
		*me 1;4 (1;11)
		*peek-a-boo 1;4 (1;8)
		up
		*yes 1;4
	I;5	
*bäh! 1;5	Apfel, apple	all (<i>adv.</i>)
bitte	Auto, auto	brush
*es 1;5	*huhu! hoohoo 1;5-6	hello
heiss	Mann, man	high-chair
*klingelingeling! 1;5	Rita	I
mehr		*mitten 1;5-10 (2;1)
		naughty
		night
		*see 1;5
		*you 1;5 (2;1)
		*there 1;5 (*0;10-1;0)
	I;6	
*ätsch! 1;6 (*1;10)	aus, out	away
auf	Buch, book	bottle
Bauch	Dodo	box
Bleistift	mein, mine	buggy
Nackedei	Milch, milk	*cake 1;6 (1;9)
*natt-natt 1;6	Schuh, shoe	cookie(s)
*nein 1;6-9		dolly
*Schnee 1;6-9		duck
		hat
		light

<i>German</i>	<i>German-English</i>	<i>English</i>
		m-m
		*more 1;6
		no
		oil
		sh!
		*snow(ing) 1;6-10
		*toothbrush 1;6 (1;10)
	1;7	
alle	*andere, other 1;7	block
*arme 1;7-10	*Bär, bear 1;7 (1;11)	bobby(-pin)
*Auge 1;7	*Bates 1;7-8	choo-choo
*Augenblick 1;7-11	cracker	eye
*Blumen 1;7 (*1;0, *1;11)	*Jasper 1;7	juice
Brot	Joey	(my)
*Eis 1;7	*[kʰ] 1;7 (*1;10)	spoon
Frau	Knie, knee	sticky
*huch! 1;7	*Mack 1;7	stocking
*Taschentuch 1;7 (1;10)	Maus, mouse	water
	muh!, moo (*1;2)	way
		wet
	1;8	
au!	dies, this	all right
Baum	Fritzchen	big
dunkel	Grandpa	boy
*Hase 1;8	Haus, house	*cocoa 1;8
*(komm) mit 1;8-10	*hm?, 1;8	ear
nass	*June 1;8	egg
Onkel	miau, meow	far away
rollen	(Milwaukee)	ironing
*Spiegel 1;8	(Oino)	nose
Wehweh	Papier, paper	now
*wischen 1;8 (*1;11)	*Paul 1;8	open
	waschen, wash	peek-a-boo (*1;4)
		*pocketbook 1;8 (2;1)
		ride
		rock
		walk
		wheel
	1;9	
bauen	an, on	bacon
*bums! 1;9	Helen	ball
*Butter 1;9	hier, here	bathe
Ei	*Jack 1;9	beads
*Eiskrem 1;9	Toast, toast	broke(n)
*weisser 1;9	*Zwieback, zwieback 1;9	cake (*1;6)
		*kimona 1;9-10
		much
		*outside 1;9
		pick (up)
		please
		*roll 1;9 (1;11)
		watch

<i>German</i>	<i>German-English</i>	<i>English</i>
eins	*Glas, glass	bell
Fuss (Füsse)	Hand, hand	bike
*hacke	Hildegard	blow
hängen	*John	bug
*hoch	kratzen, scratch	*buy
*holen	*Leona	call
*hoppe!	Mary Alice	(closed?)
*klappert	Pudding, pudding	coat (petticoat)
*Kuss	Theresa	cover
*Liebling		dear
*Löcher		do
*Miezi		*dog
*Nacht		doggie
*patsch!		don't
pieks! (*1;1)		fall
spielen		feed
*steht		fix
tragen		flower
*watschel!		fly
zu		forgot
*Zunge		fork
		hair
		high
		home
		ice-cream
		kiss
		*kitty (*1;3, *1;10)
		*knife
		*knock
		lie
		make
		me (*1;4)
		money
		*nails
		new
		New York
		not
		*oatmeal
		*of
		pail
		piano
		piece
		pillow
		pooh (*1;2-4)
		*powder(-puff)
		put
		read
		right
		ring
		roll (*1;9)
		room
		slide
		*spill
		stone

*German**German-English**English*

*story
 *street-car
 sun-suit
 *that
 through
 throw
 train
 wait
 *wheelbarrow
 where
 write

Summary of New Words

The figures give the total number of new words acquired in each month. The figures in parentheses indicate how many of these words were non-permanent.

<i>Month</i>	<i>German</i>	<i>German-English</i>	<i>English</i>	<i>Total</i>
0;8	—	1 (* 1)	—	1 (* 1)
0;9	1 (* 1)	1 (* 1)	—	2 (* 2)
0;10	—	3 (* 2)	2 (* 1)	5 (* 3)
0;11	1 (* 1)	1 —	—	2 (* 1)
1;0	4 (* 3)	6 (* 4)	—	10 (* 7)
1;1	11 (* 9)	—	1 (* 1)	12 (* 10)
1;2	—	4 (* 3)	—	4 (* 3)
1;3	2 (* 1)	3 (* 1)	2 (* 1)	7 (* 3)
1;4	2 (* 1)	2 —	6 (* 3)	10 (* 4)
1;5	6 (* 3)	5 (* 1)	11 (* 4)	22 (* 8)
1;6	8 (* 4)	6 —	17 (* 4)	31 (* 8)
1;7	10 (* 7)	11 (* 6)	11 —	32 (* 13)
1;8	11 (* 4)	10 (* 3)	17 (* 2)	38 (* 9)
1;9	6 (* 4)	6 (* 2)	13 (* 3)	25 (* 9)
1;10	16 (* 6)	4 (* 2)	45 (* 8)	65 (* 16)
1;11	26 (* 17)	15 (* 6)	70 (* 16)	111 (* 39)
	104 (*61)	78 (*32)	195 (*43)	377 (*136) ³

By subtracting the number of non-permanent words from the totals, we obtain the following figures for words which were active at the end of the second year:

<i>Month</i>	<i>German</i>	<i>German-English</i>	<i>English</i>	<i>Total</i>
E 1;11	43	46	152	241

Cross-Sections

The implications of this table will be analyzed from various angles. But first the more mechanical aspects of word-counting⁴ will be disposed

³ M. Smith (p. 54, Table 8) records an average gain per month for 273 children as follows: 0;8—0; 0;10—1; 1;0—2; 1;3—16; 1;6—3; 1;9—96; 2;0—154. Her figures represent estimates rather than accurate counts.

⁴ Cf. Stern's summarizing chapter on word-counts, pp. 225-233.

of by supplementing the general list with a few cross-sections concerning the number of words active at selected stages. I choose for this purpose the same periods at which Stern gives cross-sections for his daughter Hilde, the end of 1;3, 1;6, 1;8, and 1;11.

Cross-section E 1;3

At the end of 1;3, Hildegard used the following words actively:

From	0;8: <i>German-English</i> [ʔəʔ].	Total	1
"	0;9: <i>German</i> Bild.	"	1
"	0;10: <i>German-English</i> t,t! (tsk, tsk); <i>English</i> pretty.	"	2
"	0;11: <i>German</i> piep, piep!; <i>German-English</i> Ticktack (ticktock).	"	2
"	1;0: <i>German</i> Ball, da, sch!; <i>German-English</i> m (m), oh! (oh), Papa (papa).	"	6
"	1;1: <i>German</i> A-a, kritze!, Wauwau.	"	3
"	1;2: <i>German-English</i> Baby (baby), Carolyn, pfui! (pooh).	"	3
"	1;3: <i>German</i> ja; <i>German-English</i> Bad (bath), danke (thank you), Mama (mama); <i>English</i> by-by.	"	5
Active E 1;3:	<i>German</i> 9; <i>German-English</i> 12; <i>English</i> 2.		
Grand total 23 ⁵			

Cross section E 1;6

From	0;8: <i>German-English</i> [ʔəʔ].	Total	1
"	0;9: <i>German</i> Bild.	"	1
"	0;10: <i>German-English</i> t,t! (tsk, tsk); <i>English</i> pretty.	"	2
"	0;11: <i>German</i> piep, piep!; <i>German-English</i> Ticktack (ticktock).	"	2
"	1;0: <i>German</i> Ball, da, sch!; <i>German-English</i> m (m), oh! (oh), Papa (papa).	"	6
"	1;1: <i>German</i> A-a, Wauwau.	"	2
"	1;2: <i>German-English</i> Baby (baby), Carolyn.	"	2
"	1;3: <i>German</i> ja; <i>German-English</i> Bad (bath),		

⁵ Karla at B 1;4 shared with Hildegard the following words: Piep, piep!, Ticktack, danke, Wauwau, Ball, Papa, bimbam!, Mama, Baby, m, by-by, pretty, pooh. She lacked: da (inactive by E 1;3), [ʔəʔ], oh, Carolyn, sch!, kritze!, Bad, A-a ("pooh" instead), ja, Bild ("baby" instead). She had in addition: mjamjam (Hildegard *1;0), Hildegard, Vira, lie down, get down, there it is, there, [kç], oohoo, sagen, [niʔ] (= "up"), [ʔəʔəʔ] (= "horse" and "basement"), [gaga] (= "candy," "food," "cookie"), box, blocks; inactive: all gone, Wiedersehn, Bonnie (dog), down, see-saw, [nəməənəm] (= "up"). Total active: *German* 5, *German-English* 13, *English* 11; grand total 29. In addition there had been 6 non-permanent words (1 *German*, 2 *German-English*, and 3 *English*). Stern pp. 18-20, 226: 8 (*German*) words. Grammont (p. 81) claims that 20, 30, or 40 words were used "from the first day on" and (p. 80) that after 1;4 nearly every sound was correct! Grammont can be trusted only for data on the few selected phenomena which he was interested in observing.

		danke (thank you), Mama (mama); <i>English</i> by-by.	Total	5
From	1;4:	<i>German</i> ei!; <i>German-English</i> Bett (bed), Marion; <i>English</i> down, hot, up.	"	6
"	1;5:	<i>German</i> bitte, heiss, mehr; <i>German-English</i> Apfel (apple), Auto (auto), huhu! (hoo-hoo), Mann (man), Rita; <i>English</i> all (adverb), brush, hello, high-chair, I, mitten, naughty, night.	"	16
"	1;6:	<i>German</i> ätsch!, auf, Bauch, Bleistift, Nacke-dei, natt-natt, nein, Schnee; <i>German-English</i> aus (out), Buch (book), Dodo, Milch (milk), Schuh (shoe), mein (mine); <i>English</i> away, bottle, box, buggy, cake, cookie(s), dolly, duck, hat, light, m-m, more, no, oil, sh, snow(ing), toothbrush.	"	31
Active E	1;6:	<i>German</i> 20; <i>German-English</i> 24; <i>English</i> 30.		
		Grand total		74 ⁶

Cross-section E 1;8

Most of the words active at E 1;6 continued in use. Only the following had become inactive: [ʔəʔ] (o;8); sch! and oh! (oh) (1;o); huhu! (hoo-hoo) (1;5); ätsch!, natt-natt, cake, more, toothbrush (1;6). Subtracting 3 *German*, 3 *German-English*, and 3 *English* words, total 9, from the numbers of E 1;6, we obtain a surviving stock of 17 *German*, 21 *German-English*, 27 *English* words, total 65. To these were added the following which remained active to E 1;8:

at	1;7:	<i>German</i> alle, arme, Augenblick, Brot, Frau; <i>German-English</i> Bates, cracker, Joey, Knie (knee), Maus (mouse), muh! (moo); <i>English</i> block, bobby(-pin), choo-choo, eye, juice, (my), spoon, sticky, stocking, water, way, wet.	Total	22
at	1;8:	All the words previously listed as new acquisitions for 1;8, with the exception of Hase and Spiegel, which were heard only once; or 9 <i>German</i> , 10 <i>German-English</i> , 17 <i>English</i> .	"	36
Active E	1;8:	<i>German</i> 31, <i>German-English</i> 37, <i>English</i> 55.		
		Grand total		123 ⁷

⁶ Stern, pp. 22-25, 226: 44 (*German*) words. Wundt, p. 289 (girl): 66 words during 1;6, 78 words during 1;7.

⁷ Stern, pp. 26-29, 226: 116 (*German*) words.

Cross-section E 1;11

Active E 1;11 (repeated from above):

*German 43, German-English 46, English 152.*Grand total 241⁸**Mortality Statistics**

Proceeding to the analysis of the count at the end of the second year, we find that of the 377 words which had been used (counting reoccurrences), 136, or 36%, were inactive by E 1;11.

The distribution of words over the three groups is shown in the following table:

	German	German- English	English
All words used (377)	28%	21%	52%
Active words E 1;11 (241)	18%	19%	63%
Inactive words E 1;11 (136)	45%	24%	32%

Taking each group by itself, we find the following percentages:

Permanent words in each group	41%	59%	78%
Non-permanent words in each group	59%	41%	22%

These figures indicate two important facts: 1) There was a considerable mortality in early words, and the number of words used at some time during the first two years was much larger than the number of words which survived in active use to the end of the period; 2) the mortality was large among German words, small among English words, whereas those words which found support both in German and in English prototypes were better balanced. This is the course of development which was to be expected under the circumstances. As the child grew up, her circle of English-speaking friends widened. Playmates and their mothers, maids, etc., reinforced the English element. The importance of her father, the only significant German speaker in her world, became absolutely and relatively smaller. Thus the German part of her vocabulary suffered greater loss than the English. Still, the loss of English words alone also amounted to almost one-third of the total loss. It must also be kept in mind that many English words were younger than the German ones and therefore had a smaller mortality. A large group, 70 out of 195, arose during the last month; these were not so likely to become obsolete

⁸ Stern, pp. 31, 226: 275 (German) words. Some comparable figures: M. Smith's Table 8 (p. 54), "Average size of vocabularies of 273 children": 1;3 — 19; 1;6 — 22; 1;9 — 118; 2;0 — 272. Doran, p. 402 (100 vocabularies, average) 1;3 — 61.2; 2;0 — 455.5 (range 10 to 1121). Langenbeck, p. 68: 1;4 — 229, of which 25 were German (precocious girl). Deville's totals are comparable only for 1;3 — about 36 words; for later periods he does not separate active and inactive words. His totals are very high (739 "at two years"), but apparently they include a very high rate of inactive words (v. 24, p. 319). Gerlach, p. 25 (average of "sixteen two-year-old children"): about 450, median 398, range 36-1227.

by the end of the month. For a monolingual child, the loss should be much smaller, because much of the mortality of Hildegard's German words did not really mean a linguistic loss but a shift, namely the replacement of German word symbols by English ones.

Linguistic Components

The ratio between the three linguistic components shows much less predominance of English over German than the mortality figures. That is of course due to the fact that in the earlier stages German was more powerful than later, and this condition left traces in the total figures. If we examine selected stages from this point of view, we find the following approximate percentage distribution of words over the three groups:

Stage	Number of active words	German	German-English	English
E 1;3	23	39%	52%	9%
E 1;6	74	27%	32%	40%
E 1;8	123	25%	30%	44%
E 1;10	169	20%	22%	58%
E 1;11	241	18%	19%	63%

These figures show a great preponderance of German at E 1;3, followed by a steady decrease of German and German-English and a striking increase of English. The growth of English is especially remarkable between E 1;3 and E 1;6, and also between E 1;8 and E 1;10.

None of the figures should be taken too much at face value. The difficulties of counting and arbitrary decisions as to assigning individual words to one group or the other, especially in the German-English column, falsify the picture. That is why rough percentage figures, which do not even always add up to 100, were deemed sufficient. But on the whole they give an adequate impression of the actual development.

If we examine the table of new acquisitions more closely, especially from the point of view of bilingualism, we discover the following selected facts:

By the end of the first year (E 0;11) she had used 10 words, 7 of which were lost by the end of the second year. Two of them were German, two English, and the remaining six were supported by both languages. Of the three words which remained permanent, two were German-English (t,t!, tsk, tsk and Ticktack, ticktock), one was English (pretty). Of the ten words, four were non-standard; they were babbling combinations which had acquired definite meaning; this group includes "mama," which did not have the standard meaning until 1;3. Most of the non-permanent words were not yet extinct by E 0;11. The actual number of words she used at the end of the first year was eight, including two non-standard words, which would not be counted by most investigators,

leaving a total of six for comparison with other records: two German, two German-English, and two English.⁹

German prevailed at 0;9. At 0;10 English began to gain the upper hand. The development was reversed by the trip to Germany 0;11-1;2, when German again took the lead, decidedly so at 1;1. During the following month, there was a state of balance; no new German words were acquired, but no English words either; the increase was limited to a few words anchored in both languages. During 1;3 the number of new English and German words was the same. From 1;4 on English gained ground, slowly at first, very decidedly from 1;9 on, until the last month, during which she learned almost three times as many new English words as German ones. This outline refers to new words only. A previous tabulation has shown that at E 1;3 German still was much stronger as far as the percentage of active words is concerned. But at least from 1;6 English was in the lead. The greater permanence of new English words resulted by E 1;11 in four times more active English words than purely German ones. About from 1;9 on, Hildegard spoke increasingly in sentences of several words, of which more were English than German or neutral. She did not hesitate to mix German and English words in her sentences. The stage of keeping the two languages apart did not come until much later.

Rate of Progress

Another aspect worth examining is the rate of progress. Looking at the totals of new words for each month, we notice at 0;11 a drop to the number of 0;9. That was due to the fact that at 0;10 English had begun to prevail, whereas during 0;11 she was transplanted to Germany and lost a little time in adjusting herself to the predominance of the German medium. But the figures are very small for this stage (2 and 5 respectively) and too much weight should not be given to them. The drop is more significant between 1;1 (12 new words, of which 11 were German) and 1;2 (4, of which none belonged to either language alone). Here the return to America, with its shift back to prevaillingly English-speaking surroundings, is certainly to blame. For the next six months the gain was slow but steady.¹⁰ Only 1;5 shows acceleration, the number of new words (22) being more than twice that for the preceding month (10).¹¹ But the well-known fact that progress shows plateaus, even without the

⁹ Some comparable figures: Smith, p. 54: 1;0-3 words (273 unselected children); Hetzer and Reindorf (Ch. Buehler, pp. 96 and 159): one-year-old children (28) of higher social classes, average seven words, lower social classes (28), average zero words; Doran (p. 402): 1;0-13.8 words (average of over 100 vocabularies published before 1907); Deville (v. 24, p. 319): 0;11-4 words, 1;0-5 words.

¹⁰ Karla, who was in general earlier than Hildegard, showed acceleration at 1;4 and again at 1;8 and 1;9. Her words had more nearly standard form than Hildegard's.

¹¹ Stern (p. 191) registers sudden progress for his daughter at 1;6. A concomitant stage of asking for names of objects was not observed with Hildegard. She preferred to absorb knowledge without asking for specific assistance. Cf. Pavlovitch, §44.

interference of exterior disturbances,¹² is illustrated in the record by the remarkable decrease from 1;8 (38 new words) to 1;9 (25 new words). At the end of 1;9 there was a week's pause in the diary record because of the removal to a new home. But it is unlikely that many new words were shifted to the following month through the delay in recording. It should be noted that during the same month, German was reduced to a much smaller share in the new words and that speaking in sentences of two and more words increased. It is plausible that the growing attention to the possibilities of putting several words together should have consumed some of the intellectual energies previously concentrated on the assimilation of new verbal symbols. For the last two months, progress was very much accelerated, in the learning of new words, now preponderantly English, as well as in the improvement of sounds, forms, and syntactical constructions. In these two months the child's speech made rapid strides in approaching the standard language. The more primitive stage of baby speech ended with 1;9. Notice that, as far as the vocabulary is concerned, the last two months brought almost half of all the words learned during the first two years, and exactly half of those that were in active use at the end of the period.

The picture of the rate of progress gained from the devitalized statistical figures is confirmed and rounded out by diary items written under the fresh impression of daily experience. At the beginning of 1;0, in Hamburg, I noted a rapid development of comprehension. At the turn of 1;0/1;1, the extensive understanding of words grew into a comprehension of little sentences, mostly commands; again and again she understood sentences which had not been practised on her, now mostly German, while speaking was still very limited. At the same time she began to respond to situations as well as words; glimpsing her hat and coat, she waved "by-by." During 1;1 the progress was slow both in walking and speaking, which may mean either that the preoccupation with the physical task diverted her attention from linguistic learning, or that the switch to German slowed down the acquisition of new words, or both. A considerable increase in individual words was noted for E 1;5. At 1;6 the rate of progress was so fast that I discontinued recording all words which she merely repeated on request. At 1;11 the new words came in such great numbers that it was difficult to understand all of them at once in their garbled form; many were already abstract. (At 2;0 sentences became more complete; minor elements like pronouns were added. At 2;0-1 they included rather suddenly a considerable number of verbs, whereas previously these had mostly been used in imperative form, without a subject. By 2;1 new words became so numerous that the punctilious registration of each new acquisition was given up; the task, not a mean one before that time, would have become Herculean.)¹³

¹² Cf. *e.g.* Stern, pp. 227-228.

¹³ Deville (p. 37) makes the same observation and gives up the record altogether after 2;0.

Stability

Looking at the figures again in the light of stability, we find that few of the words learned up to the end of 1;2 remained active to the end of the second year. 36 words were learned, of which only 9, or 25%, remained alive. Of 17 German words, 14 became obsolete; of 3 English ones, 2 were discarded, while of 16 bilingual ones 11 were non-permanent. It may be assumed that a certain number of early words are always unstable; we must also remember that a small group of them was non-standard in our count. But since the greatest mortality concerned German words, it is clear that in our case the bilingual training and the shift in emphasis from German to English had much to do with the high loss which the initial vocabulary suffered. It was a loss only from the point of view of the mechanical counting of word-forms. Viewing the situation under its more vital aspects, we see that hardly any loss at all was involved. Most of the lost words were eventually replaced by others from the same or the other language, so that the ability to express thoughts, feelings, or intentions was not impaired. On the contrary, since inactive German words invariably continued to be understood, the process amounted merely to a shift in linguistic expression. At first, both German and English were understood, but the active expression resorted chiefly to German symbols. Later German receded more and more to the passive position and English words were increasingly chosen for active employment. From 1;3 on the new vocabulary became more stable, especially the English and the bilingual part of it. German words continued to be acquired, but their constancy was much inferior, because most of them did not stand up against the English competition for long.

First Word

Another question which has interested observers of child language¹⁴ is that of the first word. Bateman, who aimed at summarizing all the information available up to 1917, found that of 35 children of different mother-tongues, most said their first word at 0;10, the range being 0;8-1;3. Charlotte Bühler (p. 95), who reported a similar survey of 49 children in 1931, found closely corresponding figures: the vast majority spoke the first "name" at 0;10, the normal range being 0;8-1;5, with 3 pathological cases at 1;8. However, if children in cultured families are segregated from children in lower social strata (p. 158), the former group used words with meaning much earlier than the latter: 65% of 28 "cultured" children used such words between 0;8 and 0;11 (the remainder at 1;0-5), while 40% of 28 "uncultured" children did not reach the same stage until 1;0-2, and 31% were delayed until 1;3-1;5 (the remainder until 1;6-2;0).

My own experience harmonizes well with these findings, which for

¹⁴ Bateman, Ch. Bühler (pp. 95, 158), Decroly (p. 112) and others.

once do not appear to be premature generalizations.¹⁵ Aside from unconventional sound-combinations endowed with meaning, Hildegard's first words, up to the end of the first year, were the following: "Bild" 0;9; "pretty," "tsk, tsk" ("t,t!") and "there" 0;10; "piep, piep!" and "ticktock" ("Ticktack") E 0;11.¹⁶ Preyer (p. 250) warns rightly that "the important thing is to know what is meant by 'speaking for the first time,'¹⁷ whether it be saying *mama*, or imitating," etc. My statistics refer to real words, used intelligently and spontaneously; meaningless babbling combinations, including "mama," and non-conventional sound-complexes, even with specific meaning, occurred earlier.

With regard to the relationship between speaking and walking, Preyer (p. 249 f.) cites Feldmann's old statistics (1833) to the effect that of 33 children all began walking several months earlier than speaking, and after reviewing a number of cases he agrees with him that this is generally true, although just as generally children "understand what is said long before they walk." He notes exceptions, however,¹⁸ and thinks of spoken sentences rather than words. Words being sentences for children, provided they are used actively and not merely imitated, Hildegard should be said to have begun speaking at 0;9, certainly at 0;10. She started walking with support at M 0;11, could stand free in the first half of 1;0 and learned walking alone rather slowly M 1;1.

Phonetic Accuracy

I should like to add to these computations a list of those words which were pronounced with phonetic accuracy, that is, exactly as in the standard language heard by the child, or nearly so. I have found no such list in the previous literature, because very few of the earlier studies were interested in the phonetic aspect of child language. The list is rather short, because, although Hildegard's ability to express herself was normal, she was late in reaching a clear pronunciation.¹⁹ When I had not been with her for seven weeks at 2;1, I found it difficult to understand her. In this list the asterisk means that she used a perfect or near-perfect pronunciation at the stage indicated, but that it yielded later to a less perfect form; such retrogression was not unusual; progress in child language is not steady and consistent.

¹⁵ Pavlovitch's child was precocious (cf. Decroly, p. 112); he said the first word at 0;6 (§30) and several at 0;7 (§31). Ronjat (§6) has the first word at E 0;10 (Ticktack), aside from a doubtful case at 0;7.

¹⁶ Karla's first word was "by-by" 0;8, the same word which Brandenburg observed as the first 0;10 (Ch. Bühler, p. 162). Hildegard did not say it until 1;3.

¹⁷ Cf. also the good discussion by P. Schäfer, *Zeitschrift für pädagogische Psychologie* 22 (1921), pp. 317-325. His tabulation shows the first meaningful, non-mechanical word at 0;9-1;1.

¹⁸ According to C. D. Mead, "The age of walking and talking in relation to general intelligence," *Pedagogical Seminary* 20 (1913), p. 461, only 17 of 50 normal children walked before they talked.

¹⁹ Karla's pronunciation was on the whole much better at the same stage.

- 0;10 *pretty (whispered)
t,t!, tsk tsk
- 1;0 da (in *da ist es)
m (tastes good)
sch! (riding motion)
- 1;1 A-a
*Papa, papa (one month after inaccurate beginning)
- 1;2 Baby, baby ([e] pure)
muh!, moo
- 1;3 ja
Mama, mama
*Ticktack, ticktock (whispered; 3 months after beginning)
- 1;4 da (cf. 1;0)
ei!
Ei
me
bäh!
1;5 bitte
by-by (after two months' preparation)
I
mehr
- 1;6 *Dodo
m-m (negative)
natt-natt!
*no
- 1;7 alle (but velar [l]; correct German [l] 1;10)
Auto (after two months)
bobby(-pin)
eye
knee
*mein, mine
my
*nein (after one month)
way (but mostly pure [e])
- 1;8 au!
away (usually [e]; after two months)
boy
choo-choo (after one month)
cocoa
hm
*miau, meow
wash
- 1;9 bau(en)
*Buch (after 3 months)
- 1;10 bite
Boot, boat

- eat
 meat
 mit (after 2 months; but represents "komm mit")
 night (after 5 months)
 wake up (but with glottal stop)
 why (but voiced [w])
- 1;11 ab
 backe
 bake (but pure [e])
 beach
 bike
 buy
 do
 hacke
 high
 hot (after 7 months)
 make (but pure [e])
 Nacht
 new
 not
 patsch!
 peek-a-boo (after 7 months)
 pooh (after 9 months)
 two (but unaspirated [t]; after one month)
 wait (but pure [e])
- (2;1 Nackedei—after 7 months)

Parts of Speech

In this volume I do not deal with the syntax of the first two years; but since a great many observers classify the early words by parts of speech, a word must be said about that aspect at this point. In my own notes I tried to carry out such an analysis month by month, but I finally decided to discard the tabulation. Many writers on the subject²⁰ have pointed out that words in child language do not fall into the same categories as in adult language. Words which are nouns for adults may be something quite different to the child; they "really function not only as nouns, but as verbs, adjectives, interjections, and almost any part of speech that is needed in the situation" (McCarthy). It is still better to say that no such grammatical analysis applies to child utterances. Words are grammatically undifferentiated. At the stage of the one-word sen-

²⁰ For instance Dewey, McCarthy (p. 18), Decroly (p. 108). Romanes (pp. 296-98) in 1889 quotes still older authors (Max Müller, Friedrich Müller) on the undifferentiated character of early words. P. Guillaume (*Journal de Psychologie*, v. 24 [1927] p. 9-10) is strongly opposed to analyzing the early vocabulary by parts of speech.

tence, the meaning is conveyed directly and implicitly; the thought or feeling is not yet cast into conventional patterns. John Dewey (p. 66) speaks of "the original protoplasmatic verbal-nominal-interjectional form," which is only "gradually differentiated into rigidity"; he draws his striking formulation from Romanes, who speaks of the "undifferentiated protoplasm of speech" (p. 295) and repeats the pet term "protoplasmatic," which is inspired by his biological background, in several places (e.g., pp. 329, 358).

The separation of parts of speech is more meaningful at the stage when sentences become more complete or conventional, in our case from about 1;9 on. But even then the separation cannot be carried through clearly, since many words still waver between different categories.²¹ This condition is never overcome completely, since even in the standard language such instances remain, especially in English with its facile transition of words from one category to another. It is also doubtful whether the child's grammatical thinking has changed as much as the perfected form seems to indicate. Max Müller²² formulated this idea very well: "Even if a child learns to speak grammatically, it does not yet think grammatically; it seems, in speaking, to wear garments of its parents, though it has not yet grown into them." This clever metaphor probably distorts the underlying situation; the child is not likely to creep into his parents' clothes until he dimly perceives their physical and social usefulness. But it may be granted that the perception is dim in the beginning, and that grammatical categories do not become clear and well-defined all at once. Romanes (p. 328f.) objects that, although transfers of words to different parts of speech occur frequently in child language, this is due entirely to "the exigencies of expression." On the whole he thinks that "from the very first, there is a marked tendency to observe the distinctions which belong to the principal parts of speech," and gives plausible examples. It is true that the ungrammatical character of child speech should not be exaggerated. The process of approximation to standard speech, which goes on continually in child speech, operates in syntax as well as in sounds from the beginning. But the fact remains that this process is normally not sufficiently advanced by the end of the second year to make a classification by parts of speech valuable. It is correct that nouns prevail in the early stages and that verbs begin to increase at the end of the period under discussion;²³ also that adjectives are earlier than adverbs, etc. That corresponds to the successive interests on which the child's attention is centered. But it is not safe to go beyond such general statements; exact statistical data must be mislead-

²¹ The grammatically unanalyzed complex of observation represented by the word "Wauwau" was well described long ago by H. Steinthal, *Einleitung in die Psychologie und Sprachwissenschaft*, Berlin, 1871, pp. 399-401.

²² *Lectures on the Science of Language*, 2, p. 91f., quoted by Romanes, p. 296.

²³ Cf. e.g. McCarthy, p. 16; Decroly, p. 122.

ing. Dewey (p. 66) calls attention to the great individual differences in distribution of parts of speech, which for him point to interesting differences in individual psychology. There are such differences, no doubt, but I would not trust the statistics to establish them; the diverging figures may be entirely due to the differences in assigning words to parts of speech.

To make this apparent, let me cite some examples from Hildegard's speech. At 1;8 she uttered a wish to have something opened by saying "open"; but at the same time she also used "auf" for the same purpose. The mechanical classifier would count the former as a verb, the latter as an adverb. Yet psychologically they were synonyms, and grammatically they were undifferentiated. The name of an object was rarely said as a dispassionate, objective statement; usually it was tinged with the wish to have it or with an emotional reaction to it. In the former case it resembled closely an imperative, that is a verb; in the latter, an interjection. Yet mechanically both usages would appear as nouns. As late as 1;11, "this door open" might be in her speech a statement, "open" being an adjective, or else a wish, "open" being an imperative (verb). Actually no such classification was probably present, even subconsciously. Also at 1;11 she used "wait" instead of the earlier "Augenblick!" This would appear in the statistics (if genetic aspects were taken into account at all) as a shift from a noun to a verb, whereas psychologically no more change occurred than the replacement of a German word by an English one. Again, when "come on" was substituted for "mit" (1;10), it did not mean a shift from an adverb to a verb plus adverb; "mit" stood for "komm mit" with a quite normal phonetic clipping, but few observers without linguistic training would recognize that. I think these examples suffice to substantiate my contention that a statistical classification of words by parts of speech is fruitless and misleading up to the level of two years. For older children the situation is quite different.

Striking Gaps

A word in passing should be devoted to striking gaps in the vocabulary; I have not found this negative aspect in other vocabulary studies. One might think that in the fairly extensive stock of words acquired by the end of the second year all important matters within the child's orbit would be represented. That is not the case. Taking haphazard examples of words missing in Hildegard's vocabulary, which were well within her range of experience, we find that such common nouns as "chair," "picture," "tongue," "yard," "garden," "street" were absent in both languages. "Chair" occurred only in the compound "high-chair." "Picture" was represented by "Bild" 0;9-1;4, but later went out of use. "Zunge," the German equivalent for "tongue," was tried, but it did not get out of

the experimental stage, possibly because of its phonetic difficulty.²⁴ Imitation of the adjective "good" was not tried once. Its most important function, "tastes good," was represented by "m." But it would seem that there are enough other important meanings of "good"; yet it did not become active.²⁵ The absence of "little" and "small" is even more surprising. Among verbs the following are conspicuous by their absence, even in the otherwise early imperative form: "see," "take," "haben," "jump"²⁶ (apart from the mysterious [daʃ], which took the place of "jump" in some of its applications). "Hug," "look," and "like" did not appear until 2;1. "Come" was missing except in the combination "come on." I have no explanation for the existence of such gaps. One would expect personal usefulness to be the guiding principle in the selection of words for active assimilation. The samples just given seem to indicate that there are restrictions to the validity of this assumption. The situation serves as a reminder of the fact that, although language-learning proceeds by imitation, there is considerable leeway for the children to display personal freedom and individual differences in the selection from the language-material presented and the order of its acquisition.²⁷ The interest of the child is no doubt the guiding principle; but it is not easy to look into the child's mind and to find out how this interest is determined. Usefulness as adults see it apparently does not yield a sufficient basis of explanation. All through life we learn only what recommends itself to us through a strong personal interest of one kind or another, and that is not alike for any two individuals. It is not surprising that the same individual differences should appear in the earliest learning processes of children.

Semantic Groups

If a grammatical classification of early vocabulary yields no satisfactory results, a semantic grouping should be more revealing. It is certainly of interest to see how the words are distributed over the various fields of the child's life.²⁸ I have attempted such a classification, but must warn the reader beforehand that it gives only a rough picture of the

²⁴ E. S. Holden, Transactions of the American Philological Association 1877, p.60: "... the ease of pronunciation, far more than the complexity of the idea, determines the adoption of a word."

²⁵ Charlotte Bühler (p. 149) lists the "value word" "gut" as early as 1;1 for her daughter Inge; for Bubi Scupin (p. 150) at 1;4. Karla had "good" at 1;10. She also used many of the other words here mentioned, before 2;0.

²⁶ Karla said [ha:m] and "jump" at 1;9.

²⁷ Cf. Karl Bühler, "Vom Wesen der Syntax." *Idealistische Neuphilologie, Festschrift K. Vossler*, 1922, pp. 54-84.

²⁸ William Boyd, *Pedagogical Seminary* 21 (1914), pp. 95-124, gives such a classification, subdividing the parts of speech.

situation. It is not easy in many instances to determine under which heading a word should be listed. A certain amount of arbitrariness is unavoidable; many words would fit as well in another classification, and a few of them are indeed listed twice. But even with this restriction, I deem the results not without interest. Where the classification seems queer, the reader should consult the main lists to compare the actual use of the words.

1. *Food.* 0;10: *[mam:a]. 1;0: *[mjəmjam], m. 1;5: apple (Apfel), mehr. 1;6: cake, cookies, milk (Milch). 1;7: *[kχ], cracker, juice, spoon, water, Brot. 1;8: *cocoa, egg. 1;9: bacon, toast (Toast), *Zwieback (zwieback), *Butter, Ei, *Eiskrem. 1;10: candy, drink, eat, meat, peas, *Kuchen. 1;11: *banana (Banane), feed, fork, *glass (Glas), ice-cream, knife, *oatmeal, pudding (Pudding).

2. *Toys and games.* 1;0: *Ball, *sch! 1;1: *bimbam!, *kiek!, *pieks!, Wauwau. 1;4: peek-a-boo, *da ist es! 1;5: *klingelingeling!, *I see you. 1;6: box, cake, dolly, duck, Bleistift. 1;7: bear (Bär), block, choo-choo, mouse (Maus). 1;8: paper (Papier), Fritzchen, *Hase, house (Haus), rollen. 1;9: ball, beads, roll, bauen. 1;10: aboard, balloon, boat (Boot), church, crash, hottey, *Mickey mouse (Mickey-Maus), *radio, sandbox, stick, three, two, dicken, drei, zwei. 1;11: bake, bike, blow, knock, pail, piano, slide, *story, throw, backe!, eins, *hacke!, *hoppe!, *klappert, *Löscher, *patsch!, spielen, *watschel!

3. *Animals.* 0;11: *piep piep! 1;0: *[ʔaʔa]. 1;1: *"quak quak!", Wauwau. 1;2: moo (muh!). 1;3: *kitty. 1;6: duck, *natt-natt. 1;8: meow (miau). 1;10: bite, hottey, *beissen, Katz (Dasch). 1;11: *dog, doggie, fly, scratch (kratzen), *Miezi. Cf. also Toys. The list seems short, but for a city child, animals are no longer a frequent phenomenon, and Wauwau was a very frequent word, which for a long time did duty for several animals.

4. *Persons.* 1;0: papa (Papa), *Opa. 1;1: *Gertrud (Gertrude), *Tante. 1;2: baby (Baby), Carolyn. 1;3: mama (Mama). 1;4: Marion. 1;5: man (Mann), Rita. 1;6: Dodo. 1;7: *Bates, *Jasper, Joey, *Mack, Frau. 1;8: boy, Grandpa, *June, *Paul, Onkel (Oino). 1;9: Helen, *Jack. 1;10: *Alex, Florence, Hildegard, *John, *Leona, Mary Alice, Theresa. Notice that the father was the first person named, and that the mother was preceded by six other persons, of whom five were designated by proper names.

5. *Parts of body.* 1;6: Bauch. 1;7: eye, knee (Knie), Auge. 1;8: ear, nose. 1;10: feet, mouth, neck, Haar. 1;11: hair, hand (Hand), *nails, Fuss, *Zunge. Notice the late start of this category, really at 1;7, because the item of 1;6 was at first only part of a game. The terms had great stability.

6. *Clothing, (un)dressing, etc.* 1;1: *kritze! 1;3: bath (Bad, baden). 1;4: bed (Bett). 1;5: brush, *mitten. 1;6: hat, out (aus), shoe (Schuh), toothbrush, Nackedei. 1;7: bobby, stocking, Taschentuch. 1;8: wash

(waschen). 1;9: bathe, *kimona, on (an). 1;10: button, comb, dress, *pocket, soap, towel, Handschuh, Schnucks, *Tasche. 1;11: cover, forgot, petticoat, *hoch!

7. *Other home routine.* 0;9: *Bild. 0;11: ticktock (Ticktack). 1;0: *Blumen. 1;1: A-a. 1;4: down, up. 1;5: high-chair, naughty, night, mehr. 1;6: away, book (Buch), bottle, light, *more, oil, out (aus), sh!, auf, mine (mein). 1;7: sticky, way, wet, alle, Augenblick, my. 1;8: ironing, open, *pocket-book, ride, rock, this (dies), *wischen, nass, *Spiegel. 1;9: bite, broken, much, pick (up), watch. 1;10: break, crash, cry, door, dry, go, gone, *measles, noise, push, wake up, *beissen, kaputt, *lutscht, *weg. 1;11: bake, bell, blow, buy, call, do, fall, fix, lie, make, money, new, piece, pillow, *powder-puff, put, read, ring, room, scratch (kratzen), *spill, *that, through, wait, write, abwischen, Brief, hängen, *holen, *Nacht, *steht, zu (closed).

8. *Outdoor life and traffic.* 1;3: by-by. 1;5: auto (Auto). 1;6: buggy, *snow, *Schnee. 1;7: choo-choo, ice (Eis). 1;8: house (Haus), walk, wheel, Baum. 1;9: *outside. 1;11: airplane, alley, automobile (Automobil), beach, bug, flower, home, stone, street-car, sun-suit, train, tragen.

9. *Emotions.* 0;8: *[ə?]. 0;9: *[dɪdɪdɪ]. 0;10: *[nenene], pretty, tsk tsk (t, t). 1;0: oh. 1;2: pooh (pfui). 1;4: ei! 1;5: *bäh! 1;6: *ätsch! 1;7: *[kχ], *arme, *huch! 1;8: all right, big, poor, au!, dunkel, Wehweh. 1;9: *bums! 1;11: *[bu:], *donnert. Note that the increase in interjections and other emotional terms does not keep step with other categories at the later stages. The percentage of terms of German origin is high. This is the group in which non-standard forms are most prominent, early and late.

10. *Social relations.* 1;3: thank you (danke), ja. 1;4: *yes. 1;5: hello, *hoohoo (huhu), bitte. 1;6: m-m, no, *nein. 1;8: hm?, *komm mit. 1;9: please. 1;10: come on. 1;11: *ask, dear, don't, kiss, *Kuss, *Liebling. The list is very incomplete. All imperatives and many other items could be listed here. Note that the affirmative sentence adverb starts at 1;3, the negative at 1;6, at once in three different forms.

11. *Grammatical classifiers.* 1;4: *me. 1;5: I. 1;10: my (= "I"). 1;11: *a, me, *of.

12. *Abstracts.* 0;10: *there. 1;0: da. 1;4: hot. 1;5: all (adv.), heiss. 1;7: *other (andere). 1;8: far away, Milwaukee, now, dunkel. 1;9: here (hier), *weisser. 1;10: all (adj.), cold, *dark, in, nice, too, *why. 1;11: high, New York, not, right, where. This list is inadequate. Other more or less abstract terms are scattered in other categories. But it gives a few samples of local, temporal and general abstracts, accommodating at the same time some words which are difficult to classify.

Reasons for Mortality

We return once more to the problem of the mortality of words. The mechanical statistics previously given should be supplemented by an

attempt to explain why words became obsolete. It is not easy to assign reasons for this phenomenon. The facts of discontinuance can be established objectively, but the reasons belong to speculation, since the hidden workings of the child's mind can be reconstructed only by surmise, and plausibility is the best that can be achieved. But on the other hand, the psychological explanation, even though tentative, is more interesting than the dry facts, which are really almost meaningless if they remain uninterpreted.

In the following discussion I shall try to distribute the cases of mortality in seven explanatory categories, giving examples, but without aiming at a complete catalog.

1. Difficulty and ease of phonetic form and of semantic content should have something to do with the lack of stability of certain words. For instance, Hildegard tried "radio" in the form [wea] 1;10, but did not continue to use the word. Later on she returned to a more primitive form of speech by pointing to it and calling it "this": "this on?" = "May I turn the radio on?" Apparently the difficulty of the word — it remained garbled for years — and the consciousness of the inadequacy of her experimental form made her hesitant to use it. I could imagine that with other children phonetic difficulty would be a more frequent reason for discarding words. Its importance for Hildegard's vocabulary was much reduced because it was characteristic of her that she generally avoided altogether any words the meaning and form of which she could not successfully cope with.²⁹ Thus phonetic and semantic difficulty would in her case be more easily the explanation for total absence of words from her vocabulary than for the mortality of words once used. In so far as this problem is a phonetic one, it will be taken up again in the phonetic section of this study, which is in preparation.

2. Homonymy.

One glance at the alphabetical list of Hildegard's word-forms shows that a great number of different words took the same form in her speech. Such homonymy did not seem to disturb her at all, even when two identical forms stood side by side, as in [maɪ maɪ], *my money*. A similar condition is observed in standard languages, where homonyms of entirely different meaning are used without scruple as long as their context precludes the probability of misunderstanding. But on the other hand, for cases when such homonyms are capable of interfering with each other, it has been made plausible that certain words have disappeared from standard languages in the course of their history because of homonymy.³⁰ To a limited extent this fear of homonymy may have operated

²⁹ Karla was much less cautious in experimenting with difficult words.

³⁰ Cf. e.g. E. Öhmann, *Über Homonymie und Homonyme im Deutschen*, Helsinki, 1934 = *Annales Ac. Scient. Fennicae* v. 32, 1; and R. J. Menner, "The conflict of homonyms in English," *Language* 12 (1936), pp. 229-244, with bibliography; also Bloomfield, p. 396-399 and Jespersen, p. 285 f. Obsolescence of words in standard languages has been investigated

in the child's language as well. The babbling combination [mama] acquired the meaning of "food" 0;10-1;1. It was understood in this sense by the environment and produced gratifying reactions. Thus it might have continued in this function if it had not been understood, from E 0;11 on, to be a symbol for the mother. It survived this ambiguity for nearly two months, but the less objectionable "m" developed along with it from practically the same moment on, B 1;0; "m" lasted until the end of the second year. At 1;3 "mama" became active with the standard meaning. Of course, this process meant at the same time a progressive accommodation to standard usage. But the avoidance of homonymy may well have been a contributing factor. Homonymy is also a phonetic (and semantic) problem and will be discussed again in the second part of the study.

3. Acquisition of more specific terms.

This is an important reason for the obsolescence of words. In the early stages, with their meagre stock of linguistic expressions, certain vague terms must do duty for a wide variety of purposes. "Pretty," vague enough in standard speech, served at first to call attention to anything that excited her interest. As she acquired specific names for the objects she admired, she preferred to use these names; the domain of "pretty" became more restricted and she used it much less frequently. Similarly "bitte" was a useful word because it gave adequate expression to a thousand wishes.³¹ Later on, this word too could be replaced by the specific names of objects wanted, and the intonation of a question often symbolized the request. These two words, of course, did not become inactive. The principle here discussed is more apt to reduce the frequency of certain words than to eliminate them altogether. But the striking fact that "Bild" (0;8-1;4), in spite of its usefulness, disappeared after eight months' use without being replaced by a synonym can best be explained by the fact that from 1;4 on it was more satisfactory to her to name the object pictured, like "baby," "automobile," "Wauwau," than to use the pale general term. The comparatively abstract character of the word must also be the reason why it was never very eagerly used even while it was active. It had a limited value for her only as long as more specific words were lacking.

4. Change of interest.

The clearest case is that of "Schnee" 1;6-9 and "snow" 1;6-10. This phenomenon was of great interest to her from January to April (1;6-9). After that, there being no more snow, her interest lapsed, and she heard no more discussion of snow from the adults. Thus the term was discarded until the next winter, which was beyond the two-year limit. The some-

only occasionally; cf. E. B. Dike, "Obsolete English words: some recent views," *Journal of English and Germanic Philology* 34 (1935), p. 351-365; on p. 363 he suggests (following Manly) that child speech may be one of the instruments of obsolescence.

³¹ Stern discusses the emergency value of "bitte" on p. 391.

what obscure instance of "snowing" used 1;10, in May, shows that the memory carried the word a little beyond the period of actual observation. But at that age a child's language is still too much tied up with actual everyday experience to allow reminiscent terms to survive long. Another clear instance is that of the words learned in Germany (1;0-1) which became useless after the return to America, namely the names of persons in Hamburg: "Gertrud," "Opa," "Tante," and games learned from and associated with them: "bimbam!," "kiek!," "kritze!" The only comparable change of environment in America, namely the removal to a new home B 1;10, had similar consequences: the names "Jack," "Mack," "Paul" faded out of active use due to diminished or discontinued contacts with the old neighborhood. A different case in the same category is that of "measles" 1;10. During an epidemic, when everybody talked about measles and Jack became a victim, she acquired the word, but soon forgot it, after the short-lived boom, which made the term important to her, had subsided. Other illustrations of the same point could easily be found. It is probably the most clear-cut reason that can be assigned to the obsolescence of words.

5. Rejection of non-standard terms.

Almost all expressions which have no root in standard words belong to the earliest stage. They overlap from the period of self-expression into that of communication. The only late examples are [bu::] for thunder (1;11) and [kχ], a primitive vocalization of disgust with the taste of food, which appeared sporadically at 1;7 and 1;10, but did not become established either. All these terms had a limited vogue, the interjection [ʔəʔ] lasting much longer than any of the others (0;8-1;6). Their discontinuance is simply due to the ever-present driving force of adaptation to the standard language. Thus [ʔaʔa!], with which she addressed dogs 1;0-2, disappeared shortly after the more standard synonym [wawa], *Wauwau* had been acquired (E 1;1). Even words with conventional support fall in this category when such support is weak. When I once playfully used the saucy interjection "bäh!" (1;5), she imitated it at once, struck by its splendid emotional value. But since it did not belong to my regular stock of expression—I merely borrowed it from German children's parlance because it suited the mood of the moment—she did not become accustomed to it. If Hildegard had lived among German-speaking children, it would probably have become a part of her vocabulary. We can go one step further: some of her words which were based on standard prototypes may have failed to become established because she felt that she was not able to reproduce them in a form close enough to the standard pronunciation. This sub-category is elusive, because so many of her words diverged strongly from the standard form without causing her any inconvenience. But an important distinction appears to be necessary here. If her sound-form represented the result of normal sound-substitu-

tions—they will be discussed in detail in the second part of this study—she was apparently unconscious of its non-standard character. In fact, when I sometimes experimentally used her own sound-forms in speaking to her, I noticed a strange, puzzled expression on her face; she did not even recognize the words in the form she herself gave them. On the other hand, her version of “Leona” for instance, [me^lʔɔno] 1;11, which embodied a child etymology, seems to have been unsatisfactory to her. It was dropped as soon as the house-guest of that name had departed. This, of course, would be sufficiently explained by her waning interest, most adult friends holding no lasting fascination for her anyway. But when the same friend came again only a month later (2;0), Hildegard did not revive her earlier imperfect form, but recoinced it according to more orthodox principles of sound substitution.

6. Struggle of synonyms.

In many cases words fell into discard because synonyms took their place. The consideration of this category carries us at the same time into the question of bilingualism, because Hildegard had synonyms from two languages to choose from.

Monolingual synonyms.

The German sentence “da ist es,” mechanically acquired as a game 1;4-5, was replaced by the simple “da,” which was older (B 1;0) and won out because it was more universally useful and better capable of carrying volitional implications. “Dunkel” (1;9), which was transferred 1;10 to the function of indicating thunder, gave way 1;11 to the more standard “donnert,” which did not become fixed, to be sure, but only because the phenomenon after all was not so very frequent. “Hase,” once 1;8, did not become habitual, partly perhaps because it did not gain ascendancy over the English synonyms “rabbit,” “bunny,” which she heard more often but never used, but also because the synonym “Wauwau,” well established since 1;1 and regularly used for all soft toy animals, was sufficient for her. The more specific terms did not always win out at once. The rather primitive “sch!” for riding motions, although learned from an adult, lasted from B 1;0 to 1;6, but was then replaced by several synonymous words from both languages, which were both more specific and more standard.

English “break” was attempted 1;10 in competition with the older “broke(n)” 1;9. But in her ungrammatical speech there was no discernible difference in function between the two forms, and “break” was dropped again. The result of breakage loomed larger in her interest than the act of breaking, although statements about it often showed less of a regretful tinge than might have been desired. “Dog” was tried 1;11, but did not conquer the more frequent nursery-forms “doggie” (1;11) and “Wauwau” (1;1). (The adult form “dog” did not assert itself until 2;4). “Kitty” was attempted repeatedly, at 1;3, 1;10, and 1;11. At first cats

were too rare a phenomenon in her experience. Later, when the interest became more sustained, the name "Katz" ("Dasch") (1;10) and the bilingual nursery-term "meow" (since 1;8) proved to be more powerful. Of neutral terms for food, [mama] (0;10-1;1) gave up its meaning for a more standard one, and "m" (B 1;0) yielded to the more grown-up "eat" (1;10), although it remained with the restricted and quasi-standard meaning "tastes good." "Street-car" (1;11) was an ineffectual competitor of the more general "choo-choo" (1;7), but the more important "train" gradually established itself during 1;11 as a more dignified equivalent of the nursery word. The fact that the demonstrative "that" (1;11) did not get out of the experimental stage is due to the circumstance that the synonym "this" became well established and that she felt no need for a finer discrimination.

Bilingual synonyms.

Vocabulary-shifts from one language to the other are not essentially different. No consciousness of a language-shift can be assumed. It was solely a question of choosing synonyms which recommended themselves to her by more frequent presentation, greater ease, or some other reason of convenience.

Shifts from English to German were not very frequent, but they are attested by a sufficient number of examples. Her form for "bed" probably contained elements based on the English word from 1;4 to 1;8, but from 1;11 on it assuredly represented the German "Bett." "Mitten" was active for quite a long time (1;5-10), but was then dropped in favor of "Handschuh" (it emerged again at 2;1). "There" was very active 0;10-B 1;0, then, in Germany, yielded to "da," was alive again at 1;5, but could not maintain itself against the German competitor, which probably owed its greater vitality to its easier phonetic form; "da" was a very frequent word.

Shifts from German to English were more frequent, since the predominantly English environment asserted itself more and more in Hildegard's speech. The expression of pity, "arm" (1;7) yielded to "poor," 1;10. "Augenblick" (1;7-11) gave way to its synonym "wait," 1;11. "Baden" (1;3-9), in spite of the support it had in "bath," was replaced by "bathe," 1;9, the month 1;9 showing the struggle between the two prototypes clearly. "Blumen," in spite of early spurts of activity (1;0, 1;7, 1;11) did not become permanent, whereas "flower" was added to her vocabulary in 1;11. "Eiskrem" was German 1;9, but "ice-cream" clearly took its place 1;11. Another clear case of displacement is "komm mit" (1;8-10) > "come on" (1;10). The experimental "natt-natt" (1;6) was supplanted by the easier and maturer "duck" (1;6).

Some of the reasons why words prevailed over their synonyms have been informally mentioned during the enumeration of examples. They are often identical with other explanations of obsolescence; the categories overlap. It is not possible to assign a cogent reason to every shift.

The secret operations of the child's mind must sometimes appear as chance.

7. Lack of stability.

In a great number of instances no specific reasons for the instability of words can be found. Even in the case of a child like Hildegard, who avoided using words which she could not master phonetically and semantically, there were of course many expressions which were temporarily important to her, but did not remain so. This condition is reflected in numerous words which had a passing vogue. They belong to both languages, but mostly to the later months; for non-permanent words of the earlier period definite explanations can more easily be found. Quite a number occurred during the last month, when their permanence or non-permanence could be judged only tentatively, principally on the basis of frequency of occurrence. Whereas many words became a firm possession as soon as they emerged into active status, many others took hold gradually, their first appearances being experimental. A few examples of words which were unstable because of fluctuating interest or insufficient importance: a (indefinite article) 1;11, ask 1;11, banana (Banane) 1;11, bug 1;11, church 1;10-11 (only in a rhyme), cocoa 1;8, knife 1;11, of 1;11, pocket and Tasche 1;10, andere 1;7, Butter 1;9, Löscher 1;11, weiss(er) 1;9.

Simultaneous Bilingual Synonyms

In the paragraphs on the importance of synonyms for the mortality of words, successive bilingual synonyms have already been discussed. A word remains to be said about synonyms from the two languages which existed side by side.

Naturally, in cases involving a struggle between a German term and an English one, there was often an intermediate stage in which both terms were in active use until the struggle was decided. I give examples from this category first.

1;6. "Nein" arose during the same month as the English negatives "no" and "m-m" ("uh-uh"), without functional distinction. It lasted until 1;9, but then disappeared. "More" (1;6) did not become established; "mehr" (1;5) maintained itself against the competitor and continued in active use; it was an exceedingly frequent word.³²

1;7. "Auge" and "eye" began at the same time, but only "eye" became active.

1;9. "Bad(en)" had held sway from 1;3 to 1;9; but then, although it

³² The importance of frequency as an indicator of the value of words for the child has been emphasized by J. Schlag in several papers, especially *Zeitschrift für pädagogische Psychologie* 18 (1917), p. 216-226; he gives data for older children. Frequency is taken into account by M. C. and H. Gale, "Children's vocabularies," *Popular Science Monthly* 61 (1902), p. 47.

was supported by English "bath," "bathe" began to compete with it and soon won out.

1;10. The adverb "weg" rose ineffectually against "away" (1;6). "Beissen" and "bite" began at the same time, but only the English word became established. "Dark" was rarely used as a synonym for "dunkel" (1;8), but the latter, strongly anchored by an emotional implication, was not shaken. "Tasche" occurred only once, but the synonym "pocket" did not become fixed either. "Kuchen" vied with "cake" during 1;10-11, but the older English word (*1;6, 1;9) did not allow the German synonym to become permanent.

1;11. The interjection "patsch!" was used as a synonym for the English verb "bite," both serving as unconventional references to spanking; "bite" had this meaning more persistently. The "good night" greeting was sometimes given to her father in German form, "Nacht," but the long established "night" (1;5) was not displaced. "Hoch," for raising her arms during the dressing process, was used at 1;11, but the well-established older synonym "up" (B1;4) prevailed, particularly since English-speaking women had greater influence on the rite.

The other group of bilingual synonyms consists of those terms which were used in both languages concurrently, neither of them displacing the other.

1;1. The name of her aunt Gertrud was reproduced in varying forms, most of which were based on its German pronunciation; but one form suggested the English sound form. Because of our return to America, the name fell into discard and did not reach a stabilized form.

1;5. "Hot" became active one month before "heiss," at 1;4. At 1;5 "heiss" became more frequent. At 1;8 "hot" was more common and continued so until the end of the second year. But it did not displace the German equivalent entirely, and the latter had better phonetic form. It had the final consonant from 1;7, tentatively even since 1;5, whereas "hot" did not acquire it until 1;11. There was no functional distinction between the two synonyms.

1;6. "Auf," only as an adverb, from clues like "mach auf!," "steh auf!," began two months later than "up"; both remained to the end. "Schnee" (1;6-9) and "snow" (1;6-10) were in active use during the months that snow was of interest. The English term had an additional doubtful occurrence a month later in a verbal form; she did not learn the German verb.

1;8. The easy affirmative "ja" held firm sway from 1;3, and the English "yes" (1;4) could not make headway against it; it had only a brief experimental currency. But at 1;8 "all right" was learned. There was a slight functional discrimination between "ja" and "all right," but partly they were used as exact synonyms. "All right" was on the whole much less frequent than "ja," but it did not disappear again. "Wet" and "nass" were both used from 1;8 on; "wet" was dominant.

1;9. "Bitte" was in regular use since 1;5. "Please" was taught her by the maid 1;9, but she used it at first only as a redundant addition to "bitte." Even at 1;10, when "please" was more frequent than "bitte," it was restricted to conventional use, whereas "bitte" was spontaneous. Both remained active, one being supported by the prevailing linguistic environment, the other by a firmly established habit. "Ei" and "egg" (1;8) were in parallel use from 1;9 on.

1;10. "Kaputt" and "broke(n)." Mechanical counting on the cue "eins": "zwei, drei," on the cue "one": "two, three"; she said "eins" occasionally 1;11, "one" never. Expressions for "all gone" were at first successive: "all" 1;5, "alle" 1;7; but from 1;10 on, "alle" and "all gone" were used simultaneously.

1;11. The older "Haar" (1;10) remained dominant over the new "hair." "Doggie" entered as a feeble competitor of the firmly established "Wauwau" (1;1). At the end of the month, "Füsse" seemed to be struggling with "feet"; the singular occurred only in German form.

I believe this list of competing bilingual synonyms is of some interest. I do not think it disproves the general assumption that exact synonyms cannot survive in a language or speech-form for long. As in general linguistics, we observe in Hildegard's speech that either they become differentiated or one of them is discarded. The state of balance maintained between the synonyms enumerated should not be interpreted as permanent. Because of the increasing prevalence of English, most of the German terms were doomed to obsolescence and appear here as "permanent" only because of the artificial break made at the end of the second year. Under an unlimited perspective many of them would be temporary too. The remaining cases of really permanent bilingual synonyms find their explanation in the never-ceasing influence of two linguistic standards. It resulted eventually in the adoption of two separate systems of speech, which is bilingualism. While she was a small child, Hildegard's speech was not yet aiming at this ideal. Bilingual conditions were not yet permanent; her speech was still striving to make one unit out of the split presentation. That is why the list of bilingual synonyms is so short. Incidentally it omits all instances of single forms which were the result of bilingual models, with or without a struggle, like "bear" ("Bär"), "roll" ("rollen") etc. These could not be called bilingual synonyms. But they also show the process of merging a twofold linguistic presentation into one speech-form.

Sketches of

General Development

Linguistic Development¹

First Year

Crying. Clearly follows persons with eyes at 3 weeks, her bottle at 1 month. Nurses well at breast; partly bottle feeding.

E 0;1. *Smiling*. Attention to sounds, more to visual impressions.

Smiling increased. Recognizes objects.

Colic. *Holds head up*. Kicks and splashes in bath. 0;1-3 sleeps through every night. *Laughing*. Intelligent attention to surroundings, visually and acoustically. Scrutinizes unfamiliar surroundings. Amused by sounds. No spontaneous playing.

Anger cry when being dressed, does not like clothes. *Plays* with toys. M 0;4 grasps toy, reaches for many objects; recognizes mother. E 0;4 smile of recognition when father meets her at the train after a visit to Milwaukee.

Raises self part way. Can *sit up* in buggy without back-rest for short time. Plays with fingers. Bangs toys on high-chair. Fed with spoon. M 0;5 knows her bottle at a distance; knows spoon, opens mouth. Enjoys Christmas tree, wants to touch everything on it. Easy to take out visiting, even on train and over night. Once feels strange in a strange house and cries.

0;0-1

0;1

0;2

0;3

0;4

0;5

E 0;1. Back sounds of satisfaction. — Vowels. Fricatives. Affricates. Vibrating labials. Click. *Cooing*-syllables. Two-syllable combinations.

Articulated sounds increased. *Babbling*. More front-sounds. More clicks. Lip exercises. More vowels, including [u].

Sounds still interrupted by silent physical exercises. Not much linguistic progress. More continuous babbling. Apparently no comprehension, but attention to timbre and loudness of voices. No intention of communication.

Not much linguistic progress. Less babbling. Screeching. Vibrant bilabial.

¹ For more details see chapter "The First Year" and entries in Vocabulary.

General Development

Drinks from cup. Eats vegetables. M 0;6 cry of fear when picked up by stranger. E 0;6. Plays with toes. 0;6

Completely weaned. Sleeps less soundly. Likes clothespins and rattling boxes better than toys. 0;7

B 0;8. More physical than intellectual progress. *Two teeth*. Plays with chain of safety pins. Picks up small objects. 0;8

Eats bananas. Knows her own picture on wall. Interested in all pictures on walls, loves children's pictures. Recognizes her cousin Dodo after not seeing her for a long time. 0;9

Crawls on first day of 0;10. *Creeping*. Remarkable persistence in solving a mechanical problem. M 0;10. *Stands* in play-pen. 0;10

Holds cup with milk herself. *Departure for Germany*. 0;11

M 0;11. *Walks* with help. E 0;11. Rapidly increasing physical skill. Intellectual receptiveness, interest in small practical problems.

Linguistic Development

More definite front consonants instead of vague tongue movements between vowel sounds. E 0;6. *Understands her name*.

More definite front-consonants. Glottal stops. Not much progress. [dada], [baba].

B 0;8. Few new sounds. Comprehension not improved. *First communication*: sharp sound to evoke attention (=end of pure babbling stage). M 0;8. *Comprehension begins* ("baby").

Speaking and comprehension progress. First voiceless consonants. First diphthong. "Ma-ma" without meaning. *First word* ("Bild"). Reacts to seven different cues for play action (like "patticake").

Memory span short: unlearns comprehension of German cues during visit in Milwaukee. Refuses to imitate syllables spoken for her. "Mama" means food. E 0;10. Two words: "pretty" and "there." Much babbling without meaning. Obeys "no, no" (intonation!) and "Gib mir das!" (open hand!).

Speaking stationary, comprehension improves. Still refuses to imitate syllables. "Papa" identified B 0;11. Understands non-mechanized questions and commands by words, not by intonation. E 0;11. Hears almost exclusively German. Not much speaking; two new words used tentatively.

*General Development**Linguistic Development*

Identifies "mama" and "Opa."
Understands many stereotype commands and questions.
Shows standardized reaction to "gross" unexpectedly.

Second Year

Stands without support. 1;0
Walks with support, one step free. Bowel and bladder control completed.² Combinative thinking (mechanical problems) progresses rapidly. Likes to put covers on boxes and take them off. Interest in music. Plays with building-blocks. Likes ball. "Sings" on request with artificial sound, not very harmonious.

Eats meat (chicken). Begins to use spoon. *Walks* free. Climbs down backwards from couch upon direction, "runtersteigen!", after instruction. Can put hat on. Brings things on command. Turns handle on small music box (frog). Plays piano with one finger. Pays attention to all music. Dog-biting game. 1;1

Return to America, seasick first day. Begins to *climb stairs* on boat. Prefers older children, plays well with two-year olds. Likes men. Loves dolls. Cry of fear in long tunnel between New York and Chicago. At home afraid of dark halls and of hair drier. 1;2

B 1;0 three words active: "da," "pretty," and "Tick-tack." Rapid improvement of comprehension, words and *complicated directions* like "Make the dog bite papa" (in German). Linguistic reaction to situations as well as words. English question no longer understood.

Few spoken words, many not sharply distinguished. Now repeats words on demand. Once watches lips and moves her own silently.

English forgotten except "pretty." Understands German easily. Sound-games now rare. Two weeks after return just beginning to understand English again.

² There is a pretentious article on the parallelism between bladder control and vocabulary learning by C. L. and B. I. Hull, *Pedagogical Seminary* 26 (1919), p. 272-283.

General Development

Makes dolls perform her own routines. Puts toys away on command. 1;3

B 1;4. Puts on her stockings. Tries to put on shoes (succeeds at 2 years). Washes her feet, hands etc. alone. 1;4

Plays with blocks. Imitates mother's work: cleaning, sweeping, mopping, etc. Careful work with hands, has patience to do things well. Brushes teeth quite well alone. Takes off shoes, stockings, underwear alone. Independent and orderly, puts things back in place. 1;5

Stutters for lack of words (no real stuttering at any time). Hums and sings at play. Likes to play with dolls and buggy. Feeds self without help. 1;6

Sense of order and self-help. Helps her mother by bringing things. Joins tea-parties, sitting politely with her milk, cookies and napkin. 1;7

Uses fork. Goes to wash-bowl and washes face and hands. 1;8

Linguistic Development

Many playful sound-exercises. Understands more complicated directions. Utterances still limited to single words. Babbling in her own "language."

E 1;3. Active vocabulary: 23 words.

B 1;4. Nouns prevail (adult analysis). English catches up with German, but even her mother still resorts to German for longer explanations.

Repeats words on demand (no longer included in Vocabulary). Catches familiar words in the conversation of adults. Active vocabulary: 74 words.

Refuses to imitate words which are too difficult. Visibly happy when she is understood: desire for communication. First *speaking in dream* (earlier only crying).

Statements and objective communications, stripped of emotion. Linguistic "no" complex. Soliloquies. *Sentences* like: "Hello, papa, dolly night-night, ja?" Frequently pause of reflection before execution of directions. Shows satisfaction of comprehension. Active vocabulary: 123 words.

General Development

Writes with pencil and crayon in magazines. 1;9

Removal from apartment to house. Has kitten as pet. Sandbox a great joy. Auto fear complex. Afraid of thunder at night. Helps to bake cookies (rolling, pressing—eating). 1;10

Vivid imagination. Good behavior. Listens to reason. 1;11

Linguistic Development

Speaks much with herself and her dolls.

Tells long stories to delay bed-time, visual clues. Imitates first (English) nursery rhyme in abridged form; uses part of it meaningfully in corresponding real situation ("open the door").

Reproduces English story in answers to questions. Says her name mechanically when asked. Longer sentences. Active vocabulary: 241 words.

1;11-2;1: After more than 6 weeks without German, most German words lost; English becomes decidedly dominant, but comprehension of German is unimpaired.

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