ACQUISITIONAL EVIDENCE AGAINST THE PHONOLOGICAL SYLLABLE

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1. The syllable is traditionally assumed to constitute one of the fundamental (if not the basic !, cf. e.g. Downing et al. (eds), 1992) units of phonology (cf. e.g. Murray 1988 for a review).[1] In Natural Phonology, the syllable has a derivational status, since there exists abundant evidence against it being a non-derived, underlying entity (Stampe and Donegan 1978). I would like to go one step further and say that neither underlyingly nor in the derivation is there a need to postulate the unit "syllable". To substantiate this claim one needs to, first, invalidate the existant evidence for (a) the unity of the syllable, (b) the structure of the syllable, (c) the boundaries of the syllable, and (d) the syllable weight, and, second, demonstrate that the phenomena traditionally explained by recourse to the syllable can be better explained by a model which does not assume the notion of the syllable. The sources to investigate are rich and diverse, and contain, among others, acquisition of speech (both in the process of first and second language acquisition), phonological change, speech pathology, speech errors and play, and writing systems. After having inspected two of the above mentioned areas, i.e. the so called "syllabic" writing systems (cf. Dressler and Dziubalska 1992a) and aphasia (cf. Dressler and Dziubalska 1992b), I would like to turn to the acquisition of speech.

2. In this paper I want to concentrate on the process of second language acquisition, for which purpose, however, I cannot detach myself completely from first language acquisition, for the reasons to become clear below (a separate treatment of first language acquisition, based on a corpus of Italian and German data of co-authors, is in preparation). Studies of second language phonological acquisition seem to make no specific claims with reference to the syllable which would not be forseeable on the basis of either (a) first language acquisition or (b) universal phonological preferences. Therefore,

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[1] In this paper there is no space to either review or specifically criticize the great variety of syllable models.

2a. a selected psycholinguistic model of first language phonological acquisition is liable to extrapolation to L2 acquisition, albeit with necessary L2-learning-situation specific reservations. This model can serve as a bridge-theory in the sense of Rudolf Botha 1979 (as expounded in Dressler 1985), allowing to relate the substance of acquisitional evidence onto the theory of phonological representation

2b. predictions with reference to L2 acquisition derived from a set of universal phonological preferences have to be encompassed within a phonological model which allows for drawing from the realm of substantive/external evidence to support its principles. It needs, then, to be a naturalist/functionalist and not conventionalist model.

Once (a) and (b) are defined, can one proceed to:

2c. supply an anti-syllable model derived from the same principles as 2b, i.e. grounded in the same phonological framework

2d. analyze the L2 acquisition data in order to exercise the model: firstly, the data which has been claimed to provide evidence for the importance of the syllable in L2 acquisition; secondly, new data. In this paper I will consider a test performed with second language learners, specifically designed to inspect their capacity for the so called "syllabification" in a foreign tongue.

3. As a model in the sense of 2a. one could adopt, on the one hand, 3a. Michael Studdert-Kennedy and Elisabeth Goodell's *gestural model of early child phonology* (cf. e.g. Goodell and Studdert-Kennedy 1991; for gestural model itself cf. e.g. Browman and Goldstein 1989)[2] and, on the other, 3b. *phonotactic constraints model of acquisition* (cf. Menn 1986 and references there).

3a. Since there exists evidence for a continuous development from a pre-linguistic stage, through babbling up to early words, the authors claim (cf. also the references they supply) that:

"(1) the units of linguistic contrast in a child's early speech are not phonemes and features, but words, or formulaic phrases, consisting of one or a few syllables

(2) the initial units of articulatory organization are gestural routines extending over a word or phrase

(3) phonemes and their featural descriptors emerge from syllables by gradual differentiation of consonantal and vocalic oral gestures." (p. 166).

In the paper quoted the authors supply experimental evidence for the hypothesis that consonants and vowels get under the stable articulatory control in the child's speech "by differentiation of the closing and opening gestures of the canonical syllable" (p. 169).

3b. Lise Menn (1986) considers the nature of phonotactic markedness, among others, in the light of early first language phonotactics as well as second language phonotactics. The main idea for L1 acquisition is that a child learns sequences rather than segments, which in psycholinguistic terms means that a child learns

[2] I am not going to discuss here the compatibility of the gestural model claims vs. Natural Phonology claims about L1 acquisition.

articulatory programs for the execution of canonical word forms (monosyllabic first). Such a program contains a set of parameters, e.g. of opening and closing the mouth. "Acquisition, in this model, becomes a matter of concatenating programs to make polysyllables and learning to set more parameters within a program" (p. 244). Menn's point here is that there exist similarities between L1 and L2 acquisition in so far as both a child and a learner are faced with unfamiliar phones, clusters, and/or adjacency of the two to boundaries. For example, a comparison of Greek and Turkish learners of English showed that position with respect to word boundary is essential for the production of a cluster (Menn 1986:245; ref. to Greenberg 1981). In psycholinguistic terms, it means that a production of a particular cluster requires a position-specific program for that cluster. For other examples of phonotactically constrained second language acquisition phenomena see the table below (Menn 1986:246: Table II):

A. Final voicing:

Spanish: devoicing

rob [rap] *robber* [rabər]

Mandarin: vowel addition

tag [tægə]

B. Cluster problems:

Japanese: vowel insertion

street [stərit] *treat* [tərit]

Spanish: vowel prothesis

splash [əsplæʃ] *steam* [əstim]

Apart from articulatory constraints on phonotactics there exist, of course, also perceptual ones (cf. e.g. Kawasaki 1982), whose role in acquisition needs also to be considered.

3c. What the above two models could together contribute to the approval of the role of a syllable in phonological acquisition is to say that: a syllable is a primary *unit* of speech processing (a primitive – only in L1); a canonical syllable functions in the acquisition before more complex syllable *structures* arise; clusters are analyzed with respect to syllable *boundaries*, in L2 acquisition with respect to L1 boundaries.

However, the above shows no more than the following: that a CV sequence is a primary sequence; that the difficulties in the timing of gestures point to a dynamic nature and specifity of binding between a consonant and a vowel; that phonotactics is the result of intersegmental bindings which are correlated with a position in a word. I am going to elaborate these issues in (6) below.

4. Let me now briefly review other specific references to a syllable in L2 acquisition studies.

Syllable as a unit

4.1. Hurch (1982) investigates the acquisition of /h/ by Italian learners of German. In all cases under inspection he calls for a syllable as an explanatory ground (in the framework of Natural Phonology):

(a) h-epenthesis (precisely, prothesis) e.g. in *Ackermann* ['ha.ker.man], *acht* [haxt]; *beeilen* [bə.'haɪ.lən]; *verursachen* [fər.'hur.sa.xən] etc. (p. 276), is (approximately) hierarcharized according to the degree of stress on the syllable concerned. In general, 70% of all epentheses in the data take place in a word-initial position, 20% – are hiatus-breaking

(b) analogous copying, e.g. in *ich hasse* [hoɪ] *euch*, ['ha.lə] alle Häuser, wir haben ['hangst] *Angst* etc., is causally explained as a fortitive improvement of the syllable structure

(c) methatesis, e.g. in *einholen* ['haɪ.no.lən], *abheben* ['ha.be.bən], *inhalieren* [ˌhi.na.li.rən], *überholen* [ˌhy.bə.'ro.lən] etc., has syllable as a domain of application, while the causality of the process (resyllabification included) lies in the (perceptual) improvement of the syllable structure

(d) "graphic" interference, e.g. in [hi:r] *ihr,* [hu:r] *Uhr,* ['he:r] *Ehre* etc., is an improvement from VC to CV-syllable.

Similar h-prothesis behaviour has been observed for Canadian Francophone learners of English (Hurch 1988:146).

Syllable-timing

4.2. James (1987) presents an account of the acquisition of phonological representation in terms of a modular approach (cf. also James 1988). He observes, among others, that syllable-timed rhythm might be considered typical of post-beginning learner systems, obscuring the rhythmic structures of both L1 and L2 (p: 246). Example (Dutch learner of English): [somtaimz its izi ðæt ju kæn : rid it] *sometimes it's easy that you can read it.*

Syllable as a rhythmic unit

4.3. Hieke (1987) demonstrates how casual speech phenomena (absorption in the author's terms) may serve as a measure of fluency in second language acqusition. All the processes he mentioned for English have a common motivation, i.e. they result in hiatus-avoidance, ensure a flow of speech from syllable to syllable, and create an impression of tense and lax syllable alternations (Hieke 1987:55-6). The degree to which a learner demonstrates these phenomena in his/her speech shows his/her approximation to native L2 speech.

Sonority-based syllable structure

4.4. Tropf (1987) interprets the data from Spanish learners of German in terms of the sonority hierarchy as an independent principle governing the syllable structure in the interlanguage. He investigates syllable-initial and syllable-final consonant cluster reduction and syllable-final consonant deletion in the speech of Spanish learners of German and concludes, that it is the less sonorous consonants that tend to get deleted, no matter their position in a cluster, and relatively independently of the syllable structure conditions of L1 and L2.

Tauto- and heterosyllabic consonant clusters

4.5. With reference to a claim that open syllable structure is preferred to a closed one in the process of L2 acquistion independently of the syllable types of L1, evidence for both a preference for CV structure (Tarone 1984) and CVC structure (Broselow 1984, Sato 1984) has been cited by Tropf (1987:175) or James (1988:43-4) and others. So, beside the tendency for CV structures, which is however never well isolated from the possibility of L1 transfer (e.g. from a language like Cantonese or Portuguese to English), there is CVC structure preservation in e.g. Vietnamese English (i.e. CVCC structures are reduced to CVC). There is no consensus as to the predominance of a particular strategy in cluster avoidance, i.e. epenthesis over reduction or reverse. L1 seems to influence that choice. Also the distribution of clusters in L1 (e.g. no syllable-initial clusters in Turkish, no syllable-final clusters in Greek, no clusters in both positions in Japanese) influences the acquisition of L2-specific clusters in the respective positions, so that e.g. it is easier for a Turkish learner of English to learn syllable-final /sp/ while he has difficulties with syllable-initial /sp/.

Benson (1986) discusses the relative difficulty (in terms of the Markedness Differential Hypothesis – Eckman 1977) that Vietnamese speakers are predicted – and tested – to have when pronouncing English clusters (Vietnamese does not have clusters). He observes that almost 50% of errors concern elimination of the tautosyllabic cluster structure (p.285), both by means of schwa insertion within or after the cluster and elimination of one of the consonants. Other errors, in descending frequency, are: devoicing, devoicing combined with the above mentioned strategies, substitution, and metathesis.

5. A theoretical background for my investigations (in the sense of 2b.) is constituted by the model of Natural Phonology (Stampe 1969, 1973(79), Stampe and Donegan 1979, Dressler 1985). The view on acquisition is in fact a milestone of the theory. Early phonology consists of processes which are innate in the sense that they are natural reactions to phonetic difficulties inherent to the speech and perception mechanism. The difficulties are overcome by planning, thus processes are mental in nature, and phonetic in their motivation.

Processes are contradictory in teleology, since they strive to simultaneously satisfy two opposing tendencies: that for ease of articulation and that for clarity of perception. The conflict is resolved by means of suppression, limitation and ordering of processes to give rise to language-specific phonology. This is exactly what a second language learner is equipped with in a new acquisition situation. What he is, in short, predicted to do is to un-suppress, further limit and re-order the processes he has already once processed for the purposes of his native language.

Furthermore, he needs to process for the first time those processes which never had a chance to manifest themselves in his first language, i.e. the so called latent processes (cf. Donegan 1984:29; for evidence cf. Flege and Davidian 1985, Major 1987). Finally, there is a procedural question, i.e. for instance one could claim that in the initial stage of L2 acquisition a learner learns a "new" process of L2 in the way one learns rules (in Stampean sense), and only when its application becomes automatic the true un-suppression takes place.[3]

As to syllables in Natural Phonology (cf. Stampe and Donegan 1978:25,28), they are predictable from segmental phonological representation and grammatical boundaries. The organization of segments into syllables arises in the phonological processing of ongoing speech. Segments per se play no role in phonological processing. Syllabification is understood as "the mapping of a segmental representation onto a prosodic pattern"(op.cit.:30).[4]

Consequently, one should expect syllables to appear also in the phonological processing of a second language speech. Syllabification should be consistent with the mainly reorganizational character of the phonological processing in second language acquisition. Thus, for instance, one can expect cases of adherence to the native "mapping" pattern in the beginning stages of acquisition, and the emergence of second language "mappings" parallelly to the required in L2 reactivation, reordering or suppression of natural phonological processes.[5]

6. Basic assumptions of the anti-syllable model (cf. 2c. above) are the following (cf. Dziubalska in preparation for a detailed presentation and justification of the model):

6.1. The primary rhythm units are feet and their constituents – rhythmical beats, similarly as in music; there is a universal preference for two beats per foot: the former beat is strong, the letter – weak, i.e. they constitute a trochee (Dogil 1980);

6.2. A beat is realized by a phoneme which is traditionally referred to as a syllable nucleus; preferentially, it is a vowel;

6.3. In accordance with the semiotic principle of figure and ground, a hiatus between two beats is avoided by means of inserting a non-beat in between, i.e. one or more consonants;

6.4. Binding laws bind phonemes in a sequence in a binary fashion,i.e.,e.g. in a sequence /$VC_1C_2C_3V$/ the first consonant is bound to the previous vowel and the following consonant, the second C is bound to both its neighbours, and the third C is bound to the preceding consonant and the following vowel;

[3] Cf. Major 1987 for a review of a predictive-explanatory power of Natural Phonology as applied to second language acquisition.

[4] I am not going to evaluate in this paper the justification Stampe and Donegan provide for their claims about the status of the syllable in phonology; cf. Dziubalska in press, and in preparation.

[5] I am not interested at the moment in discussing the issue of L1 vs. L2 vs. interlanguage predominance in the process of L2 acquisition, or, alternatively, interference vs. developmental/universal factors. There exists vast literature on that topic, cf. e.g. reviews in James and Leather 1991, Hammarberg 1989, works by Henning Wode, etc. The issue is epiphenomenal for the purposes of the anti-syllable model, since the model discards the syllable on all levels of representation.

6.5. The strength of binding varies according to universal preferences, especially with reference to the optimal distance principle (between two segments):

6.5.a. The binding of a beat to a non-beat is stronger than the binding between two non-beats (cf. optimal distance), i.e. CV, VC > CC; therefore, the first consonant of a word-internal cluster is stronger bound than the first consonant of a word-initial cluster, i.e. in /VC_1C_2V/ stronger than in /#C_1C_2V/;

6.5.b. The binding CV is stronger than the binding VC, since acoustic modulations in a CV transition are much better perceivable than in a VC (cf. Ohala 1990a,b). This preference is listener-friendly. The preference for the CV binding should not be understood as a preference for CV syllables, because the preference for the CV binding is valid also in the languages which, in traditional terms, do not prefer CV syllables (cf. Noske 1989);

6.5.c. The strength of binding depends on the inherent sonority of phonemes: the bigger the distance in sonority, the stronger the binding. This preference is also listener-friendly. It is specially well demonstrated by the binding of a non-beat to a beat (a non-beat must be, of course, less sonorous).

6.5.d. The binding preferences for consonant clusters, based on relative sonority values and place of articulation features, are much more complex and require a quantity metrics resembling, for instance, Clements' (1988) dispersion principle; I will not discuss that point further here (cf. Dziubalska in preparation);

6.5.e. On the contrary, a preference for articulatorily easy phonotactic bindings is a speaker-friendly one (cf. e.g. Janson 1986);

6.6. Conflicts among preferences, and especially those between speaker-friendly and listener-friendly preferences, are mediated by the major tendency for balance (cf. Maddieson 1992), although there are also language-specific and other factors influencing the way in which the conflict is regulated (e.g. the ones connected with language-learning situation);

6.7. As for the phonological word:

6.7.a. For respectively different reasons there is a preference for word-initial and word-final consonant to be bound to a vowel;

6.7.b. The particular salience of word-onset may get in conflict with bindings preferences

6.7.c. Also the morphological structure of a word may override binding preferences.

7. On the basis of the above preferences and principles, stemming both from Natural Phonology (cf. 5.) and my anti-syllable model (cf. 6.) I would like to posit the following explanations for the above described (cf. 4.) "syllable-flavoured" phenomena in L2 acquisition (cf. 2d. above) :

7.1. James' (1987; cf. 4.2.) observation concerning "syllable"-timing in L2 acquisition suggests, that learners' difficulties with the timing of L2 are resolved in an interlanguage by recourse to the unstructured timing pattern. i.e. pure beat-timing, where each beat receives the same degree of prominence.

Hieke's (1987; cf. 4.3.) account refers to later phases of acquisition, during which fluency is measured by observing how much the rhythm of speech approaches

the preferred trochaic feet sequence. Both phenomena are acountable by principle and preference 6.1.

7.2. Hiatus-avoidance between beats (cf. 6.3.) is illustrated by the following L2 acquisition data: Hieke (1987) lists hiatus-avoidance (between syllables) as a common outcome of what he calls absorption rules (i.e. rules of spontaneous, casual speech).[6] Hurch (1983) observes 20% of h-epenthesis as hiatus-breaking cf. *beeilen* [bə.'haɪ.lən]. Simultaneously, one does not find cases of hiatus-formation in learners' speech.

7.3. The preference for hiatus-breaking is connected with the preference for CV structures (cf. 6.5.b.). Other evidence for that preference is:

7.3.a. Hieke (1987) expects processes leading to sequences like *Would you hit it to Tom* [wudjəhiɾitətam] (p.50) from L1, which is evidently a CVCV... sequence, to be also a measure of frequency in L2 acquisition.

7.3.b. Tropf (1987) reports on: the deletion of "syllable-final" consonants by Spanish learners of German[7] and the reduction of "syllable-initial" double clusters towards CV. It needs to be added here, that there is no evidence in the data that "syllable"-initial and -final does not simply mean word-initial and -final, or, at the most, refer to a morpheme (cf. a remark on Spanish prefix-final clusters p.185).

7.3.c. There is a general claim about CV being preferred in L2 acquisition no matter the structure of the first language (cf. 4.5. above).

7.3.d. Metathesis (4.1.c.) and "graphic" interference (4.1.d.) in Hurch's data both aim at CV – single or in a sequence. If one ignored the graphic interpretation of the latter (although it is also plausible), these would be prototypical examples of figure-and-ground principle.

7.3.e. Also Mandarin vowel addition quoted by Menn (3.b. above) demonstrates a tendency towards CV, this time in agreement with L1.

7.4. Binding preferences (cf. 6.4. and 6.5) account for the treatment of clusters by second language learners, i.e. reduction, epenthesis (both prothesis and anaptyxis) and metathesis. Binding preferences can predict the best (or equally good) strategy(ies) of cluster treatment, which may be overtaken by language-specific phonotactic requirements, in this case of L1.

7.4.1. As for reductions: in a C_1C_2V sequence, the most general prediction is to drop C_1, since it is weaker bound than C_2 (while if substitute, then C_2). This is borne out by Tropf's data, i.e. all his plosive-sibilant clusters lose a plosive. One might see a problem in the fact that Tropf treats affricates on a par with clusters.[8] However, no matter which approach is adopted (i.e. mono- vs. biphonematic), it is wrong to say that this reduction is unpredictable (p.179): it's either predictable as above for a cluster, or as a reduction of an onset and hold phase of an affricate

[6] Although he hardly gives examples illustrating that concretely: *re-enter* with [j] inserted after the glottal onset deletion, *draw out* with [w] as above; *to arrest* [tw rest], coming from L1.

[7] There is, however, no absolute statistics, only comparative, i.e. obstruents are more frequently deleted than sonorants, see 7.4.

[8] There is no space to elaborate this issue here; for a comprehensive discussion cf. Luschützky in press.

(for which there are both phonetic as well as synchronic and diachronic phonological grounds).

In a $C_1C_2C_3V$ sequence, C_3 is better protected than the preceding consonants against deletion. This is also evidenced in Tropf's data.

In a CCVCCV sequence, the first intervocalic C is better protected than the initial one. There is no data above to check that prediction.

In a CCVCC, even if the clusters are identical in realization, the binding of their particular members is not. This has to be taken into consideration in the cases like e.g. the discussed one of Turkish vs. Greek learners' acquisition of English [sp]: in initial [sp-], [p] is stronger bound than in a final [-sp], and the reverse holds for [s]. Of course, also the word-related preferences play a role here, i.e. one would, for instance, expect a word onset to be easier to learn due to its saliency. The degree of difficulty in learning particular word-initial and -final clusters will be governed by specific preferences, e.g. an [sp] cluster satisfies the binding relations better in a word-final position (due to the sonority values of its members and stronger vs. weaker binding of [s] and [p] respectively). This is a direct explanation for the relative ease of learning this cluster word-finally rather than initially, once a speaker has not developed an initial [sp] for his language. One needs, therefore, to examine other clusters too before jumping to the simplest – L1 interference – conclusion.

7.4.2. As for epenthesis, anaptyxis is generally preferred over prothesis (CV; CV > VC), although the choice is influenced by L1 structure, while both bring the improvement of the binding. E.g. German / tr-/ is rendered by Spanish speaker as [əstr-] (cf. Sp. /əstrada/ 'street') (Tropf 1987:180; see also examples from Menn 1986 above); English *street* is [stəri:t] for a Japanese speaker (cf. also the loan-words evidence in Lovins 1973 and Smith 1980).

7.4.3. As for metathesis, as in *abheben* ['ha.be.bən], the binding of both consonants concerned is improved.

In general, when studying the treatment of clusters in second language acquisition, researches do not take a comprehensive view which would make them consider all relevant factors already during data collection. Therefore, their predictions are skewed (incompletely valid). To obtain that comprehensive view, one must no longer be limited by the boundaries of the syllable, but look at intersegmental relationships as they arise in a sequence of sounds, possibly delimited by, more justifiable, boundaries of words and morphemes.

7.5. The preferences referring to a word (6.7. above) find rich illustration in the data. The importance of a word-initial as well as morpheme-initial position is demonstrated by all processes analyzed by Hurch (cf. 4.1. above). The preservation of CVC structures, on the other hand, points to the function of a word-final consonant (e.g. to mark a word boundary), or morpheme (to make a morphological boundary more transparent).

Indirect evidence for the importance of a word comes from the fact that is is common among researches to explicitly refer to syllable-initial and -final positon while, in fact, investigating respectively only word-initial and word-final clusters.

8. I proceed now to the discussion of a "syllabification" test and its interpretation within an anti-syllable model (cf. 2d above). It has been quite common to collect the so called psycholinguistic/behavioural evidence to match the apparent linguistic evidence for the syllable structure or boundaries (cf. e.g. Treiman 1989, Derwing et al. 1991a,b). Subjects of the tests are usually presented with some blending, substitution, inversion or judgement tasks, which are meant to elicit either intra- or inter-syllabic divisions without explicit recourse to the notion "syllable" being made during the tests. Tests of this kind possess certain drawbacks, e.g. they are often based on simple one "syllable" words (cf. Treiman 1989), so that whatever claims are made, they refer to the internal structure of a word, and not syllable. Also, the subjects are trained to perform certain operations, and then simply examined how well and fast they reproduce them, which does not necessarily provide evidence directly referring to the speech capacity. Additionally, the tests are not comprehensive enough, since they are driven by strong presuppositions about the "syllable structure", and thus leave some variables uncontrolled (cf. Davis 1989 for the pertinent criticism, as well as Fudge's reply in the same volume).

8.1. To avoid at least partially the drawbacks mentioned, I explicitly used the term "syllable" with my subjects: I asked them to repeat twice (in a written form) each syllable of the words presented to them (the subjects were under time-pressure). The test words were two-beat words of different morphological structure, and contained an array of intervocalic consonantal clusters combining different sonority values (cf. the appendix).

The aim of the test was thus to inspect intervocalic clusters in order to observe the so called "syllabification" procedures and account for them accordingly. The subjects were not allowed to mark a syllable boundary: they were suppossed to repeat to themselves twice each syllable of a given word and write that down in the same form.

The subjects of the test were learners of German, attending a course of level 4 on a six-level scale[9] organized by a University of Vienna School for Foreigners (Universität Wien, Wiener Internationale Hochschulkurse: Deutsche Sprachkurse für Ausländer), i.e. learners in a natural setting reinforced by intensive (6 hours per week) instruction. They were all tested on their "syllabification" capacity in German. Their native languages were: Hungarian (2 subjects), Pilipino, Spanish, French, Swedish (2 subjects), Persian, Igbo, Slovak, Serbo-Croatian, Italian, Sinhalese, Polish and American English (i.e. the number of subjects was 15). A control subject was a native Austrian – the course lecturer. The test was conducted in winter semester 1991.

8.2. The test contained 87 words of the following structure:

(a) C(C)VCVC(C) : 14
(b) - " – : 12 (with an intervocalic graphic geminate or more than monographemic representation of a sound)

[9] Level 5 entitles to study at an Austrian University, level 6 is a so called Perfektionskurs 'perfection course'.

(c) C(C)VCCVC(C) : 45 (including 6 with digraphs)
(d) C(C)VCCCVC : 13 (1 with a digraph)
(e) CVCCCCVC : 2 (1 with a digraph)
(f) CVCCCCCVC : 1

8.3. Results:

Table 1.

(C)CV as the first sequence repeated						
	(a)	(b)	(c)	(d)	(e)	(f)
%	70	18	6.5	0.5	0	0

Table 2.

VC(C) as the last sequence repeated						
	(a)	(b)	(c)	(d)	(e)	(f)
%	22	19	11	6	0	6.5

Table 3.

sequences of type (c):	
-VC + CV- repetitions	74%

Table 4.

sequences of type (d):	
-VC + CCV- repetitions	30%
-VCC + CV- repetitions	49%

where CCC are either sonorant C sonorant
or sonorant C obstruent
or obstruent C sonorant

8.4. The following predictions were drawn with reference to the intervocalic clusters divisions on the basis of the principles and preferences specified in 6. above:

a. word-initial and, secondarily, word-internal CV will be preserved (cf. 6.3., 6.5.)

b. intervocalic CC clusters will be separated, due to their stronger bindings to the respective beats (cf. 6.5.)

c. intervocalic CCC clusters will appear as C + CC or CC + C, since the medial consonant's binding, being stable, cannot influence that "syllabification" decision (cf. 6.5.); the latter division, i.e. CC + C may be more preferred for the sake of the CV binding

d. morphological make-up of the words will influence the final decision: either a division will overlap with a morpheme boundary, and this especially in VCV sequences (e.g. *mög+en*) or in the cases of consonant-initial morphemes (e.g. *trag+bar*), or a final morpheme will be repeated together with a consonant preceding it, i.e. it will be treated as a word (e.g. *knusp+rig*), (cf. 6.7.)

e. a detailed make-up of the internal clusters with reference to the sonority value will not have any significant influence on the results of the test, since this influence on binding preferences is language-specific, and as such eliminated in that particular test (15 speakers of 13 different languages), (cf. 6.5.c').

One will also predict the influence of orthography, since the subjects were asked not only to repeat the "syllables", but also to write them down. Thus, typically, one would predict variety of decisions in the case of di- or multi-graphs, e.g. representing affricates, or orthographic geminates.

8.5. The tables above (8.3) demonstrate that the predictions are borne out. *Table 1* shows that initial CV is best preserved (70%) when the internal CV is preserved too. (b) shows the predicted orthographic influence. *Table 2* reflects the morphological influence; in fact, only in 12 words of the 87 words of the test morphological influence can be completely excluded. In the majority of the test items morphology may work either directly or by analogy. *Table 3* reflects well the prediction 8.4.b. *Table 4* illustrates the predictions 8.4.c. and 8.4.e.

As far as the results of the native speaker are concerned, in 22% of the answers she disagrees with the majority answer. The only well documented reason for that discrepancy is the fact that the native speaker was much less influenced by orthography in her "syllable" repetitions, e.g. in words like: *klopfen, Katzen, sitzen, Wetter, Dampfer.*

9. I hope to have demonstrated in that paper that second language acquisitional studies do not provide evidence for the phonological syllable as well as that the phenomena observed are accountable for in a more natural and principled way by a beats-and-binding laws model. Stirring the minds against a traditionally wrong line of thinking was my general aim.

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