The alignment of lexical and prosodic words in child German: The case of compounds

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The present paper investigates to what extent the alignment of lexical and prosodic boundaries constrain the truncation and preservation patterns in early child German. The empirical base are polysyllabic simplex and compound nouns produced by four German children during their second year of life (in sum 1878 words).
Like children from various language backgrounds, the German children initially truncated all polysyllabic words to a single foot (except bisyllabic trochees). Interestingly, a closer examination of the data revealed that truncatory processes did not apply the same way to simplex words and compounds. The main observations can be summarized as follows:

1) At Stage 1, the children consistently preserved the main-stressed syllable from simplex words (e.g., */Èlefánt/* 'elephant' > [fánt], */Banáne/* 'banana' > [náne], */Téleфòn/* > [téle]). By contrast, the location of main stress played a minor role in the content preservation pattern of compounds; here the children preserved the bisyllabic constituent from the target compound. Thus, depending on the structure of the target compound, the children produced the first constituent (i.e., the main-stressed one such as */Óster-èi/* 'easter egg' > [óster]) or the second one (i.e., the secondary-stressed one such as */Fárb-kàsten/* 'box of paints' > [kásten]).
2) At Stage 2, compounds emerged with two monopedal constituents whereas truncation to a single foot persisted in simplex words (see also Fikkert 2001 for child Dutch).
3) Truncation never led to a monosyllabic outcome in compounds, whereas truncation to monosyllables was common in simplex words.

Based on these observations, I argue that German children align lexical word boundaries with prosodic word boundaries. I demonstrate that the assymmetries between simplex words and compounds follow directly from the assumption that children parse simplex words as a single prosodic word and compounds as recursive prosodic words (see Raffelsiefen 2000 for adult German). In the analysis, I employ the contraint LXWD ≅ PRWD to express the correlation of lexical and prosodic words (Prince & Smolensky 1993/2004). A sketch of the ranking at Stage 1 is given in Table 1:

Input: /[[[ˈoster]$_F$]$_{PW}$ [[ˌei]$_F$]$_{PW}$]$_{PW}$ /	LXWD ≅ PRWD	NONREC	MAX-σ
a [[[ˈoster]$_F$]$_{PW}$ [[ˌei]$_F$]$_{PW}$]$_{PW}$		*!	
b [[ˈoster]$_F$ [ˌei]$_F$]$_{PW}$	*!*		
c [[ˈei]$_F$]$_{PW}$			**! o, ster
d ☞ [[ˈoster]$_F$]$_{PW}$			* ei

Table 1. Selection of the bisyllabic constituent from trisyllabic compounds at Stage 1.

However, the ranking of LXWD ≅ PRWD and NONREC above MAX-σ also predicts a monosyllabic outcome in target bisyllabic compounds, which is contrary to the empirical data. Instead, target bisyllabic compounds consistently underwent destressing to a single trochee (e.g., */Hánd-tùch/* 'towel'> [ˈhantɯːf]; Wiglaf, 1;09.02):

Input: /[[[ˈhand]$_F$]$_{PW}$ [[ˌtuch]$_F$]$_{PW}$]$_{PW}$ /	LXWD ≅ PRWD	NONREC	MAX-σ
a [[[ˈhand]$_F$]$_{PW}$ [[ˌtuch]$_F$]$_{PW}$]$_{PW}$		*!	
b ☞ [[ˈhandtuch]$_F$]$_{PW}$	*!*		

b 💣 [[ˈhand]$_F$]$_{PW}$			* tuch
c 💣 [[ˈtuch]$_F$]$_{PW}$			* hand

Table 2. The incorrect selection of a monosyllabic constituent at Stage 1.

In the talk, I discuss two explanations to the pattern of bisyllabic compounds: First, prosodic word boundaries might be difficult to detect in the input because target bisyllabic compounds might be particularly prone to prosodic reduction in adult speech, and because children process them as single trochees. Second, the children know that compounds cannot be smaller than two syllables, therefore constraining their compound outputs to be minimally bisyllabic, too (see Downing 2006 for adult grammars).

I provide evidence from recent data (Demuth 2001 for child Spanish, Demuth et al. 2006 for child English) that in fact points to a more direct correlation between morphology and output prosodic shape than previously assumed. Doing so, I contribute to the understanding of the relation between morphological and prosodic boundaries from the perspective of child language.

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