# A Morphological Analysis of Number Signs in TİD

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## INTRODUCTION

### LITERATURE

Numbers in TID were analyzed in terms of

- phonology (fusion Kubus, 2008),
- morphology (affixation and compounding Dikyuva et al., 2017),
- syntax (incorporation Zeshan, 2002).

Dikyuva et al. (2017) analyzed 10s having affixation and 100s and 1000s having compounding.

Our analysis is based on well-known definitions of morphological categories (Bauer, 2001; Haspelmath, 2002; Booij, 2005; Taşçı & Göksel, 2014; Meir et al., 2010; Meir, 2012).

Criteria to differ compounding from affixation are (i) stand alone, (ii) change in movement and/or orientation, and (iii) prosodically separate items (SignGram Blueprint).

### **OBJECTIVES**

- . to give a full morpho-phonological description of the numeral system of TİD
- i. to understand the status of morphological units of numeral signs in TİD.

### METHODS

Citation forms of numbers between 1-100, multiples of 100 and 1000, and samples between 100-1000 were recorded.

### ANALYSIS

We analyze numbers in TID morphologically and argue that:

### Numbers 0-9 are **simplex**

ii. Numbers above 9 are **morphologically complex** and the derivational process across these numbers is **compounding** 

# FINDINGS

**Basic Numbers:** Monomorphemic and iconic based, digits of hand (TWO, Figure 1a) and orthographic similarity (NINE, Figure 1b).



a. TWO b. NINE Figure 1. Examples of cardinal numbers

Numbers above 9 except multiples: First digit loses its movement and digits can stand alone (Figure 2). Thus, they have sequential compounding.



**Tens:** Handshape represent digits in multiples of 1-5 and movement represent tens (1-5). Handshapes in multiples of 6-9 represent digits. Tens have both simultaneous (1-5) and sequential (6-9) compounding (Figure 4). Digits in sequential compounds can stand alone and there is movement change.



a. TWENTY

b. NINETY

Figure 4. Simultaneous and sequential compounding in multiples of tens

**Hundreds:** Handshape represents digits and movement represents hundreds. They have two patterns: (i) All numbers might have simultaneous compounding or (ii) multiples of 1-5 are simultaneous while 6-9 are sequential compounding (Figure 5).



Figure 2. An example to sequential compounding: 12, Number TWELVE.

**Duplets:** Digits in basic numbers that are vertical become horizontal in the duplet numbers 22, 33, 44, so on (Figure 3). There is orientation change and they have sequential compounding.



Figure 3. TWENTY-TWO, an example for a duplet number

### a .THREE^HUNDRED b. SIX^HUNDRED Figure 5. Multiples of hundreds

**Thousands**: The second pattern in hundreds is also observed with thousands (Figure 6). Handshape represents digits while movement represent thousand. Thousands have simultaneous

compounding.



Figure 6. ONE^THOUSAND

# DISCUSSION

Compounding provides a uniform analysis for all numbers in TID (Table 1).

Number Type	Compounding Type
non-multiples	sequential

Complex numbers in TID are derived through compounding but not affixation based on the following criteria: (i) stand alone, (ii) change in movement and/or orientation, and (iii) prosodically separate items (SignGram Blueprint).

In simultaneous compounding, movement, location and orientation carry the meaning of tens, hundreds and thousands and the handshape carries the digit.



### In sequential compounding, numbers are derived through the sequential signing of the digits.

TEN, HUNDRED and THOUSAND are respectively synonymous with ONE^TEN, ONE^HUNDRED and ONE^THOUSAND.

### Table 1. Compounding process in numbers

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