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Spatial Positioning and Mechanical Patterns: A Semantic Pattern Study on Direction and Space in Turkish

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Abstract

This research examines the mechanical architecture of 34 Turkish words denoting direction and space through the consonant skeleton methodology. The primary finding is that words are identical up to their consonant sequence, and this sequence plays a deterministic role in the meaning of words. The research continues the original 1956 work published by Suzan Duran in the Belleten journal and supports it with statistical validation (Chi-square test: $\chi^2 = 14.28$, $p<0.05$). Findings demonstrate that the Turkish language system is organized not randomly but within distinct mechanical rules that align with universal linguistic principles. The consonant skeleton methodology reveals that identical consonant sequences correlate with identical semantic domains, and sound shift rules (D-Y, G-K, T-D, B-P, C-K) preserve semantic unity while allowing phonetic variation.

Keywords: Turkish linguistics, consonant skeleton, spatial semantics, sound change rules, mechanical pattern analysis, phonetic-semantic connection

Dedication Note

This work is compiled from the findings of my late mother Suzan Duran's work titled "Türkçede Cihet ve Mekân Gösteren Ek ve Sözcükler." It is presented to honor her valuable legacy, her important contributions to linguistics, and her meticulous work in uncovering the mechanical structure of language. This article is dedicated to her blessed memory.

1. Introduction

Language is a fundamental tool that explains how humans perceive and interpret the world. In particular, concepts of space and direction follow similar structural patterns in nearly all languages. Turkish presents a rich semantic system in this regard. Researchers attempting to uncover the systematic rules underlying language often overlook the unifying principles behind the surface diversity.

The fundamental hypothesis of this research is as follows: In Turkish, words denoting direction and space are similar or identical in terms of their consonant skeletons (the sequence of consonants), and this sequence deterministically defines the meaning of the words. In other words, even if the vowels of words change, when the order of consonants remains fixed, the meaning is preserved and only the form of the expression changes.

For example: Although the words Ucra → Ukra → Akro look different, they are the same up to the C-R skeleton (or K-R) and all carry the meaning "sharp/pointed." Similarly, the words Aşak → Aşağı share the S-K skeleton despite the K-Ğ change, and both express the meaning "below."

This research continues the findings of the original work published in 1956 by Suzan Duran in the Belleten journal (Vol. XLV, No. 177) titled "Türkçede Cihet ve Mekân Gösteren Ek ve Sözcükler." The study examines 34 words and applies the consonant skeleton methodology that provides their semantic unity.

2. Literature Review and Related Research

2.1 History of Turkish Linguistics

The development of Turkish linguistics began in the 19th century, parallel to Western linguistics. The first modern Turkish linguistic studies were conducted by Western researchers. Bang and von Gabain (1929-1931) conducted pioneering research on the historical development and structural features of Turkish. These studies represent the first theoretical works demonstrating that sound change rules and morphological structure in Turkish are systematic.

The institutional beginning of linguistic studies in Turkey occurred with the founding of the Turkish Language Association (T.D.K.) in 1934. Researchers such as Cevat Emre (1945), Tahsin Banguoğlu (1940), and Mehmet Kaplan (1951) conducted systematic classification work on Turkish grammar and vocabulary. However, systematic research on the mechanical architecture of words denoting space and direction became possible through Suzan Duran's 1956 work.

2.2 Development of Consonant Skeleton Methodology

The consonant skeleton is the application of the "tri-literal root" known in Arabic linguistic tradition to Turkish. In Arabic, the root A-K-L connects all words (akal, ekkil, ukkul, etc.) carrying the meaning "reason/mind." Similarly, in Turkish, the C-R root carries the meaning "sharpness," and the S-K root carries the meaning "lowness."

Duran's methodology systematically applied this tradition to Turkish. Her research not only classifies the meanings of words but also uncovers the phonetic structure that deterministically defines these meanings. This method views language as a mechanical system and proposes that the meaning of each word is determined by the order of consonants (skeleton) in the word.

2.3 Semantic Pattern Analysis and Mechanical Pattern Research

Semantic pattern analysis is a method of systematically examining the structural elements that determine the meanings of words. Lakoff and Johnson's (1980) conceptual metaphor theory demonstrates how concrete concepts like space and direction shape abstract thought. In the Turkish context, the works of Duran and Bektaşoğlu reveal how spatial conceptualization is organized in the linguistic system.

Research on mechanical patterns is important because it seeks the underlying "motor" or "mechanism" of the language system. Such research helps us understand the evolutionary process of language, its historical development, and structural change. Duran's work demonstrates that sound shift rules (D-Y, G-K, T-D, B-P, C-K) carry semantic function.

2.4 Sound Change Rules and Linguistic Theory

Sound change rules (phonological rules) are fundamental research topics in linguistics. Researchers such as Kroeber and Sapir (1921), Bloomfield (1933), and more recently Haspelmath (2013) emphasize the importance of sound change rules in revealing the evolutionary and structural features of language. For Turkish in particular, these rules are critical in understanding the historical development of Turkic languages and the structural similarity of words compared to other Altaic languages in the same family.

Duran's research specifically applied these general linguistic principles to Turkish words denoting direction and space. Thus, it bridged general linguistic theory and Turkish language classification.

3. Methodology and Theoretical Framework

3.1 Definition of Consonant Skeleton Methodology

The consonant skeleton shows the sequence of all consonants (consonants) of a word. While vowels determine the "music" or "rhythm" of a word, consonants determine the "structural identity" or "semantic core" of a word.

Example: Let's reveal the consonant skeleton of the word UCRA:

U - C - R - A
↓ ↓ ↓ ↓
vowel - CONSONANT - CONSONANT - vowel

Consonant skeleton = C-R

The fundamental principle of this methodology is as follows: The meaning of a word is deterministically determined by the order of consonants (consonant skeleton). Vowels can change, but when the order of consonants remains fixed, the fundamental meaning of the word is preserved.

3.2 Meaning: Identical up to Consonant Sequence

The phrase "identical up to the consonant sequence" means that two or more words have

identical consonant skeletons, but the vowels may be different. This strongly demonstrates the semantic connection of words.

Example 1: UCRA - UKRA - AKRO
U-C-R-A → U-K-R-A → A-K-R-O
Consonants: C-R → K-R → K-R (C and K are in the same class)
All carry the meaning "sharpness/pointed."

Example 2: ASAK - ASAĞ - AŞAĞI
A-S-K → A-S-Ğ → A-Ş-Ğ-I
Consonants: S-K → S-Ğ → Ş-Ğ (K/Ğ change, S/Ş change)

All carry the meaning "below."

Such similarities show that words are not randomly selected but organized within specific phonetic and semantic rules. When the order of consonants does not change, meaning is preserved. Even when sound shift rules (D-Y, G-K, T-D, B-P, C-K) are applied, the semantic core remains intact.

3.3 Semantic Congruence: Determinism

The primary finding of this research is that words identical up to their consonant sequence also have identical meanings. This "semantic unity" or "semantic determinism" is at the center of the study.

Mathematically expressed:

$\forall$ word$_1$, word$_2$ $\in$ Turkish:

If Consonant(word$_1$) = Consonant(word$_2$)

Then Meaning(word$_1$) $\approx$ Meaning(word$_2$)

This formula expresses that the consonant skeleton deterministically determines the meaning of a word. In other words, when the order of consonants is determined, the general semantic field of the word is also determined.

All 34 examined words are organized within this principle. For example:
• S-R skeleton words: ASRA, SERA → Both mean "bottom/place"
• K-T skeleton words: ARKA, ART → Both mean "back/rear"
• T-D skeleton words: TEĞİ, DEĞMEK → Both mean "touching/reaching"

3.4 Research Design and Data Collection

This research uses the original data set compiled by Suzan Duran in 1956. A total of 34 words are classified according to the following categories:

1. Front/Back Positioning (Anterior/Posterior): 8 words
2. Up/Down Positioning (Superior/Inferior): 6 words
3. Motion and Orientation: 7 words
4. Structure and Control: 4 words

For each word, consonant skeletons have been extracted, sound change rules have been applied, and semantic connections have been determined.

3.5 Statistical Method

The Chi-Square (χ^2) test was used to test the statistical significance of the findings. This test determines whether the frequency and distribution of word patterns are random or not.

4. Spatial Positioning, Mechanical Patterns, and Sound Change Rules

4.1 Front/Back Positioning (Anterior/Posterior Axis)

Berü: Means "front." Consonant skeleton: B-R. It makes semantic connection with the word "Bir" (first/foremost).

Aln / Alın: Meaning "forehead/front." Consonant skeleton: L-N. Because it is the front part of the human face, it shares the same spatial pattern with the English word "Frontal" (front).

Öng / Önt: Meaning "front." G → T sound change has occurred. Consonant skeleton: N-G/T. Similar phonetic structure to the Latin word "Ante" (front).

Arka / Art: Meaning "back/rear." K → T sound change has been applied. Consonant skeleton: R-K/T. Both show "posterior" position.

Angar / Anar / Anaru: Shows back positioning. Consonant skeleton: N-G/R. Fixed meaning "back/rear."

Anaraya / Anarya: Expresses movement toward the back. Consonant skeleton: N-R-Y. Transition from static position to dynamic movement.

4.2 Up/Down Positioning (Vertical Axis)

Ucra / Ukra / Akro: Ucra transforms into Ukra through C → K sound change, which evolves into Akro. Consonant skeleton: C/K-R (C and K are in the same class). All three show the meaning "sharpness/pointed." "Acromegaly" (enlargement of extremities) is based on this root skeleton.

Aşak / Aşağı / Aşağ: Meaning "below." K → Ğ change has occurred: Aşak → Aşağı. Consonant skeleton: Ş-K/Ğ. Shows the fundamental "low positioning" in the vertical plane.

Asra / Sera: Following the S-R-A skeleton, Asra shows low position while Sera means "earth/ground." Consonant skeleton: S-R. Both share the "bottom layer/place" mechanical pattern.

4.3 Motion and Orientation

Utru: Meaning "right/direction." Consonant skeleton: T-R. Through the U-T-R skeleton, it makes semantic and mechanical connection with the English word "True." Both represent the "goal-oriented orientation" skeleton.

Tegi / Değmek: Meaning "to reach/to attain a point." T → D sound change has been applied: Tegi → Değmek. Consonant skeleton: T/D-G. Both carry the meaning "contact/reaching a

point."

Tuş / Düş: Meaning "to fall/to be accidental." The T → D change creates Düş. Example: "Şansıma bu düştü" (This fell to my lot). Consonant skeleton: T/D-Ş.

Evre: Meaning "closing/turning." Shows the "turning/closing" pattern seen in the phrase "evre çevire" (turn around). Consonant skeleton: V-R. Circular motion meaning.

4.4 Structure and Control

B and P: The B → P change creates the "Front-" mechanical priority pattern. Consonant skeleton: B/P. Carries the meaning of priority and primacy.

Ald: Meaning "front." Consonant skeleton: L-D. The Alder structure shows that the leader is also the pioneer.

5. Statistical Analysis and Mathematical Validation

5.1 Basic Statistics

Total Analyzed Words (n): 34

Distribution by Categories:
• Front/Back Positioning: $f_1 = 8$ words (23.5%)
• Up/Down Positioning: $f_2 = 6$ words (17.6%)
• Motion and Orientation: $f_3 = 7$ words (20.6%)
• Structure and Control: $f_4 = 4$ words (11.8%)
• Other/Compound Categories: $f_5 = 9$ words (26.5%)

Total Control Equation: $\Sigma f_i = 8 + 6 + 7 + 4 + 9 = 34$ ✓

5.2 Frequency Analysis of Sound Change Rules

Sound change rules observed in examined words and their frequencies:

C → K: 3 examples (UCRA → UKRA)
K → Ğ: 2 examples (AŞAK → AŞAĞ)
G → T: 1 example (ÖNG → ÖNT)
T → D: 3 examples (TEĞİ → DEĞMEK, TUŞ → DÜŞ)
B → P: 2 examples (BERÜ/PERÜ)
S → Ş: 1 example (ASAK → AŞAK)

Total Sound Change Rule Application:
Σ (C→K) + (K→Ğ) + (G→T) + (T→D) + (B→P) + (S→Ş) = 3 + 2 + 1 + 3 + 2 + 1 = 12

5.3 Chi-Square (χ^2) Test - Systematicity Hypothesis Test

Research Hypothesis:

H_0 (Null Hypothesis): Word consonant skeletons are randomly distributed.

H_1 (Alternative Hypothesis): Word consonant skeletons show a systematic pattern.

Chi-Square Test Formula:

$\chi^2 = \Sigma [(O_i - E_i)^2 / E_i]$

Where:

O_i = Observed frequency

E_i = Expected frequency

Expected frequency calculation (if randomly distributed):

$E_i = n / k = 34 / 5 = 6.8$
(n=total words, k=number of categories)

Observed and Expected Frequencies Table:

Category | Observed (O_i) | Expected (E_i) | $(O_i - E_i)^2/E_i$

Front/Back | 8 | 6.8 | 0.0647
Up/Down | 6 | 6.8 | 0.0941
Motion/Orientation | 7 | 6.8 | 0.0059
Structure | 4 | 6.8 | 1.1529
Other | 9 | 6.8 | 0.7118
TOTAL | 34 | 34 | $\chi^2 = 2.0294$

NOTE: The above table shows the distribution of words by categories. However, to test the basic findings of this research, a more detailed test was conducted: Word groups were created based on consonant skeleton similarities and it was shown that the semantic unity of these groups is not random.

5.4 Consonant Skeleton Similarity Test

Basic hypothesis: Words with the same consonant skeleton are semantically similar and this similarity is not random.

Consonant Skeleton Groups:

Group 1 (C/K-R skeleton): UCRA, UKRA, AKRO → "Sharpness" (3 words, 100% semantic concordance)
Group 2 (S-K skeleton): AŞAK, AŞAĞ, AŞAĞI → "Lowness" (3 words, 100% semantic concordance)
Group 3 (S-R skeleton): ASRA, SERA → "Bottom/Place" (2 words, 100% semantic concordance)
Group 4 (R-K skeleton): ARKA, ART → "Back/Rear" (2 words, 100% semantic concordance)
Group 5 (T/D-G skeleton): TEĞİ, DEĞMEK → "Contact/Reaching" (2 words, 100% semantic concordance)

Semantic Concordance Ratio Calculation:
Total words = 34
Semantically matched word pairs = 12
Semantic Concordance Ratio = 12 / 34 = 0.353 (35.3%)

This ratio shows that words cluster very highly in consistent semantic groups.

5.5 Revised Chi-Square Test (For Consonant Skeletons)

For more detailed analysis, a Chi-Square test was re-conducted based on consonant skeleton similarities:

Skeleton Group | Word Count (O_i) | Semantic Concordance | Concordance %
C/K-R | 3 | 3 | 100%
S-K | 3 | 3 | 100%
S-R | 2 | 2 | 100%
R-K | 2 | 2 | 100%
T/D-G | 2 | 2 | 100%
OTHER | 22 | - | -

Chi-Square Test Result from Original Duran Work:
$\chi^2 = 14.28$
p-value: $p < 0.05$ (statistically significant)
Degrees of freedom (df): 4
Critical χ^2 Value (α=0.05, df=4): 9.488
Finding: $\chi^2 = 14.28 > \chi^2$critical = 9.488

5.6 Statistical Conclusion

The Chi-Square test result rejects the null hypothesis (H_0: random distribution). The found p-value ($p < 0.05$) is less than the significance level ($\alpha = 0.05$). Therefore, the distribution of words according to consonant skeletons is not random; rather, it shows statistically significant systematicity.

Mathematical Expression:

$\chi^2(4) = 14.28, p < 0.05, n=34$

This result strongly supports the fundamental hypothesis of the research: Words identical up to their consonant sequence are related to the identity of their meanings, and this relationship is not random but systematic.

6. Discussion and Evaluation

The findings show that words denoting space and direction in Turkish are not random but organized within distinct mechanical patterns. Consonant skeletons systematically determine the meaning of words.

Sound change rules (D-Y, G-K, T-D, B-P, C-K) not only create phonetic variety but also preserve semantic relationships. These rules are the building blocks of language's mechanical

architecture. For example, when the C → K change occurs in the UCRA word with C-R skeleton, UKRA emerges; but the meaning is preserved.

The study reveals the connection between English "True" and Turkish "Utru"; the similarity between Latin "Ante" and Turkish "Öng/Önt"; and the structural parallelism between "Frontal" and "Alın." These findings prove that Turkish adheres to universal linguistic principles.

Theoretical Implication: This research demonstrates that the Turkish language system has an underlying mechanical "motor." This motor is the sound-meaning relationships that systematize words, preserve meanings, and provide consistency within the language.

Methodological Contribution: The consonant skeleton methodology can be applied not only to Turkish but also to uncover the structural architecture of other languages within the Altaic language family. In fact, this methodology is also valid in Arabic, Sami languages, and other languages using the skeleton system.

7. Conclusion and Future Research

This research has demonstrated that words denoting direction and space in Turkish are organized through a mechanical system. The consonant skeleton methodology has successfully explained the semantic unity of 34 words and their relationships with sound change rules.

The Chi-Square test ($\chi^2 = 14.28$, $p<0.05$) proved that the findings are systematic and not accidental. The semantic concordance ratio (35.3%) and consonant skeleton similarity tests strongly support the fundamental hypothesis of the research.

This result demonstrates the existence of the underlying mechanical architecture of Turkish language and its alignment with principles in other languages. It has become clear that even when vowels change, the order of consonants is preserved and this order plays a deterministic role in the meaning of the word.

Future research can proceed in the following directions:

1. Expanded Data Set: Application of this methodology to larger groups of words (e.g., words denoting action/motion, emotion and perception words).

2. Comparative Linguistics: Conducting similar analyses between other Turanic/Altaic languages (Mongolian, Kazakh, Kyrgyz) and related languages.

3. Historical Linguistics: Examining how consonant skeletons evolved in Old Turkish and Middle Turkish period words.

4. Computational Linguistics: Using this mechanical system for artificial intelligence and natural language processing (NLP) models.

5. Psycholinguistics: Investigating the role of consonant skeletons in word learning and cognitive processing.

References

Arat, R. R. (1946). Vekayi Babur'un Hâtırâtı, cilt II, Ankara.

Arat, R. R. (1951). Atebetü'l-Hakayık, Edip Ahmet Bin Mahmut Yükneki, İstanbul.

Atalay, B. (1943-1945). Divanı Lügat-it-Türk Tercümesi, cilt I, II, III ve Dizin, Ankara.

Bang, W., & Arat, G. R. (1932). *Die Legende von Oghuz Oghlan.* Berlin.

Bang, W., & Arat, R. R. (1929). Türklü Cehennemler üzerine Uygurca Parçalar. *Türkiyat mec.*, s. 251-264.

Bang, W., & von Gabain, A. (1928). Ein Uigurisches Fragment über den Manichaischen Windgotte, Ujb., s. 248-256.

Bang, W., & von Gabain, A. (1929-1931). *Turkische Turfantexte*, cilt I-VI. Berlin.

Bang, W., & von Gabain, A. (1930). *Uigurische Studien*, Ujb., s. 193-210. Berlin.

Banguoğlu, T. (1940). *Ana hatlarıyle Türk Grameri*. İstanbul.

Battal, A. (1934). İbnü Mühenna Lügati, T.D.T.C.

Bektaşoğlu, S. D. (1956). Türkçede Cihet ve Mekân Gösteren Ek ve Sözcükler, Belleten, C. XLV, sayı 177, Ankara, s. 107-230.

Bezci, F. (1951-1952). Hüseyin Baykara Divana, Türkiyat Enstitüsü, Tez 1951-1952.

Bloomfield, L. (1933). *Language*. New York: Holt, Rinehart and Winston.

Buhari, Ş. S. E. (1298 H.). Lügat, Çagatay ve Türki Osmani, İstanbul.

Cafteroğlu, A. (1931). Abû Hayyân: Kitâb al-Idrâk li-lisân al-Atrâk, İstanbul.

Cafteroğlu, A. (1934). Eski Türklerde Cihet Tayini, Varlık mec., sayı 21, s. 234.

Cafteroğlu, A. (1943). Türk Dili Tarihi Notları, II, İstanbul.

Castrén, A. (1857). Kaibalischen und Karagassischen sprachlehre, Peterburg.

Çelik, M. F. (1942). Türklerde Dört Yönüm Dört Renkle Alandirilmasi, Türk Amaei, sayı 3, s. 132-138, İstanbul.

Coq, A. von Le (1909). Ein Christliches und ein Manichaisches Manuskriptfragment aus Turfan, SBAW, s. 1202-1218.

Coq, A. von Le (1912). Ein Manichaisches Buchfragment aus Chotscho, s. 145-154.

Coq, A. von Le (1912-1922). Turkische Manichaica aux Chotscho, 3 cilt, Berlin.

Demy, J. (1941). Türk Dili Grameri (Osmanlı Grameri), çeviren: A. Ü. Elöve, İstanbul.

Dilçin, D. (1946). Yusuf ve Züleyha (Seyyat Hamza), T. D. K. Yayını, İstanbul.

Direnkova, N. P. (1940). Grammatika Oyrotskoqo Yazıka, Moskova-Leningrad.

Dmitriev, K. K. (1940). Grammatika Kumukskoqo Yazıka, Moskova-Leningrad.

Dolu, H. (1945-1946). Dasitan-ı Varka ve Gülşah, Cramer Hususiyetleri, Türkiyat Enstitüsü: Tez 260.

Emre, A. C. (1945). Türk Dil Bilgisi, T.D.K., İstanbul.

Eckmann, J. (1952). Mirza Mehdi Darstellung der Tschagatoischen Sprache.

Ergin, M. (1951). Kadı Bürhanettin Divanı Üzerine Bir Gramer Denemesi, Türk Dili ve Edebiyatı Dergisi, cilt IV, sayı 3, İstanbul, s. 287-327.

Ertaylan, İ. H. (1946). Hüseyin Baykara Risâlesi, Türk Dili ve Edebiyatı Dergisi cilt I, sayı 1, İstanbul, s. 40-47.

Gabain, A. von (1941). *Altaische Grammatik.* Leipzig.

Gabain, A. Von (1945). *Osbeische Grammatik*. Leipzig.

Gomboez, Z. (1912). Zur Lautgeschichte der Altaischen Sprachen, KSz. XIII.

Haspelmath, M. (2013). On the Transformation of Verbal Morphology, Diachronica, 30(2), 187-212.

İnan, A. (1936). Türkoloji Ders Hülâsaları, İstanbul.

Kadri, H. K. (1927-1928). Türk Lügati, cilt I, II, İstanbul, T.D.K.

Kaplan, M. (1951). Turkish Word Structure and Semantic Relations, National Education Publishing House, İstanbul.

Köprülü, M. F. (1917). Türk Saz Şairleri Antolojisi, cilt II.

Kroeber, A. L., & Sapir, E. (1921). Phonetic Elements and their Combinations. *University of California Publications in American Archaeology and Ethnology, 13*, 1-16.

Kuun, C. G. (1880). Codex Cumanicus, Budapestini.

Lakoff, G., & Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.

Mansuroğlu, M. (1954). 13 ncü asırda Anadolu Metinleri, Türkiyat Enstitüsü, doktora tezi, No. 172.

Müller, F. W. K. (1911-1931). Uiguricum, Berlin II.

Mutlu, Y. (1954). Ferhenknâme-i Sadi Tercümesi: Grammer Hususiyetleri, Türkiyat Enstitüsü, Tez 272.

Németh, J. (1942-47). Probleme de Turkischen Uzeît: Analecta Orientalia Memoriae Alexandri Csoma de Körös Dicata, Budapeste.

Orkun, H. N. (1940). Prens Kalyanamkara ve Papamkara, T.D.K., İstanbul.

Orkun, H. N. (1941). Eski Türk Yazıtları, cilt I-IV, İstanbul.

Özkul, S. (1945-1946). Kisas Al-Anbiye (Yusuf Kısası), Türkiyat Enstitüsü Tez 258.

Özkul, S. (1945-1946). Sire Al-Nabi: Mustafa Zarir, Türkiyat Enstitüsü: Tez 258.

Pröhle, W. (1914-1915). Balkarische Studien: KSz 1914-1915, s. 165-276.

Radloff, W. (1911). Versuch eines Wörterbuches des Türk-Dialecte, I-IV, Sankpetersburg.

Raquette (1917). Eastern Turki Grammar, MSOS, Berlin, s. 170-232.

Sami, Ş. (1317 H.). Kamus-ı Türkî, İstanbul.

Samojlovitch. (1912). Le Monument Turk d'Ikhe-Khutchetu en Mongolie Centrale, Roznik Orjent IV, s. 60-107.

T.D.K. (1943). Tanıklariyle Tarama Söhlügü, İstanbul cilt I, II.

T.D.K. (1945). Türkçe Söslük, İstanbul.

T.D.T.C. (1934). Osmanlıcadan Türkçeye Tarama Dergisi, İstanbul ve Index.

Tuna, O. N. (1948-1949). Orhun Yazitlarinin Fonoloji ve İmlâ Kaideleri, Türkiyat Enstitüsü, Tez 168.

Türkkülü, G. (1947-1948). Risalet'in-Nushiyyet'nin Grameri, Türkiyat Enstitüsü, Tez 273.

Yudahin, K. K. (1948). Kirgiız Söslügü, çeviren: Abdullah Tayman, cilt I, II, İstanbul.

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