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# THE INFLUENCE OF PARITY JUDGEMENT ON THE DERIVATION PROCESS FROM THE NUMERALS *‘ONE’* AND *‘TWO’*

**Iarmolovych G.**

Postgraduate Student at Department of German Philology of Faculty of Romance and Germanic Philology of Odessa I.I. Mechnikow National University**;** e-mail: g.i.iarmolovych@gmail.com; ORCID: 0000-0002-1599-4306; GOOGLE SCHOLAR: https://scholar.google.com/citations?user=fvTi_KEAAAAJ&hl=en

(Odessa)

The purpose of this research paper is to describe the relationship between the binary thinking of ancient people and the formation of the concept of number. The objects of the study are paleographic, ethno-psychological and biological studies examining the development of the counting principles and quantitative thinking of primitive men. The subject of the study are the numbers *’one’* and ‘*two’*, as well as their forms and derivatives in Germanic languages. The analyzed studies allow to conclude that the development of the first numerals derives from dual thinking, which is based on the ability to divide the whole into parts. The close connection to the surrounding world and the inborn parity judgement of some individuals in the Upper Paleolithic Period generates the first two numbers, hence numerals in the Proto Indo-European language. Both originate from one root, the form of which can be traced to the Proto Indo-European word *’$k^{w}a$’* as a part of the whole, i.e. two hands. Starting with the ultimate meaning of binary unified entity it split first into ‘part and whole’. Later the meaning branched even more (symmetry, completeness, contradiction, branching, merging, union, sameness, equality, repetitiveness, sequence, coherence, excessiveness, addition), creating diachronically countless derivatives of the initial ‘one’ and ‘two'. The binary nature of the Indo-European thinking had an effect on both everyday life and the religion, which was implemented in a later, pre-literate period and has been corroborated by archaeological finds. The rudimentary traces of primitive binary thinking are reflected in the contemporary realia and can be found in all languages of the Indoeuropean language group. The further research will cover the influence of the paired unity by fractionation on the allocation of subsequent numericals.

**Key words**: binary thinking, duality, etymology, Indo-European numeral ‘one’, Indo-European numeral ‘two’, number, numerical etymology, parity judgement, part and whole.

**Ярмолович Г. Ю. Вплив сприйняття парності на процес деривації з числівників ‘один’ та ‘два’.** Метою цієї дослідницької роботи є опис взаємозв'язку між бінарним мисленням давніх людей та формуванням поняття числа. Об'єктами дослідження є палеографічні, етнопсихологічні та біологічні дослідження, що вивчають розвиток принципів рахування та кількісних уявлень первісних людей та відображають поняття дуальності. Предметами дослідження є числа ‘один’ та ‘два’, а також вплив значення на форми та похідні цих числівників у германських мовах. Проаналізовані дослідження дозволяють зробити висновок, що розвиток перших числівників бере свій початок в бінарному мисленні, яке ґрунтується на здатності ділити ціле на частини. Тісний зв’язок із навколишнім світом та вроджена спроможність усвідомлювати парність деяких індивідів у періоді верхнього

палеоліту зумовили викарбовування перших двох чисел, надалі і числівників у протоіндоєвропейській мові. Обидва числівника походять від одного кореня, форму якого можна простежити до протоіндоєвропейського слова *'$k^wa$'* як частини цілого, тобто 'дві руки'. Початкове значення бінарної єдності, спочатку розділилось на *'*частину і ціле*'*. Пізніше ці значення розростаються ще більше (симетрія, повнота, суперечливість, розгалуження, злиття, поєднання, однаковість, рівність, повторюваність, послідовність, узгодженість, надмірність, додавання), створюючи діахронічну, незліченну кількість похідних від єдиного кореня *'*один і два*'* - *'$k^wa$'*. Бінарний характер індоєвропейського мислення впливав як на повсякденне життя, так і на релігію, що було реалізовано в пізньому, дописьмовому періоді та підтверджено археологічними знахідками. Рудиментарні сліди примітивного бінарного мислення відображені в сучасних реаліях і їх можна знайти у всіх мовах індоєвропейської мовної групи. Подальші дослідження охоплюватимуть вплив сприйняття парності на виникнення подальших чисел шляхом поєднання та фракціонування.

**Ключові слова:** бінарне мислення, дуальність, етимологія, індоєвропейська цифра *'один'*, індоєвропейська цифра *'два'*, сприйняття парності, частина і ціле, числова етимологія.

**Ярмолович Г. Ю. Влияние восприятия парности на процесс деривации числительных 'один' и 'два'.** Целью данной исследовательской работы является описание взаимосвязи между бинарным мышлением древних людей и формированием концепции числа. Объектами исследования являются палеографические, этнопсихологические и биологические исследования, изучающие развитие принципов счёта и количественного мышления первобытных людей и представляют результаты исследования дуальности. Предметом исследования являются числа 'один' и 'два', а также влияние значения на формы и производные этих числительных в германских языках. Проанализированные исследования позволяют сделать вывод, что развитие первых чисел происходит от двойственного мышления, основанного на способности делить целое на части. Тесная связь с окружающим миром и врожденное суждение о парности некоторых индивидов в верхнем палеолите порождает первые два числа, а вследствие и числительные в праиндоевропейском языке. Оба происходят от одного корня, форма которого может быть прослежена до праиндоевропейского слова *'$k^wa$'* как части целого, т.е. две руки. Изначальное значение бинарной единицы сначала расщепляется на *'*часть и целое*'*. Позже эти значения разветвились еще больше (симметрия, полнота, противоречие, ветвление, слияние, объединение, сходство, равенство, повторяемость, последовательность, согласованность, избыточность, сложение), создавая в диахронии бесчисленное количество производных от первоначальных чисел 'один' и 'два'. Бинарная природа индоевропейского мышления оказала влияние как на повседневную жизнь, так и на религию, что было реализовано в более поздний, до-литературный период и подтверждается археологическими находками. Рудиментарные следы примитивного бинарного мышления отражены в современных реалиях и могут быть найдены во всех языках индоевропейской языковой группы. Дальнейшие исследования будут охватывать влияние представлений о парности на возникновение дальнейших чисел и их вербальных форм путём разделения и объединения корней.

**Ключевые слова:** бинарное мышление, двойственность, индоевропейское число 'один', индоевропейское число 'два', суждение о парности, часть и целое, числовая этимология, этимология.

## 1. INTRODUCTION

One of the most appealing topics to investigate is numbers: their notion, image, form, representation, system and functioning. This phenomenon has been widely observed in terms of mathematics, philosophy, ethnology, psychology and linguistics. Its high productivity in the field of

linguistics is rooted in multiple ways of expressing quantitative relationships in the natural languages. The quantitative dimension of the human worldview is visible in languages through units on every level – from phonetics to syntax. Each level develops a certain category system that communicates the quantity in its very own way. This article focuses on the notion of the duality from the historical point of view: the image of the quantifiers 'one' and 'two' in prehistoric times, their correlation, the development of their forms and the influence of its notion on the further word formation.

The immediate **aim** of this article is to study the diversity of forms of the numerals 'two' and 'one' and the reasons of their origin, taking into account the dual perception of the world by ancient people. As for the collateral **goal**, there is an attempt to systemize word-formations that have potentially been influenced by the unified Proto Indo-European stem for 'one' and 'two'.

**Theoretical backgrounds.** A series of studies have been made on the origin and significance of numerals in the Indo-European languages. Several theories have been proposed attempting to locate the appearance of the Proto Indo-European language. Some (B. Cunliff, C. Renfrew, G. Devoto) focus on the Anatolian theory, some (T. Gamkrelidze, V. Ivanov, V. Taranets) on the Armenian theory, others (M. Gimbutas, Th. Benfey, K. Brugmann) on the Kurgan theory. All of the comparative studies based on the theories mentioned above strongly rely on numerals as the most stable units of speech. The notion of numbers, its connection with the form and its natural self-organization have been depicted in the theoretical studies of S. Peters, D. Westerstahl, B. Partee, E. Keenan, R. Muriasov, V. Maslova, V. Akulenko, M. Schetnikova. There exists a considerable body of literature focusing on isolated numbers and the development of their forms taking into account contact with other languages by E. Neu, V. Blazek, O. Scemerenyi, G. Schmidt, V. Maziulis, E. Hump, R. Bjorn. A more comprehensive description of symmetry and asymmetry in counting and rhythmic organization of primitive counting can be found in the paleographic studies of V. Alexeiev, N. Ganina, B. Frolov, V. Kabo and K. Overmann. Major contributions in outlining the category of numerals have been made by H. Mettke, H. Weddige, P. von Polenz, J. Salmons, M. Guhman, V. Taranets, N. Chemodanov, E. Ebbingauz, N. Kolotilova, L. Zinder. The literature review shows that the number and its realization in language is being studied from various points of view. Despite decades of research a number of questions remain debated among linguists. The scientific **novelty** of the current research lays in the experiment, that attempts to trace some of the found derivatives up to their ancestor stem using historical reconstruction, statistical method and authentic texts.

**Setting of problems.** The article is grounded on the results of cultural-historical, ethnopsychological, etymological and paleographic research. The **research object** is the number, the duality as a notion represented in the above-mentioned researches. The **subject of research,** alongside with numbers 'one' and 'two', their verbal forms and derivatives, is the influence of the notion on the form and its role in word formation. The **purpose** of this research is to study the binary perception of the world by ancient people, as well as the influence of this perception on the forms, variations and origin of the numeral 'two' and 'one' in the Germanic languages. The **study material** are the numerals 'two' and 'one' and their derivatives found in Germanic written monuments as well as their reconstructed Proto Indo-European forms. The examples provided in this article were extracted from Old High German ("Sammlung kleinerer Althochdeutscher Sprachdenkmäler" edited by Gerhard Köbbler ) and Middle High German ("Die Rabenschlacht" edited by Elizabeth Lienert, Ulrich von Zatzikhoven's "Lanzelet", Hartmann von Aue's "Die Klage") texts and dictionaries (The Old High German Dictionary edited by Rudolf Schützeichel 2012, Old High German and Old Saxon Lexikon 2004 edited by Rudolf Schützeichel, Middle High German Dictionary edited by Dr. Mathias Lexer). The total amount of the researched numerals is 2500 items per period when extracted from texts. The material found in dictionaries varies depending on the editor and the stem under study, between 5 and 40 articles per unit.

**Methods**. The research in the field of language history has a long tradition. A common strategy used to study the development of the separate units is the comparative diachronic approach. In the search for the primary meaning and a common stem most studies rely on the etymological approach.

The etymological approach within the study of numerals cannot be restricted only to the grammatical point of view; in spite of the fact that the original meanings of numerals are lost, their traces are found in ethnopsychological researches on the languages of primitive tribes.

## 2. FINDINGS

**2.1. Demonstration of the binary thinking of ancient people.** The first perception of the world by humans is the perception through binary oppositions [1, p. 250]. The main features of the ideas about the surrounding world can be traced with the help of written artifacts and records, which reflect the life of ancient people. Many of them served as a basis for the creation and quantitative relationships development and later found their reflection in speech. The source material for these paleographic studies is the ancient evidence of human life found on the territory that belongs to the

Nostratic group of languages: various graphic images and written artifacts. Therefore, B. A. Frolov, having studied many lines, notches, dots, beads grouped in a certain way on different everyday objects (bones, statues, cave paintings, jewelry) of the late Paleolithic period in Europe and Asia, came to the conclusion that the fixation of some numbers by a primitive human being had a rhythmic organization [6, p. 68-69]. This organization was evident in grouping of counting elements, which was a sign of the development of thinking [5, p. 39; 6, p. 69; 1, p. 254]. The clear modulation of the numeric information was aiming to simplify counting operations and measure the previously intangible parameters of time and distance. Most frequent were groups of 3, 4, 5, 7 objects. The complex of five elements, apparently, corresponded to the physiology of a human body: five fingers; three and four built the basis of fundamental time and space features (four seasons, four directions, three dimensions, light-dusk-darkness); while seven elements, in opinion of Frolov [6, p. 94], reflected the changes of the phases of the moon. ‘The doubling' of particular elements can be traced even more clearly than other grouping models, which supports the existing opinion on duality.

The experiments on numeric perception show that the speed of perception varies depending on the input method, the notation difference and the age of the participants. Within the research conducted in 2003 by a group of biologists, the number stimuli have been depicted in four different numerical formats – words, Arabic numerals, dots in die faces, configurations and random dots. The results have shown that there is little to no difference in perception speed when demonstrating the numbers ‘one’ through ‘four’ in all four notations, but the processing time of dots both organized and unorganized increases starting from five. Furthermore, the research has found clear evidence of the positive influence of grouping on parity judgement, but none on magnitude estimation [12, p. 2049]. Modern biologists state, that adults determine the quantity of a number using a similar mental process as five-year-old children [15, p. 7836]. There have been several attempts to identify the reasons for this similarity. The most plausible one can be traced to Noam Chomsky’s theory of universal grammar, implying that syntactic perception is at least partially inborn, while the rest of native-language-acquisition happens through socialization.

Alongside with the magnitude comparison and approximate calculation biologists include parity judgement (odd versus even) to the basic numerical operations implemented within the human brain. K. Alekseev gives the following explanation: "Binary oppositions, widespread in human society, are supposedly of genetic character. They came out of symmetry and asymmetry structures already existing in nature" [1, p. 255]. The perception of the duality was quite tightly intertwined in the

life of a primitive human. The following usual one-dimensional oppositions were represented with the help of paired objects: the obvious symmetry of the human/animal physiology (legs, hands, eyes, ears, nostrils, nipples, female and male) and everyday realia (day and night, sun and moon, top and bottom, center and periphery). Apparently, the ability to transfer binary oppositions into the logical sphere and the ability to put them in the basis of the surrounding world became a tool for natural selection determining success during hunting, spatial awareness and, to a certain extent, even adaptability to the permanently changing surrounding. Later, these oppositions grew into cosmogonic perception of the world: the existence of body and soul, the opposition of sorcerers and ordinary people, the opposition of the "real light world" to the "dark beyond".

The analysis of folklore and ethnographic material creates the basis for a number of researches concerning the origin of the first units of counting. They are reflected in chronologically sequenced perceptions of objects and phenomena, as well as of the whole environment in the form of dual structure, from which originates the understanding of a part/ a unit, and then develops into the form of three and four-component structures, which, in general, converge in the notion of integrity [5, p. 21]. This conclusion is depicted in the analysis of the linguistic and ethnographic material of the Germanic tribes. The most ancient period of Germanic life clearly demonstrates, beginning from the Iron Age, the division of the common Germanic tribes into southern and northern, represented in the myths and legends of the older Eddas of the scalds [17, p. 180]. By this period the patriarchal system had been established and the goddesses, as well as their skills, retreated to the background. Three main gods with the supremacy of one of them were distinguished.

This characterizes the primitive Germanic worldview as a triune. Triunes have developed out of dual oppositions, where the intermediary transition element evolved into an independent one. An illustrative example of this process is 'twilight', independent transfer period from day to night and back. The dual social constructs have also generated triune unions, where one of the three parties acted as a guarantor to the union of the other two, extending the category of person to three. A number of scientists believe that the triune opposed to the duality is not genetically conditioned and proves the development of logical thinking [1, p. 260]. The traces of the triune society can be found in speech (impersonal sentences) and in social constructs depicted in myths. At the head of the German pantheon is Odin, who is called in the Eddas by many names, impersonating the numbers: one entity – 'Allfather'; duality – 'Tveggi' , which stands for 'twin'(Doppelgänger, Twofold) and emphasizes its dual nature; '*Þriði'* – the third, the highest. The functions this god performs as a supreme ruler are also

dual. For example, in the earlier myths Odin's functions like those of the Egyptian Ra, were bypassing and commanding in both the real and the other world. In later artifacts he represents the Allfather, the sorcerer, the poet. This dynamic per se illustrates the overcoming of specificity, an earlier stage of the thinking development, as a trait of primitive society and evolution to the abstract thinking. Another way to order the divine world through duality is through marriages between gods such as Frigg and Odin. Further fragmentation of the world, in this case, occurs through the birth of children and subsequent marriages. The connection with the period of binary perception of the world by the ancient Germans did not go into thin air and it was reflected in the southern areas of their residence. Numerous archeological artefacts found in the Proto-Germans' areas of dwelling indicate the presence of pagan twin gods representing an ancient cult [17, p. 186; 10, p. 135]. Even though the linguistical name has not been preserved, the reconstruction attempts from the preserved descendants lead to the composita of 'horse' and 'two' – '*h,éḱwos*'. The functions these two horsemen-gods have are broad, from healing to fighting. It is interesting that some sources divided the functions between the two, while the others shared them among both, which also points out the unclear part/unity relation at that primitive time.

The dual perception of the world was often expressed through the doubling of the gods in other cultures too. For example, Russian Pomors, as well as some non-Indo-European people of the north worshiped the cult of two deer or elks [4, p. 185] and saw in them at first mothers, who produce more game for the hunters and later rain-bringing clouds for the cultivators; the Slavic pantheon includes the rival goddesses Zhiva and Mara, life and death [4, p. 374, p. 378]; in Indo-Iranian written records the twins-gods Nasatia are mentioned [5, p. 31]; two mother-goddesses existed even in the moderately religious climate of Mesopotamia [5, p. 26]. Jan Vries believed that celestial goddesses should be observed as the starting point in Proto Indo-European mythology, whose image is presented under the name Tiwaz [17, p. 126]. This assumption fits in the second stage of religious evolution made by Rybakov. The first stage is worshiping the mother and making sacrifices to the evil, the second is worshiping the warrior/father alongside with the keeper/mother. Ancient Roman historian Tacitus notes, that Germans glorify in the songs the god Tuisto born by the earth which gives a reference to an even more ancient goddess of fertility, Tiwaz, apparently. The word 'Tuisto' itself can be etymologized as a "double", "twofold", perhaps a two-legged ancestor [5, p. 21].

The burial rituals used two pieces of each object to accompany the deceased into the other world. This, as opposed to a single object, was meant to symbolize wealth [9, p. 28]. The binary perception of the world, the concept of integrity and parcellation, are characteristic features of

primitive thinking that still exist today in some tribes dwelling in Africa and South America. Thus, the language of the Piraha tribe, which refutes many linguistic theories and is a mystery for linguists all over the world, is still alien to the very concept of counting. Although there are differences between plural and singular, these differences are only rarely defined. Piraha speakers use only two quantitative words, one of which denotes the number of objects from one to five and the other more than five [8, p. 823]. This leaves them only the opposition of few and many. The written artifacts of the Late Paleolithic period confirm ancient human's awareness of both the period as a concept of the integrity of the world, from which both humans and their understanding of the parcellation of the whole are inseparable [5, p. 19].

**2.2. Word forms and their derivational potential.** It is worth describing the first units of counting in the Germanic languages. Due to the binary nature of the ancient people's thinking, the first units of counting were the units that denoted the integrity of two parts, which makes, in fact, a 'two'. Therefore, the nomination of the paired objects played an essential role for the origin of the notion of quantity and its incorporation in Indo-European languages [5, p. 69]. The researcher believes that in prehistoric times people operated with 'double units', in which a unit and a half were denoted by the same term [9, p. 13; p. 29]. The traces of such nominalization are also observed in some modern languages. In Icelandic, for example, half is expressed by the word 'one of two', while in Hungarian the word half is used to denote one of two objects. Consequently, a number of scientists (Taranets, Panfilov, Gonda) believe that 'two' as integrity existed before 'one'. Alongside with such global conclusion, following the one no less significant, is that it is impossible to deliberate on the appearance of the concept of the number 'two' before the formation of the concept of unit as one of the two components of the number 'two'. These numbers appear simultaneously. As a result of their appearance, the notion of a divided thing is reconsidered and, as a consequence, an opposition of the 'two //one' appears.

When it comes to quantitative numerals in Germanic languages, the following words were used in the meaning of 'one': Gothic - *ains*, Old Saxon - *ân*, Old English - *ân*, Old Frisian - *ân/ên*, Old High German. *en*, *einn*, German - *ein*, English - *one*. All of them have developed from the Proto-Germanic form – *ainoz* [17, p. 411] In the ancient records number one is incorporated in the following word forms: *ein, ehin, ên, hein, aen* - the first appeared form was obviously the one with the initial '*h'* covering the first vowel. In his works V. Taranets traces the possible origin of this word-form from the

Proto Indo-European stem for hand, i.e., half of two hands '*kwana*'. As a result of this research, he points out that the meaning of this word form gradually turned the physical meaning to the quantitative one. Another conclusion made by V. Taranets states that the word '*kwana'* completely lost its connection to the denotative meaning over time [5, p. 70]. The change in value, conversely, led to the disruption of the phonetic content of the word, which consequently led to the loss of the initial consonant and simplified the whole form. Reflexes, (parts of this word form) began to be used independently as units of counting, and in cases of desemantization to act as grammatical formants. In this respect, the researchers Zinder and Stroeva note that all quantitative numerals are deprived of the category of number "due to the fact that their lexical meaning is incompatible with the number contraposition: quantitative numerals denote either only unit (ein) or plurality (all others)" [3, p. 184]. The origin of the ordinal German numeral *erste*, the root of which differs somewhat from the quantitative numeral *ein(s)*, probably also goes back to the general prototype *kwana*, but its formation follows the path of an acceptable alternation *r/n*. This is evidenced by the Proto Indo-European flexion *rē-, rd-* in the meaning of 'count/calculate'. Chemodanov believes that in the Old Saxon language *erist* was an adjective with the meaning 'the very first' and participle in the meaning '*started*' [7, p. 188].

The Indo-European languages are not characterized by the diversity of forms in the expression of the number '*two*', Gothic - *twai, twôs*, Old High German - *zwei, zwēnē, zwô*, Old Saxon - *twegen, twâ, tu* English - two, Old English – *twa, twain, twegen*, Islandic – *tveir* [7, p. 231]. All these word-forms are generalized as '*dwo'* and '*duw'o*, they can also be divided into fractions '*-du-'* and '*-wo-*', that are separate semantic expressions in the proto-language: '*du'* ascends its meaning to the related root '*di'*, which means 'unite', while '*wo'* comes from the older and already outlined above '*kwa'* in the meaning 'part, unit, half' [5, p. 20].

The derivational potential of the Indoeuropean stem $k^{w}a$, meaning the united binary notion, is massive. It doesn't simply split into numbers 'two' and 'one', each of them builds a broad branched tree of derivatives. There have been some attempts to depict those new words according to their morphological identity, their formation peculiarities and their semantical meaning. The following schemes/tables are based on the lexical-semantical field's scheme built by U.Barkar [2, p. 251, p. 254] and are illustrated with the examples from the Old High German and Middle High German texts and dictionaries of the corresponding languages [7;11;13].

**Table 1** illustrates the diachronic multi step development of the number 'two' from the Proto Indo-European stem $k^{w}a$. This stem held the meaning of binary, a unity of two, a double human, which

later split into three independent clusters: the divided unity of two (two); a unity of two (pair, both); the separated one of the unity of two (other, another). The first one led to further division of the meaning: symmetry; completeness; contradiction; branching; merging. The second split into: union; sameness, equality. The third and the most productive evolved into: numerous affixes and functional words with the meaning repetitiveness, sequence, coherence, excessiveness, addition.

**Table 2** illustrates the diachronic multi step development of the number ‘one' from the Proto Indo-European stem *$k^wa$*. As already mentioned above, this stem held the meaning of binary, a unity of two, a double human, which has evolved differently in the case of number ‘one’ than number ‘two’. The main division here stands in the meaning of one as a whole unit and one as a half of the binary unit. Surprisingly the current ‘half' (German *halb*, Norwegian *halv*, Icelandic *hálfur*) isn’t a descendant of the Proto Indo-European *$k^wa$*. It was likely substituted by the Proto Germanic *halbaz*, stemming from the Proto Indo-European *(s)kelH-* (to cut). One as a unit, one of the two evolves into following meanings: alone, lonely, only, single, other, unified, once, none. Its derivatives are much more prevalent in the Old High German and Middle High German texts than all the other number derivatives summed, since it evolved into the indefinite article, personal and possessive pronouns. The derivatives of number one are hard to trace sometimes, because the affixes merged with the stems during the formation of the compound word.

## Table 1. Derivatives in the semantic field of ‘two’

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Proto Indo-European** | kʷa (binary, a unity of two, a double human) | | | | | | | |
| | kʷa/ dʷa, dûai (the divided two) | | | kʷa / pa-, ba- (a unity of two) | | kʷa-ra / tara (two separate units, the second, the man) | | |
| | | | | bhōu (both) | | -n̥tor | | |
| **Proto Germanic** | twajina (two, the second) | | | bai | par-, per-fehtaną | anÞara (the other) | terwą, trudaną<br>deru, iz, hiz, | sundraz, sundrōną, under |
| | tosamana, skōhaz, skewk | Þwinganą, twīgą | tód, Þat, twiniling, twinilingaz | | | | | |
| **Old High German** | zisamane, tosamane | tuem | zwiselinc, zwiniling, | bedero, beide, bēde | fehtan | odre, andriu, endriu, andar, andher, adara, andar, andra, and(e)r, andir, andræ, anthar, gandar, | indra uuis, zi andrær vuis, antharuuis, ãder’[w]is, anteruuihsilicho | untar, ūzar, zander<br>turi, durz |
| | scuoh | zwīg | dwingan | | paran, par | einandar, anander, beinander | ander halp, anderhalp, andarhalp | sundar, suntarōn |
| | | desêr, disiu, diz | | | | anderastunt, anderlichi, anderlihhi, anderstabo, andereswara | er, zergen, zerteilerin, zerliden, zersniden, tretan | ûtar, ûus |
| **Middle High German** | entzwei, | zwīc | zwillinc, zwinelinc, zwispitzig | dublêt | pâren, partier | aindorn | tergen, treten | durc, durh, durch, |
| | schuo, | dieser, disiu, diz | twinger, twengel | bēde, beide, beideȝ | fechten | sêregunge | tur, thur | sunder, sundern, ūzer, sunderlingen |

**Table 2. Derivatives in the semantic field of ‘one’**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Proto Indo-European** | $k^{w}a$ (binary, a unity of two, a double human) | | | | | | | |
| | kwana / *kwina (part, half) | | | | | | | |
| | óynoz | | | $d^{h}ail$ | | (s)pley- | | |
| **Proto Germanic** | ainaz | ainagaz | hailaz, ainalikaz | dailijaną, dailiz | hwaz, hwazuh, hwaR | splītaną | -in, -ei | mînaz, mainą |
| **Old High German** | ain, ein | ænon, aenlic | ewin | teilen, teel, | veraenan | spaltan | -in-, -ei- | mîn, dîn, sîn |
| | enigeru | enic, einec | gimeinun | | wêr, wen, wan, wer | anagilih | inlīċ, inlih, inlīċe | welih, wilih |
| | ainag, einîg | nihein, dihein | hâl, gâl, gantaz, ganz | | | | innar, innart, innarhalp | |
| **Middle High German** | aine, agene, ên, ein, een, eene, ne | dehein,dechein neheine, nechein | | teilen, teil | ver ainen | spalte | innere, innerlich, zuinnerest, innert, innerhalb | mayn, mein, vermeinsamen, meineider |
| | einer, einiu, einez, einz, einemе, eime, einn, einen, | einse | ganz, alien, alien, allmeistec, aleingenôte | aindliff, einlef, aindliff, eilff | wer, wen, wan, wer | anelich, enlich | | welich, welch |

## 3. CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

The main conclusions that can be drawn is the assumption that the most ancient human knowledge of the surrounding world is based on the understanding of its integral image in the form of separate binary oppositions, which constantly transit into each other. The binary perception of the world is of genetic nature and is a basis for the fundamental understanding of the surrounding world. The next conclusion is that each member of the dyad, having received its own name, remains for a long time the designation of the ‘whole’ and is not perceived as a ‘part’ of it. The singling out of the

notions of the whole and the part, as well as the ability to distinguish them from each other made it possible to distinguish the numerals ‘two’ and ‘one’ in the Indo-European languages. The appearance of these numerals, in turn, led to the appearance of further counting groups and numbers in the people’s mind, for example, three, five and ten. Till now there is no clear evidence to which of the two appeared first, since they seem to be codependent and depict the basic opposition of the ‘self’ to the ‘other’.

Both numerals are highly productive in the derivation process, whereas the ultimate meaning splits and evolves enormously creating various morphemes. ‘One’ dominates quantitively due to the extensive use of articles and pronouns in the German language. ‘Two’ evolves into three stems (two, both, other), creating with the latter a number of affixes that steer the relations between two entities.

The linguistical problems of numerals’ existence raised in the present article require further work in this field. The subsequent research of this problem will be focusing on the influence of binary/ dual thinking of ancient people on the formation of numbers ‘three’, ‘four’, ‘five’, ‘eight’, ‘ten’ and their connection with the use of hands as representatives of primitive counting.

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## СВЕДЕНИЯ ОБ АВТОРЕ / INFORMATION ABOUT THE AUTHOR

**Ярмолович Галина Юріївна** – аспірантка кафедри німецької філології факультету Романо-Германської Філології Одеського Національного Університету імені І. І. Мечникова; e-mail: g.i.iarmolovych@gmail.com; ORCID: 0000-0002-1599-4306; SCHOLAR.GOOGLE: https://scholar.google.com/citations?user=fvTi_KEAAAAJ&hl=en

**Ярмолович Галина Юрьевна –** аспирантка кафедри немецкой филологии факультета Романо-Германской Филологии Одесского Национального Университета имени И. И. Мечникова; e-mail: g.i.iarmolovych@gmail.com; ORCID: 0000-0002-1599-4306; SCHOLAR.GOOGLE: https://scholar.google.com/citations?user=fvTi_KEAAAAJ&hl=en