

Language as a Symphony of Movement: The conceptual model of movement in the articulation of fu,/pu/tu/su/zu and its effects in the area of language

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Historical introduction

From the view of 2016 backwards to the 16th century in regard to the development of biology and the idea of evolution the question can be raised: ‘Which political, economical and social conditions prevented the discussion of the chances inherent the conceptual model of Borelli named *De motu animalium* (1680), *On the movement of animals*? Borellis work continued the analytical attempts of understanding anatomy started by Pierre Belons depiction of a human skeleton and the skeleton of a bird in the 16th century. It is astonishing that after this important work of comparing anatomy three centuries had to pass until Darwin's publishment *On the origin of Species* in the nineteenth century.

Why don' t we find ideas in the distance between the 16th century and the ninteenth century, that movement of animals is fitting on conditions, and movement is the reason for the animals' morphology with all consequences for evolution and the origin of human beings? Reading Herder's *On the Origin of Language* (*Abhandlung über den Ursprung der Sprache* J. G. Herder 1769) and also regarding the discussion, that led to Herder's essay, we are able to understand the reason for this lack of discussion in the time before. Herder sent his text *On the origin of language* 1769 to the *Berliner Akademie der Wissenschaften* to take part in the prize competition under the question: Were human beings able to create themselves language? And how could they do? (Haben die Menschen, ihren Naturfähigkeiten überlassen, sich Sprache erfinden können? Und auf welchem Wege wären sie am füglichsten dazu gelangt?) (Quelle: DTA Deutsches Text Archiv) This question was raised up in the discussion of Süßmilch's text *An attempt to prove that the first language's origin is not created by human beings but by God.* (Versuch eines Beweises, daß die erste Sprache ihren Ursprung nicht vom Menschen, sondern allein vom Schöpfer erhalten habe). We realize by this title how

crucial it was for science to ask which explanation could be given for the origin of language. Today we feel shocked by the story of Friedrich II, who tried to find out whether a new-born human-being starts to talk in Hebrew, Greek, Latin or another language and therefor isolated infants from their mothers, from any speech and any emotional benefit. Taking in account that the initial words of the Old Testament are [In the beginning was the word] we get a perspective to understand the scientific discussion of former centuries. Than we imagine that even the question of the Akademie der Wissenschaften was a sensation. Herder won the Prize and I am going to quote some sentences of his paper. 20 Latin letters are only a small segment of the global treasure to represent three-dimensional movement of articulation two-dimensional on a plane. In Herder's treatment *On the Origin of Language* we read: ‘The more alive a language is - the less one has thought of reducing it to letters, the more spontaneously it rises to the full unsorted sounds of nature- the less, too, is it writeable, the less writeable in twenty letters, and for outsiders, indeed, often quite unpronounceable.

Father Rasles, who spent ten years among the Abnaki in North America, complained bitterly that with the greatest care we would often not manage to repeat more than one half of a word and was laughed at..... He quotes La Loubere. . .“Of ten words pronounced by a European, a native Siamese understands no single one, try as one may to express their language in our letters” (cf. Herder p. 93-94) In this context we don't get any information, that a two-dimensional representation of the Siamese's language existed and exists. We get the impression that the 20 Roman characters of Western Europe are the only way of writing. But even nowadays linguistic research often restricts to the alphabet forgetting that movement of articulation provides more than 20 Roman letters.

Herder's discussion nevertheless contains ideas that the current linguistic debate lacks.

“The sense of hearing is the middle sense in regard to the needs of expression and is hence the sense of language...The objects of hearing, however, are associated with movement. They pass by, and through that, they sound. They become utterable because they must be uttered, and through the need to be uttered, through their movement, they became utterable. - What qualification for language!” (Herder p 145). But even after Herder' s essay “On the origin of language” the movement of articulation wasn't a central issue of attention.

Movement as a central issue

The approach presented here focuses on an essential movement in human speech/language. For this reason, European languages and language spoken outside Europe are examined as to whether this element of movement is in itself a constituent of these languages, what its nature is, and what functions it assumes within the various languages. Based on this Conceptual Model of Movement, conclusions can be drawn on the human jaw relation.

The ability of humans to build a fire, which neither an ape nor any other is capable of, is an ability which results from the possibilities of human jaw relation, hence blowing on a fire. I had noticed that the movements which the jaw muscles need to perform in order to pronounce the German word **'saugen'** [suckle, suck] are nearly identical with the movements performed in the act of sucking as such. Another impressive example for the analogy of muscular movement in an act and the expression of this act by means of articulation based on the same muscular interactions is the German word **'pusten'** [blow], as anybody may find out in a self-experiment. For parents it is an interesting observation to discover at what age their children are able to blow out a candle (at which birthday did this first happen?). The ability of humans to blow out a fire is closely related to the ability to kindle a fire by the act of blowing, and gives us a profound insight into human existence: the ability to blow on a fire is closely related with the muscular ability to blow. The various Conceptual Models of Ideas underlying this process are also quite revealing. The "F" in **'fire'**, or in the French word **'feu'**, or in the German word **'Feuer'**, when articulated slowly, is remindful of the movement of wind and fire, due to the draught created in the process of articulation.

This draught is reinforced in the Spanish word **'fuego'** by the **'u'** that follows the **'f'**. (cf. PONS Praxiswörterbuch Spanisch 2001: 104) The Finnish word that denotes fire is **'tuli'** and is formed by a muscular process which enables kindling a fire just as much as an extended **'f'**. The Finnish word for wind is **'tuuli'**, the word for blowing is **'puhaltaa'** or **'tuulla'**, and the word denoting a gust of wind is **'puuska'**. (vgl. Langenscheidt Universal-Wörterbuch Finnisch Neubearbeitung 1979: 178, 130 und 133).

A fire can also be kindled by the movement with which the muscles push the lower jaw forwards when forming the words **'zu'** [in relation to, closely] and **'Zug'** [flow of air],

‘zündeln’ [igniting]. It is interesting to note that the Conceptual Model of Ideas in the German word **‘zu’** can be derived from muscular movements which make the mouth opening small, thus increasing the velocity of the out-flowing air. These two events which are derived from a common cause explain the two applications of meaning associated with **‘zu’**, which indicates something that is closed and also refers to a reinforcement, as in **‘zureden’** [to encourage], **‘zumuten’** [to expect something of somebody], **‘zunehmen’** [to increase], **‘zumute’**, **‘Zufuhr’** [supply], **‘Zug’** [train, draught]. In addition, the word **‘zu’** creates an allocation/relation **‘das zu dem’** [relation], **‘zusammen’** [together], **‘zuständig’** [responsible], **‘Zustand’** [condition], **‘zuletzt’** [last], **‘zumeist’** [often], **‘zusetzen’** [to add], **‘zustellen’** [to dispatch], **‘zurück’** [back]. The conceptual model of relation is firmly anchored in (German) language. Another example for an almost identical relation of muscular jaw movements is the Finnish word for ‘mouth’ **‘suu’** (the s is pronounced in Finnish like the German β). The Basic Conceptual Model of Movement and Ideas is the interaction of muscular movements which induce a **‘Luftzug’** [draught, flow of air]. This is also identifiable in the Finnish word **‘suutin’** which denotes a **‘jet’**. The conceptual model of a potential is contained in the Finnish word **‘suunitella’** which means **‘designing’**. The French language uses the identical Conceptual Model of Movement and Ideas in the word **‘souffler’**, which stands for blowing, blowing away, roaring, puffing, breathing. The reader will probably ask right now: ‘But these are all quite different meanings of **‘pu’**, **‘su/zu’**, **‘tu’**, and **‘fu’**, where is the connection?’ As already explained, the connection consists in the identical pattern of physical movement. The various meanings, hence the various conceptual models of ideas, can be ascribed to the same patterns of movement mentioned above.

I have always been fascinated by the combination of various conceptual models applying to the Indo-European language area as elaborated in the book “A DICTIONARY OF SELECTED SYNONYMS IN THE PRINCIPAL INDO-EUROPEAN LANGUAGES” by C. D. Buck, and I believe that the following subtitle could be added: “Conceptual models of ideas in the principal Indo-European languages.” With farsightedness, Buck himself has given his book the subtitle “A CONTRIBUTION TO THE HISTORY OF IDEAS.” Upon studying this book the reader recognizes the various Conceptual Models of Ideas which lead to the circumstance that one concept/word is created in different languages by means of different formation of sounds. To give examples, I will represent various conceptual models applying

to the word arrow. Associated with **'arrow'** which is based on the same Conceptual Model of Ideas as the Gothic **'arhwazna'**, namely **'arcus'** = **'bow'**, there are words such as **'strala'** in Old High German, **'strael'** in Middle High German and Old English, **'strela'** in Russian, which make a statement on the arrow as being based on the Conceptual Model of Ideas **'Strahl'** [jet, ray, beam] = energy flow. Another Conceptual Model of Ideas is obvious in the French word **'flèche'** which is derived from the Middle Dutch **'vleke'**, **'vlieke'** and from Old High German **'fliugan'** [fly]. The word **'fleinn'** in Old Nordic is explained with the Conceptual Model of the Idea of "something split off", something which has been split off. (cf. Buck 1949: 1389).

This process of recognizing various Conceptual Models of Ideas in the various designations of synonyms is reversible, since a Conceptual Model of Ideas emphasizes a certain aspect which represents a detail of a variety of aspects. A Conceptual Model of Ideas itself, however, already contains a number of partial aspects. These Conceptual Models of Ideas reflect visual experiences. But language also includes the potential of producing the sound of a whirring arrow, which we can remark in the words **'fleinn'** and **'flèche'**, and by these words reflect auditory experiences. The Conceptual Model of Movement and the Conceptual Models of Ideas applying to **'fu'**, **'pu'**, **'su/zu'**, and **'tu'** contain the aspects power, power supply, movement, relation, an exactly defined muscular movement of the jaws, and the modulation of an air-flow, just to mention some central aspects adhering to it. The Finnish Conceptual Models of Ideas (words) do not belong to the Indo-Germanic languages; they are Conceptual Models of Ideas and Movement inherent to a language that belongs to the Finnish-Ugric language group. I have referred to this language for reasons of comparison because I intended to go beyond the boundaries of the Indo-Germanic language area. Moreover, Finnish has the advantage that the sounds of this language can be easily recorded in Latin scripture. Other examples of the same Conceptual Models of Movement and Ideas in the language area outside Europe are in African languages.

In ZULU: **'su'**, „care attention“; **'plan'**; **'resource'**; **'or means for doing anything'** (here, one cannot help thinking of the English word **'to'**, or the German word **'zu'**).

'susa'; **'cause'**; **'ground'**; **'origin, of a thing, good or evil'**.

'zulu' **'the vault of heaven'**; **'the sky'**; **'the weather'**.

‘zwi’; ‘word’, ‘voice’; ‘message’; ‘order’. (cf. Colenso 1905: 558)

In case of words originating from the African language area it must be considered that the sound represented by the Latin ‘w’ does not correspond to the ‘w’ of the German language area but must be described by a movement between the sound formation ‘u’ and the sound formation ‘w’. Besides a ‘uu’ (double u) is frequently encountered in Old High German in places where a ‘w’ is used in New High German after having gone through a process of further development. (vgl. Schlosser 2004: .108, .114, .118)

In SUAHELI **‘sumba’**, ‘ignite’, ‘kindle’ (fire),

‘tufani’, ‘storm’,

‘zungunza’, ‘holding a conversation’; ‘conversing’; ‘chatting’. (cf. Höftmann 163: 288)

Examples of the same Conceptual Models for YORUBA we find in *A Vocabulary of the Yoruba Language*:

“su” - to make into balls, knead

“su” - to speak, to hold a speech

“su” - to evacuate, throw out

“suru” - small (applied to heaps)

“tu” - to loose, loosen, untie, pour out, unfold, dig up

“tu” - to spit, expectorate, throw out

“efufu” - wind

“fi omu fun ommo” - suckle

“fon wara” - milk (als etwas, das gesaugt wird)

“Fute Fute” - describe the ease with which fragile texture is torn (cf. Watts: 82, 92, 93, 122, 238, 239, 245, 246)

and in “A Dictionary of the Yoruba Language”:

“so” (o=a sound between a and o) - to speak, to talk

“fun wara” - milk

“fu” - the sound of the wind

“funmu” - to suck

“funpe” - to blow the trumpet (cf. A dictionary of the Yoruba Language: 91, 117)

Examples of the same models of Movement and Ideas for the South American language area we find in GUARANI, one of the most spoken languages in South America:

“pu”, ‘sound’, ‘music’,

“**pu**” ‘stepping out’, ‘emerge’, ‘explode’,

“**juru**”, ‘mouth’,

“**pytu**”, ‘breath’, ‘wind’,

“**yvytu**”, ‘wind’, ‘air’

“**pytuho**”, ‘draught’. (cf. Ramirez and Lustig

www.uni-mainz.de/cgi-bin/guarani2/dictionary.pl 2016)

In CHAMORRO we find “**guaifon**” - windy

“**puga**” - open with force

“**puha**” - capsize, turn over

“**puho**” - to press into a ball by pressing palms of hands together

“**pula**” - untie, unwrap, unfold, unravel

“**pulakes**” - used in idiomatic expression. (Ombre un pulakes hao). Oh you are cracking me up.

“**pulu**” - feather, hair

“**puno guafi**” - fire extinguisher

“**puno kimason**” - fire extinguisher

“**pupulu**” - type of plant-piper betel

“**susu**” - suck, suckle, Breast, breast feeding

“**funu**” - burn, barbecue

“**tunu**” - scald, broil

“**tugap**” - burp, belch, eruct

“**tugua**” - strike down

“**tumo ' la'** ” - spit out, expectorate

“**tunada**” - tune, tone, sound, dialect

“**turoru**” - cradle, rock to sleep

“**tutu**” - beat, pulverize, make into pulp by beating (cf. Topping&Ogo&Dungca 1996: 81, 174, 175, 193, 208, 209, 210, 242)

Filipino belongs also to the Austronesian language area while being similar influenced by the Spanish language as Chamorro. The movement ‘**susu**’ for ‘**suckling**’, ‘**milk**’, ‘**breast**’ is not only found in Chamorro and Filipino, but also in the Indonesian language.

Articular movements in FILIPINO:

“**sipsip**”, “**supsop**” - saugen

“**tunog**” - Klang, Geräusch, Wind

“**tuktok**” - Gipfel

“**tugtugin**” - Musik, Melodie

“**suso**” - Busen

“**sunri**” - untersuchen, erforschen

“**suntok**” - Faustschlag

“**sunog**” - Brand, Feuer, Flamme

(cf. Kelz & Samson 1994: 107, 108, 121, 123, 229)

As far as the Arabic language area is concerned, there are common features that are shared with the Indo-European language area to be found, as already observed by L. Brunner in his study “Die gemeinsamen Wurzeln des semitischen und indogermanischen Wortschatzes” [The common roots of the Semitic and the Indo-Germanic vocabulary], whether they are conceived as roots of the Semitic and the Indo-Germanic language or as roots of human speech/language in general. In Hebrew, there is ‘**puah**’ for the words “breathing, blowing”, whereas there is ‘**fuha**’ in Arabic denoting ‘**mouth, opening, hole.**’ (cf. Brunner 1969: 155).

The possibilities of understanding with respect to the identical motional pattern correlate with the exactness of the representation of conceptual models of ideas in dictionaries. I would like to particularly point out to the book “Das Litauisch-Deutsche Wörterbuch” by A. Kurschat which, on account of its exactness, gives a profound insight into conceptual models of ideas. The enumeration of word compositions containing ‘**su**’ covers nearly 100 pages, comparable with word compositions containing ‘**zu**’ in German. The difference lies in the underlying Conceptual Models of Ideas. What means ‘**marriage**’ is expressed by ‘**sujungti**’, which can also be translated with ‘**vaulting, forming a dome, swelling**’ ‘**putting on a yoke**’, or ‘**uniting**’. Linguistic comparisons only make sense if there is, apart from a horizontal comparison, a comparison in vertical direction with reference to the past. (cf. A. Kurschat 1972 Noun 3 2278-2372 and Noun 4 2305-2372). In the Gaelic language we find ‘**suail**’ ‘**small**’, ‘**sug**’, ‘**sooc**’, ‘**suck**’, derived from Old High German ‘**sugan**’, ‘**sugo**’ in Latin. (cf. Mac Lennan 1979: 325, 326).

C.D. Buck writes under 1.81 Fire: ‘1. IE * **pewor(?)**; * **Pur**, * **pun-**, etc., ... with complicated and partly dubious phonetic relations and of unknown root connection.’ (cf. Buck 1949: 71)

I should mention the meaning of **'su'** [giving birth] at this point, Old Indian **'su'** meaning **"creator"**, Middle High German **'son'** [the begotten] , as this example makes the image of creation/procreation by means of breathing, blowing, comprehensible. The translations were taken from the book "Die gemeinsamen Wurzeln des semitischen und indogermanischen Wortschatzes" by L. Brunner. (cf. Brunner 1969: 157) Instead of the translation **'son'** (the begotten) I would use the translation **'son'** (the created/born), the word **'son'** apparently refers to the created/born man as compared to the man of a woman. This differentiation, by the way, makes only sense from the perspective of a woman and concomitantly casts a light on social structures. The word „son“ is so interesting that I will quote from C. D. Buck's etymology at this point: 2.41. 'Son'. 1. IE (Indo-European) * **sunu** and * **suyu**-(?), fr. the root of Skt. **'su'**-**'bear'**, and orig. an abstract 'birth', 'offspring', then specialized to „son“. Walde-P. 2.469. Feist 460f. Here belong Goth. **'sunus'**, etc., all the Gmc. Forms; Lith. **'sunus'**, Opruss. **'souns'**, ChSl. **'synu'**, etc., all the Slavic forms; Skt. **Sunu-**, Av. **'hunu'** (but the latter only of evil beings, in contrast to puθra -) ..." Even the German word **'zeugen'** [creating] makes it possible to recognize its origin in **'zu/su'** and as a Conceptual Model of Ideas it stands closer to **'erzeugen'** [producing] than **'Zeugung'** [procreation], because the verb **'erzeugen'** expresses dynamics, in contrast to the substantive **'Zeugung'** which in its meaning today exclusively describes a phenomenon and not the potential of a developmental process.

We find, that the models of articular movement for **family, offspring** of two different nations cultural and geographical separated by a great distance, the Ashanti speaking Twi and the Finnish speaking Suomi, can be written **'abusua'** (cf. Abusua Wikipedia „Abusua is the name in Akan culture for a group of people that share ta common maternal ancestor“) and **'suku'** (cf. Langenscheidts Universalwörterbuch p. 156) in Latin letters, a really remarkable phenomenon. A pregnant picture of the western christian culture is the movement of blowing to give birth by breath which has been passed by Genesis written down in Latin letters as „Nafah not Poeh“.1 Regarding the two-dimensional letters that gives us the instruction how to move for the articulation of these words we have to pay attention on the fact that this is a transfer from Hebrew letters into Latin letters which means a loss of information.

The rite of blowing on a baby that we find in the Peruvian culture belongs to the same topic: "In Cusco the midwife presents the new-born after washing and swaddling him/her to the

mother, next to the father, and in a hierarchical line to all relatives and friends to let them blow on the child to give it life. (VALDIZAN quoted by Gottschalk-Batschkus & Schuler 1996:146) The ‘soplo’ should give breath of life.” (cf. Gottschalk-Batschkus& Schuler 1996: 146). Presumably, similar building-blocks can be found in other languages. In the scope of this article the finding is evident that the relation between the human jaw muscles and the skeletal conditions in the same area provided the basic requirements for a development of language. The question, why does the newborn not speak but express his needs by crying, must therefore not only be answered with the development of his brain but with the relation that is existent between the muscular and skeletal system, which initially does not permit the infant to produce any physical movements of speech. Vocalized speech movements are the result of a persistent training of the jaw muscles which happens when the infant suckles on his mother’s breast or a bottle. The word ‘**mama**’, which exists in many languages in only minor variations and denotes the first person the infant recognizes, is formed by the muscular and skeletal conditions which are first available to an infant. This is the reason why the word sounds almost alike in most language. (When the muscles form the word ‘**mama**’ or ‘**mum**’ they do not depend on the same interplay as is the case when the mouth is being closed to pronounce a ‘u’ or to create an energy flow by blowing). Only in the course of his further muscular and skeletal development will an infant be able to form other phonemes.

1 Correspondence with Moshe Szyf

Movement and its depending on the relation Muscular system/skeletal system

In his article “Was hat aus Primaten einen Menschen gemacht? Die motorische Intelligenz [**What made primates become human? The motoric intelligence**]” G. Neuweiler describes the associations of “motoric intelligence” (we could refer to it as the relation between the muscular and the skeletal system) within different brain regions: “From the chimpanzees to human beings, the cortical innervation of the fingers and hands and particularly the vocal muscles of the face, the lips and the tongue greatly increases, as is impressively documented by their representations in the motor cortex. The more such pyramid fibers there are, the more advanced are the motoric skills. The cortical motor neurons do not simply represent individual muscles, as the graphic representation suggests, but the complete motional elements of the respective organs. Since we are able to employ finger muscles and the entire vocal

musculature with particularly great variability and differentiation, particularly many motoric building-blocks are represented in the motor cortex. This is the reason why the neurons for the human face and hands occupy two-thirds of the motor cortex surface, whereas it is less than one-half in chimpanzees.” (cf. Jahrbuch 2002-2003 G. Neuweiler) The representation in the brain shows the importance of movements of muscles concerning the face for human beings. Nevertheless we must observe that the representation in the brain does not necessarily make a statement on the function of muscles. After removal of a plaster cast applied to support the healing of a fractured bone, many muscles that could not be moved because of the plaster cast, still cannot be moved. This ability is restored only after several weeks of exercise. The connection in the brain, however, remains unchanged since there has been no change in this organ, but movements/the possibilities of movements are limited due to several weeks of immobilization. (If movements of muscles are represented in the brain it must be asked at this point how are non-movements or muscular failure represented.) A change in the jaw relation that takes place at adult age or subsequent to the process of relation development at infant age has the effect that some muscles cannot be moved any more, the muscle fibers are shortened. This becomes clearly visible in a restriction of the oral orifice and in muscle groups that do not move when a person affected is speaking.

Jaw relation is a term used in dentistry. Under “Registry procedures in jaw relations” in “Zahnärztliche Prothetik” by K. Körber it reads; “Jaw relation denotes the position of the movable lower jaw relative to the firm upper jaw. In principle, every momentary situation of a jaw movement within the spatial boundaries of movement is a momentary relation. In terms of common sense, jaw relation can be understood as the location of the lower jaw in its definite, repeatedly assumable (reproducible) position. In accordance with the three parameters controlling the masticatory system, these are classified as:

- occlusion-dependent jaw relation: maximum intercuspation,
- neuromuscular jaw relation: **suspended** position at rest,
- articular jaw relation: balanced, compression-free position of the condyles. (cf. Zahnärztliche Prothetik K. H. Koerber). The potential of jaw relations becomes evident in the description of the anatomist J. W. Rohen,

The lower jaw. As opposed to the bones discussed so far, the lower jaw constitutes an unpaired uniform piece of bone which has developed as a membrane bone based on Meckel's cartilage. It is still paired in the newborn, and medially separated by a connective tissue epiphyseal cartilage. Ossification of the epiphyseal cartilage proceeds only in the first years of life before the begin of first dentition. The lower jaw consists of the corpus mandibulae, which is bent like a horse-shoe, and the uprising mandibular branches (ramus mandibulae). The ramus parts into two projections, the articular process (processus condylaris) with the condyle (capitulum mandibulae) and the muscle processes (Proc. coronoideus), between which lies the incisura mandibulae. Corpus and ramus are bent toward each other at an angle of 90 to 140 degrees (angulus mandibulae). The size of this angle depends on functional circumstances prevailing in the masticatory system. The angle is smaller in the full-developed adult than in an elderly person having already lost numerous teeth". (cf. R. W. Rothen Anatomie für Zahnmediziner p 92).

It is well known in dentistry that jaw relation disorders induced by alterations in the skeletal system, in this case the teeth, may result in changes in the lower jaw's path of movement. It is a property of the jaw relation that alterations in the skeletal system are compensated for by the muscular system, thus maintaining the original relation. A level difference of the teeth is compensated for by the muscular system in that a modified angle is created. This compensatory behavior of the muscles is subject to boundaries marked by the circumstance that a too large change in jaw relation due to overly large level differences of the teeth results in a functional failure of the muscles. This modifies the lower jaw's paths of movement. Although the potential of the muscular system as described in the anatomy for dentists is known to determine the shape of the lower jaw (because the lower jaw develops from a paired to an unpaired bone in a process of growth), apparently no one has ever realized the value of these statements. For this would mean that the jaw relation, which is applied in dentistry, would be recognized as a relation which goes beyond being an operational approach used in dental prosthetics but one that represents an explanatory model for the relation between the muscular and the skeletal system, and that it is also useful to make statements on the development of human languages. A change in the jaw relation at an adult age seldom has an effect on speaking abilities, since the articular jaw relation is determined by a balanced and compression-free position of the condyles. Exceptions are the jaw relation changes in cases of multiple sclerosis and Parkinson's disease which do affect speech. Besides, speech is affected in case sounds are formed at the front teeth and the position of the front teeth has changed, or the front teeth are missing. Speech therapy is aware that sucking promotes speech as a

muscular process. This piece of information plays an important role in promoting speech in childhood.

In summary, human language as well as human speech are the result of the relation that exists between the human muscular system and the human skeletal system. The human jaw is composed of a joint/two joints with an intermittent space, allowing/forcing the muscles to determine the position of the lower jaw in relation to the upper jaw. This means that there is a complex relationship between the muscles and bones in this area). The element of movement is crucial, for with it the relation between the muscular and the skeletal system emerges into view. The next step consists of bringing this relation into the focus of observation and not to oversee such an essential element. The brain's potential is the number of connections which represent movements, in our case the movements of speech. The representation of movements in the brain does not contain any reliable information on motional abilities regardless of the relation that exists between the muscular and skeletal system.

Summary and its effects on linguistic research

The analogy of movement in the act of blowing and the words used across the borders of nations and continents to describe the act/movement in conjunction with blowing on a fire is indicative of a common origin of human language. This does not necessarily mean that a common primordial language really existed, but that the movement of blowing contains important formative elements of human language. Human language can be compared with linguistic methods on the basis of syntax and research into the etymology of words. In addition, a statement can be made on the development of human language based on the relational term movement = muscular system/skeletal system. You, dear reader, can go to the library and find in vocabularys of each and every language words with the movement “fu, pu, tu, su/zu” connoting movement or energy or anything shaped or functioning like a mouth. They are derived from the movement of blowing which to a great extent contributed to the evolution of human language. Some parts of this experiment are limited in their conclusions (1) when linguists regard a subset of words which does not comprise all the words. This limitation even applies despite the vast entries encountered in C.D. Buck's dictionary.

Under 10.38 blow 21 the word **'pusten'** is not listed for any German language. Phonetically similar words are found in this dictionary for the Lithuanian **'pusti'**, Latvian **'pust'**, and Serbokroatian **'puhati'**, however, there is both the High German word **'pusten'** and in Low German the noun **'Puust'** connoting a special form of discharging air from the mouth, i.e. blowing. (2) an imprecision must always be taken into account when sounds/movement are put down in script, e.g. Latin, Arabic, or Cyrillic etc., script being a graphical representation of muscular movement. A very precise statement on the relation between the muscular and skeletal system and on the development of speech will be obtained by an observer of mother-child relations or adult-child relations. No mother or adult would seriously demonstrate the movement of blowing to a newborn child in anticipation that a child could be able to copy this movement at this stage of development. On the contrary, people who deal with children of infant age and articulate sounds rather attempt to wind down the obstacle of this development stage by adapting their articulation to the muscular and skeletal possibilities the child has (baby talk).

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C. D. Buck page 105 I have to add the EXPLANATIONS ABBREVIATIONS FOR LANGUAGES AND DIALECTS: IE.-Indo-European, Skt.-Sanskrit, Goth.- Gothic, Gmc.-Germanic, Lith.-Lithuanian, OPruss.- Old Prussian, Chsl.-Church Slavic

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