

**Inversion and Arabic Language DNA (LDNA) Theory:
A Negative Dimensional (D⁻) Word-from-Word Approach**

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Abstract. In this paper, the "Inter-Inversion and Language DNA (LDNA) Theory" is presented. Each Arabic letter has its symmetric letter in a DNA-like combination. The theory is very important in philology, the words' meanings, and development of a new language and/or dialect. It is a negative dimensional (D⁻) word-from-word approach (given a new term: lexical topology). The Language DNA (LDNA) process can be added, as the eighth process, to the previous list of the basic processes by which new words are created, and consequently, it is the compromising eighth source of the language. The inverted word gives the similar meaning of the original word. Some of the meanings are well-known, whereas the others were either used in the past and lost because of the natural selection law or were never known but might be used in the future. Additionally, it enriches the meaning of the word and may give extended negative dimensional meaning of the interpreted text.

Keywords: Philology; Inversion theory; Word-from-word; Negative dimension (D⁻); Lexical Topology; Language DNA (LDNA) theory

Introduction

The "Inversion and Language DNA (LDNA) Theory" was firstly discovered, originally from the Holy Qur'an, by Al-Rawajfeh (2020a). It has been mathematically formulated in a preliminary form by Al-Rawajfeh and Altawallbeh (2021). At the beginning of the Islamic period, only two sources of literary Arabic were available, the Holy Qur'an and the pre-Islamic poems. It is not surprising, then, that these two sources played and still are playing a crucial role in the standardisation and development of the Arabic language. The process of standardisation connected with three important topics: Orthography, elaboration of a standardised norm, and the lexicon was inventoried and expanded, consequently, a stylistic standard was developed (Versteegh, 2014). According to Ibn Faris (d. 395/1005) Arabic language is unique and surpasses all other languages in excellence. He argued that Allah has chosen it for His last revelation, which means that it must be superior to all other languages, and additionally, the richness of the Arabic lexicon is far beyond that of other languages. He builds his opinion on his own interpretation of two disconnected verses from different Suras in the Holy Qur'an, one is Q26/192-195:

"وَإِنَّهُ لَنَنْزِيلُ رَبِّ الْعَالَمِينَ (192) نَزَلَ بِهِ الرُّوحُ الْأَمِينُ (193) عَلَى قَلْبِكَ لِتَكُونَ مِنَ الْمُنْذِرِينَ (194) بِلِسَانٍ عَرَبِيٍّ مُبِينٍ (195)"

"And truly, this (the Qur'an) is a revelation from the Lord of the 'Alamin (mankind, jinn and all that exists) (192) Which the trustworthy Ruh [Jibril (Gabriel)] has brought down (193) Upon your heart (O Muhammad) that you may be (one) of the advisors (194) In the plain Arabic language (195)",

and the second is Q55/3-4:

"خَلَقَ الْإِنْسَانَ (3) عَلَّمَهُ الْبَيَانَ (4)"

"He created man (3) He taught him eloquent speech (4)".

The LDNA theory is very important in philology, the words' meanings, their derivation, and development, toward the extrusion of a new language and/or dialect. According to Ibn Ashur (1984): "The Qur'an is Arabic speech; therefore, the principles of the Arabic language constitute the path to understanding its meanings". The basis of proper interpretation stems from five branches of language: (1) lexicology, (2) morphology, (3) grammar (*Syntax*), (4) ilm al-ma'ani (*Semantics*), and (5) ilm al-bayan (*Rhetoric*). The latter two are subdivisions of balagha ('rhetoric'), the first, deals with logic and meaning, whereas the second, deals with emotions and imagination (Mubarak, 2018).

Theoretical Frame

Classical Arabic language is considered to be the ancestor of *semitic* languages and origin of speech (Ismail, 1989). The Arabic letters and their equivalent English symbols are as follows:

There are different theories on the origin of the language: The Divine Source, the Natural Sound Source, the Musical Source, the Social Interaction Source (Yo-he-ho Theory), the Physical Adaptation Source, the Tool-Making Source, and the Genetic Source (Yule, 2020). It seems that the first theory is the most acceptable because it covers the other theories and makes them as enhancers to its results, because the creator also created the gene that control the language as suggested by the *Genetic* theory. The formation of new words in a language never stops, and the influence of the other language never stops, too. It is very important to discover the origin of a word and the connections between the words in a language. Applying the fractal theory (Lipscomb, 2009), so, if there is a gene to control a system (creature), then there should be a similar controller in the smaller systems (or sub-system) that included in, and so is happening with the smaller and smaller systems.

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such independent cases. Fortunately, two other cases were found, the inversion of F is H , and S is $\int$. By finding these three cases, the whole system was built by folding the Arabic Alphabets at the letter $\int$, and surprisingly, the resulted combination was similar to the DNA (Al-Rawajfeh, 2020a).

Figure 1 shows the DNA-like representation of the Arabic letters and their negative dimensional (D-) corresponding letters (given a new term: lexical topology), and their equivalent English sound symbols (Al-Rawajfeh, 2021). The inversion according to the LDNA Theory may be called inter-inversion process, while the inversion of the neighbour letters within the original alphabetical order may be called intra-inversion.

The Deoxyribonucleic acid (DNA) carrying genetic instructions for the development, functioning, growth, and reproduction of human beings (The system) (Lackie, 2007), and then, it is believed that there should be a DNA-like combinations of the letters, in a language, that control the development, functioning, growth and reproduction of the language (as one of included system or sub-system). The basic processes by which new words are created are: (i) borrowing, (ii) compounding, (iii) clipping, (iv) conversion, (v) coinage, (vi) derivation, and (vii) multiple processes (Yule, 2020).

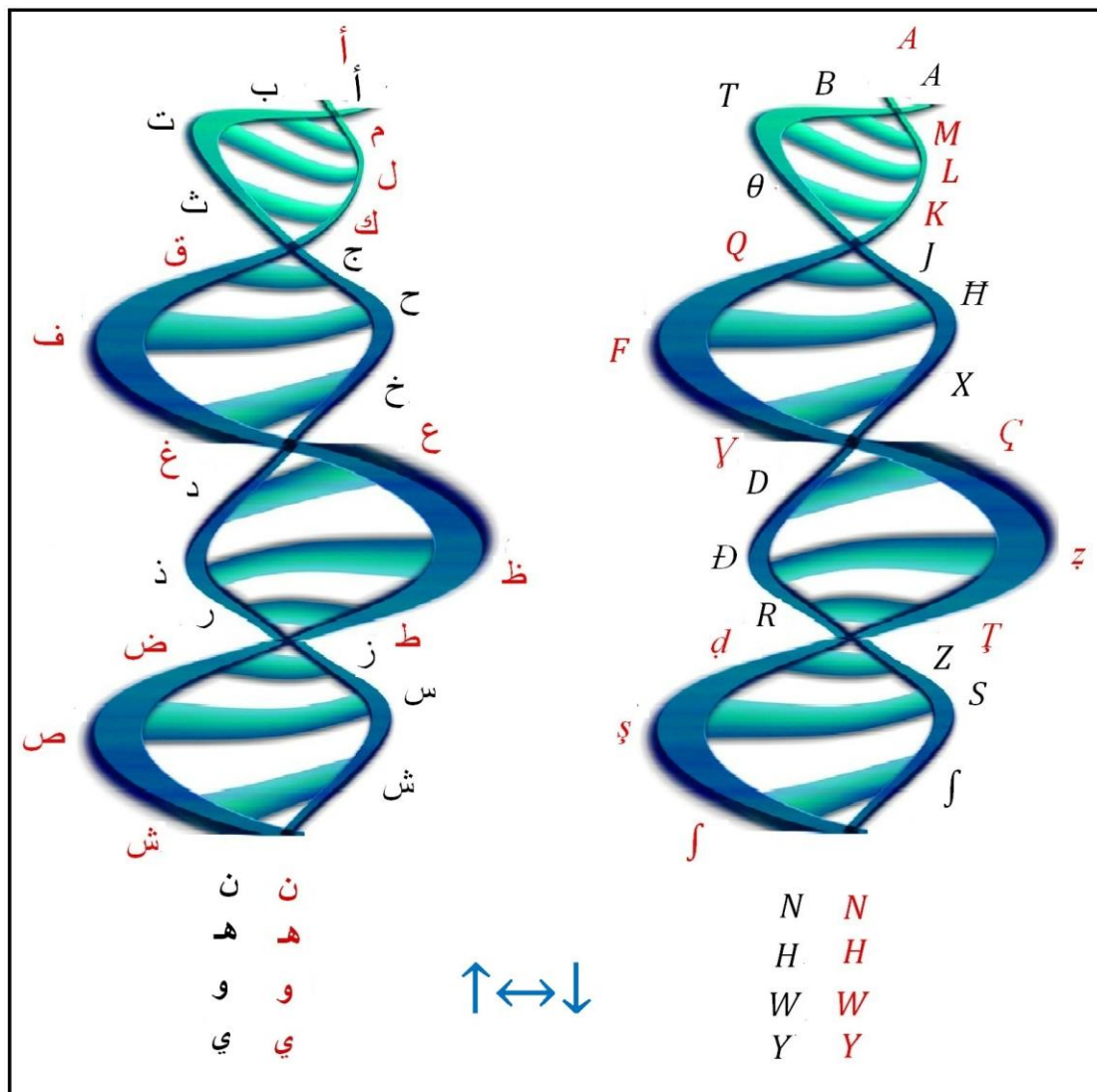


Figure 1: The DNA-like representation of the Arabic letters and their negative dimensional (D-) corresponding letters (left), and their equivalent English symbols (right)

Thanking what had been done since Arabic lexicon beginning and what had been done previously, it is fairly to say that Arabic lexicon is a monument to thought and industry deserving the highest praise (Jamiu, 2014). Haywood's (1960) expressed this as follows: "Only a people with a very high standard of culture and an extensive literature could require a Lisan and a Qamus and only truly outstanding scholars could provide them". Without these dictionaries, much Arabic literature would have remained imperfectly understood, even by the Arabs themselves. Additionally, many facts concerning Islam would have been severely handicapped. One would think that the Arabs temperament was ideally suited to the work of lexicography. This work is a continuation of the long-history Arabs' efforts.

If $[A]$ is a matrix represents an n -letters root word, and it has no symmetric meaning, it is considered to be identical. Identity (its symbol is E or I) is the lowest form of symmetry, where the object (i.e., here it is the word) is, at least, symmetric to itself, as shown in the following equation:

$$[A] = E. \quad (1)$$

So, to get a corresponding meaning of the word $[A]$, with keeping equation (1) valid; the unique solution is if the matrix $[A]$ is multiplied by its inversion matrix (i.e., $[A]^{-1}$). The solution is as follows (Ceulemans, 2013):

$$[A] \cdot [A]^{-1} = [A]^{-1} \cdot [A] = E, \quad (2)$$

where $[A]^{-1}$ is called the inversion of the matrix $[A]$, and it represents the negative dimensional (D^-) symmetric meaning of the word.

Depending on the inversion and Language DNA (LDNA) theory (Al-Rawajfeh, 2020a); the Arabic alphabetical letters can be inverted to the following letters (Al-Rawajfeh & Altawallbeh, 2021):

$$\begin{aligned} A &\leftrightarrow A, \\ B &\leftrightarrow M, T \leftrightarrow L, \Theta \leftrightarrow K, J \leftrightarrow Q, H \leftrightarrow F, X \leftrightarrow \text{Y}, D \leftrightarrow \text{Z}, R \leftrightarrow \text{T}, Z \leftrightarrow \text{d}, S \leftrightarrow \text{s}, \\ \int &\leftrightarrow \int, \\ N &\leftrightarrow H, W \leftrightarrow Y, W \leftrightarrow A, \text{ and } Y \leftrightarrow A. \end{aligned} \quad (3)$$

For an n -letters root word, the number of possibilities of the produced words is:

$$2n + 1. \quad (4)$$

For example, a word with three-letters root (i.e., $n = 3$); the maximum possible produced symmetric words (or meanings) are seven: Three words by inverting one letter, other three words by inverting two letters, and one word by inverting the three letters.

The language DNA (LDNA) process can be added, as the eighth process, to the previous list of the basic processes by which new words are created, and consequently, it is the compromising eighth source of language. It enriches the meaning of the word and may give extended (extra) and negative dimensional meaning of the interpreted text.

For example, the word *FaLaQa* (فلق) in Sura Al-Falaq in the Holy Qur'an (Q113/1) which means "the first appearance of the light in the morning- aurora ", "dawn", " a crack or similar fault", "removing the darkness", or "strip the darkness", can be inverted by the LDNA Theory to the corresponding words, as shown in Table 1 (Al-Rawajfeh, 2020). Four words out of seven are available in the dictionaries, while the rest words are either disappeared or can be used with the Language Extension Theory (LET) in new words creation process.

Table 1: The application of the Arabic LDNA to the word FaLaQa which means "dawn", "a crack or similar fault", "remove the cover" or "strip the darkness".

The inverted letter	The new word	The meaning
$F \leftrightarrow H$	<i>HaLaQa</i> (حلق)	To cut the hair, i.e., remove the covering hair
$L \leftrightarrow T$	<i>FaTaQa</i> (فتق)	Opening or a crack or similar fault
$Q \leftrightarrow J$	<i>FaLaJa</i> (فلج)	A crack or similar fault or make a hole by digging

$F \leftrightarrow H$ and $L \leftrightarrow T$	HaTaQa (حَق)	Either disappeared or can be used with the Language Extension Theory (LET)
$F \leftrightarrow H$ and $Q \leftrightarrow J$	HaLaJa (حَلَج)	Ginning or removing apart from all
$L \leftrightarrow T$ and $Q \leftrightarrow J$	FaTaJa (فَتَج)	Either disappeared or can be used with the Language Extension Theory (LET)
$F \leftrightarrow H$, $L \leftrightarrow T$, and $Q \leftrightarrow J$	HaTaJa (حَتَج)	Either disappeared or can be used with the Language Extension Theory (LET)

Application of the LDNA Theory: Models from Chapter Al-Kahf (Q18)

The "Inversion and Language DNA (LDNA) Theory" (Al-Rawajfeh, 2020) was applied to hundreds of words (originally applied to the Holy Qur'an). The meanings of the words are produced from a negative dimensional (D-) symmetry (a lexical topology approach), and it is described as word-from-word approach. The inverted word-from-word of this approach gives the similar meaning of the original word. Some of the meanings are well-known, whereas the others were either used in the past and lost because of the natural selection law or were never known but might be used in the future depending on the "Language Extension Theory". Various Arabic dictionaries were used. In this section, a number of models will be given from Chapter Al-Kahf (Q18).

The root: $\zeta aWiJa$ (عوج) in Q18/1:

"الْحَمْدُ لِلَّهِ الَّذِي أَنْزَلَ عَلَى عَبْدِهِ الْكِتَابَ وَلَمْ يَجْعَلْ لَهُ عِوَجًا"

"All the praises and thanks be to Allah, Who has sent down to His slave (Mohammad PBUH) the Book (the Qur'an), and has not placed therein any crookedness".

The word $\zeta iWiJa$ (عوجا) in Q18/1 means: "deviation" or "crookedness", according to the LDNA Theory, J is inverted to Q (i.e. $J \leftrightarrow Q$), the resulting word is $\zeta aWiQa$ (عوق: يعيق، إعاقه، عائق..) and it means: "disability", "retard", "stunt", "delay", "obstacle", "barrier", "stop" or "suppress". So, the resulting meaning of inverting the word is as follows:

- Like the original word: "There is no crookedness in the Holy Qur'an" (from inside the Qur'an; internal factor).
- An extended (extra) meaning: "There will be nothing to deviate the Holy Qur'an, and there will be no obstacles to stop it" (from outside the Qur'an; external factor).

The root: $RaBa\tau a$ (ربط) in Q18/14

The word $RaBa\tau na$ (ربطنا) in Q18/14 means: "to tie" or "to fix", by inverting the letters according to the Theory (i.e. $R \leftrightarrow \tau$, and $B \leftrightarrow M$), the resulting word is $\tau aMaRa$ (طمر: يطمر، طمرأ...) and it means: "to cover", "to keep", "to bury", "to fix", or "to embed". So, the resulting meaning is as follows:

- Meaning by the original word: "And We made their hearts firm and strong..."
- Meaning by the inverted word: "And We cover their hearts and keep them..."

The root: $\int a\tau a\tau$ (شطط) in Q18/14

The word $\int a\tau a\tau a$ (شططا) in Q18/14: It means "an enormity", "divagation" or "overstepping", by inverting the letters according to the Theory (i.e. $\int \leftrightarrow \tau$, and $\tau \leftrightarrow R$), the resulting word by inversion is $\int aRaRa$ (وشرير شرار) and it means: "to spark", "eruption", or "be evil". So, the resulting meaning is similar by using both words.

The root: $RaQaDa$ (رقد) in Q18/18

The word $RoQoD$ (رقود) in Q18/18 means: "an enormity", "divagation" or "overstepping", and by inverting the letters according to the LDNA Theory (i.e., $R \leftrightarrow \tau$, $Q \leftrightarrow J$, and $D \leftrightarrow \zeta$), the resulting word is $\tau aJa\zeta a$ (طجع). Because τ is next to ζ in the alphabetical order, $\tau aJa\zeta a$ becomes $\zeta aJa\zeta a$ (اضجع: اضجع), in a second step intra-inversion, which gives

similar meaning by using both words: "sleep", or "lie down". So, the translation of the meaning is: "And you would have thought them awake, whereas they were asleep".

The root: *ṣaRaFa* (صرف) in Q18/54

The word *ṣaRRaFna* (صرفنا) in Q18/54: "And indeed We have put forth every kind of example in this Qur'an, for mankind", means: "We have explained", or "We have declared". By inverting the letters, according to the Theory (i.e., $F \leftrightarrow H$), the inverted word *ṣaRRaHna* (صرحنا) gives the same meaning: "make clear", "explain", or "make a statement", ... etc.

The root: *SaRaBa* (سرب) in Q18/61

The word *SaRaBan* (سرباً) in Q18/61 means: "slipping away", or "leaving". The inverted word by the LDNA Theory using the letters' relationships: $S \leftrightarrow \mathfrak{S}$, and $B \leftrightarrow M$, the produced word is *ṣaRMan* (صرماً), means: "escape", "leave", or "end a relationship with somebody", the latest is like that meaning in the Arabic poetry (i.e., to cut the relationship and leave):

فَأَجْمِلِي أَفَاطِمَ مَهْلًا بَعْضَ هَذَا التَّدَلِّي - وَإِنْ كُنْتَ قَدْ أَرْمَعْتَ صِرْمِي

The root: *QaSSa* (قصص: قصص) in Q18/64

The word *QaSaSan* (قصصاً: قص الأثر) in Q18/64 means: "retracing their footsteps", "inspect", or "tracking". The inverted word by inverting the letters according to the LDNA Theory (i.e., $Q \leftrightarrow J$, and $\mathfrak{S} \leftrightarrow S$) is *JaSSa* (جسن), and it means: "to find out about", "to gain information about", "search for", or "investigate".

The root: *XaRaQa* (خرق) in Q18/71

The word *XaRaQaHa* (خرقها) in Q18/71: "So they both proceeded, till, when they embarked the ship, he (Khidr) scuttled it. Musa (Moses) said: Have you scuttled it in order to drown its people? Verily, you have committed a thing Imr (a Munkar - evil, bad, dreadful thing)". It means: "he made a hole in it", "penetration", or "and this may cause the ship to sink down". The inverted word, because $X \leftrightarrow \mathfrak{X}$, is *YaRiQa* (غرق), it means: "to sink down". The translation of the meaning is: "You will make it to sink down with its the people".

The root: *JaZa* (جزى) in Q18/88

The word *JaZa'an* (جزاء) in Q18/88 means: "Pay or reward somebody for work", or "To punish or criticize someone severely", and when the word inverted by inverting $J \leftrightarrow Q$ and $Z \leftrightarrow \mathfrak{Z}$, the resulting word is *Qaḍa* (قضى), and it means: "A decision by a judge" or "to Punish or reward".

The root: *DaKKa* (دك) in Q18/98

The word *DaKKa'a* (دكاء) in Q18/98 means: "leveling something down" or "destroy to small parts". The word can be inverted to *Ḥaḥḥa* (عث), by inverting the letter as follows: $D \leftrightarrow \mathfrak{D}$ and $K \leftrightarrow \theta$. The resulting word means: "cause havoc", or "damaging it to small parts by larva for example".

Conclusion

The new "Inter-Inversion and Language DNA (LDNA) Theory" was presented. It states that: "Each Arabic letter has its symmetric letter in a DNA-like combination. The Arabic alphabetical letters can be inverted to the following letters, to give a symmetric word with the same meaning:

$A \leftrightarrow A, B \leftrightarrow M, T \leftrightarrow L, \theta \leftrightarrow K, J \leftrightarrow Q, H \leftrightarrow F, X \leftrightarrow \mathfrak{X}, D \leftrightarrow \mathfrak{D}, \mathfrak{D} \leftrightarrow \mathfrak{Z}, R \leftrightarrow \mathfrak{T}, Z \leftrightarrow \mathfrak{d}, S \leftrightarrow \mathfrak{S}, \int \leftrightarrow \mathfrak{J}, N \leftrightarrow H, W \leftrightarrow Y, W \leftrightarrow A, \text{ and } Y \leftrightarrow A.$

The word-from-word meanings of words are produced from a negative dimensional (D^-) symmetric approach, a lexical topology approach". The intra-inversion of the surrounding letters within the original alphabetical order is valid. It is a brand-new process for words' creation and as a source of the language. The language can be considered as a negative dimensional (D^-) fractal part of the human beings, consequently, there is a resonance between the body DNA and the Language DNA (LDNA).

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