

Duality as a Sign of Divine Order

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Abstract

In this study, we examine the Quranic verse (51:49), which declares that the Creator has fashioned all things in pairs – for instance, in humanity, this is illustrated through male and female. Our objective is to explore the manifestation of this principle across diverse natural domains and assess its concordance with the verse. To this end, a comprehensive survey was conducted, encompassing phenomena that range from microscopic elementary particles to colossal stellar structures in the universe. The investigation identified at least 110 instances of paired entities, thereby illustrating the extensive presence of duality and which supports the Quranic statement formulated in the verse (51:49).

Introduction

In the verse (51:49) of the holy Quran, our Creator says: (وَمِنْ كُلِّ شَيْءٍ خَلَقْنَا زَوْجَيْنِ لَعَلَّكُمْ تَذَكَّرُونَ) (51:49).

This verse can be translated into: **“We created all things in pairs (two kinds), so that you may reflect and ponder”**.

According to this verse, one can understand that the Creator designed objects and living beings in pairs or in another sense with two kinds (Mustafa Mahmoud 2026).

In this context, the scholar Abul Ala Maududi (1903-1979) stated *“everything in the world has been created on the principle of the pairs. The whole system of the universe is functioning on the principle that certain things are complementary and matching to certain others, and their combination brings into being countless new forms and combinations. Nothing here is so unique as may have no match, for the fact is that a thing becomes productive only after it has combined with its matching partner”* (Abul Ala Maududi 2026).

Also, in the *Tazkirul-Quran* book, the scholar Wahiddudin Khan (1925-2021) added an interesting observation *“All things in this world come in pairs—in matter, positive and negative particles, in plants male and female and among human beings, men and women. This is the quintessence of the universe: the prevalence of the law of compensating for the shortcomings of any given thing through its pair or complement. This duality is an indication of the possibility of the Hereafter. In other words, the world of Hereafter is the other part which makes up a pair with the present world and this combination makes our world complete”* (Wahiddudin Khan 2026).

So, this duality is declared in the holy Quran and represent an important information in verse (51:49) that merits being investigated thoroughly and seriously. More curiously, the last part of that verse incites us to reflect – but reflect on what? There are probably many interesting points that warrant reflection and several conclusions that can be drawn from such an analysis as well.

That is, in this study, we seek to explore and verify the existence of such duality in real life, throughout the Universe, and even within the human body.

Exploring Duality in Nature, the Universe, and the Human Body

After a thorough exploration of several objects existing in nature, in the Universe or even in our own body, we have noticed that it does exist a proof of duality indeed. Unfortunately, we cannot cite all of them in this short survey, but a set of 110 types of such things have been quoted and presented in this research paper.

Some examples of things that exist in dual form are illustrated in table 1. We can find many interesting examples ranging from the smallest physical elements to huge objects in the Universe.

For instance, if we look at human beings or any species of animals (*gonochoric animals*), we will find that there are **2 types**, namely: male and female (Beukeboom 2014). This **duality** is essential for reproduction and preservation.



Figure 1: Male and female duality: *Male and Female lions*.

Similarly, if we look at electricity – electric dipole, we will find 2 important poles in it (at a given instant of time), namely a positive-charged pole and a negative-charged one (e.g., battery, condenser, etc.), involving **2 types** of electric charges (OpenStax 2022). This is also essential to make the current move from the first pole to the second one.

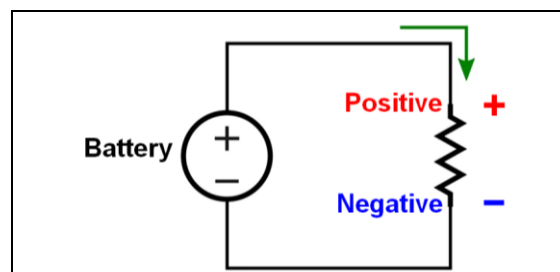


Figure 2: Positive and Negative electric charges duality.

Again, if we explore the microscopic human chromosomes, in a normal healthy human somatic cell, chromosomes are arranged in **pairs of 2** chromosomes (MedlinePlus Genetics 2026) – *one from the father and one from the mother* – confirming the **duality** concept.

Moreover, the sex chromosomes in humans are also of **2 types**: X and Y. Females have the configuration (XX), while males have the configuration (XY). This codification indicates the basic binary human categorization.

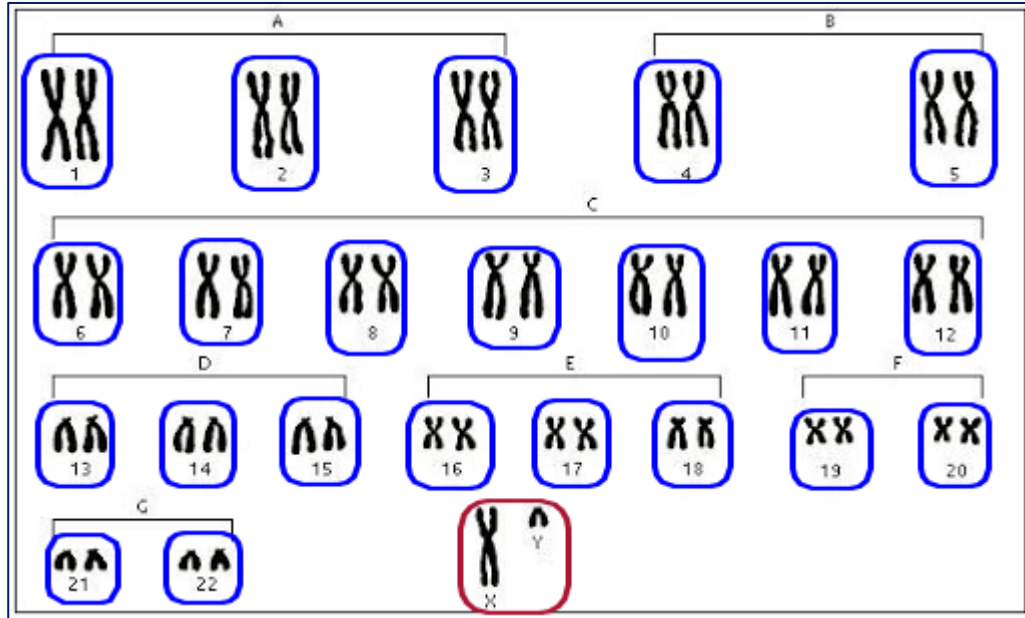


Figure 3: Pairs of chromosomes

Similarly, if we explore the DNA strands, we will find **2 types** of strands: a Leading strand, and a Lagging strand (OpenStax 2018), which are forming together the main DNA structure.

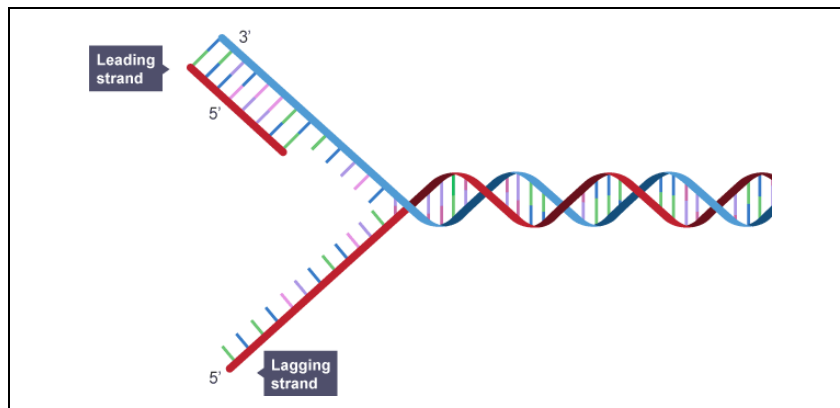


Figure 4: Two strands in DNA.

Even in geophysics, it is well known that the earth does possess a magnetic field resulting in **2 types** of poles, namely: the north magnetic pole and the south magnetic pole (Earle 2015), which represent a useful guide for geolocation and travel.

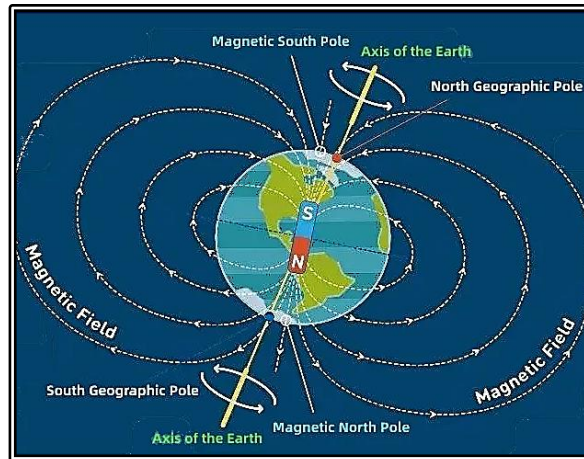


Figure 5: Two magnetic poles in earth.

More strangely, Computer data also uses **2 types** of bits, either one or zero (*1 or 0*), to transmit the data within the electronic board or to store it in memory (Sedgewick 2026). It is also the case in today digital systems like smartphones, computers, modern electronic devices or even digital industrial machines.

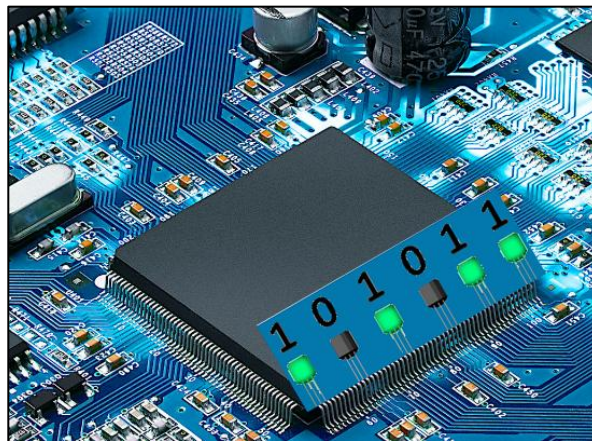


Figure 6: Two values of bits are used in electronics and computer engineering.

In Particle physics, one has discovered that there are **2 types** of matters, in the broad sense, namely: Matter and Antimatter (CERN 2026), which should annihilate when grouped together (e.g., Electrons and Positrons).

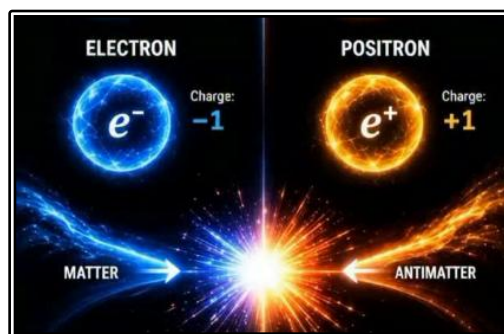


Figure 7: Matter and Antimatter duality.

Also, at the atomic level, we do know that ions possess **2 types** as well: Positive ions or Cations, and Negative ions or Anions (Ball 2011).

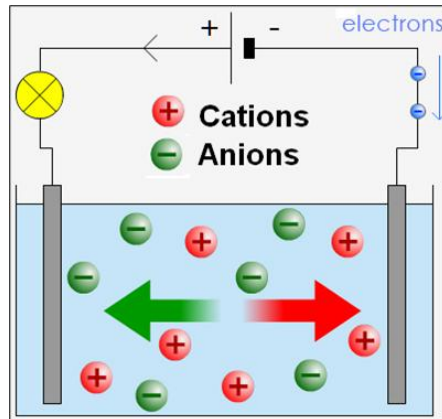


Figure 8: Two types of ions.

And, at the molecular level, one of the most important and vital liquid for life, namely: Water, is composed of **2 types** of atoms: Oxygen and Hydrogen (InTeGrate 2017).

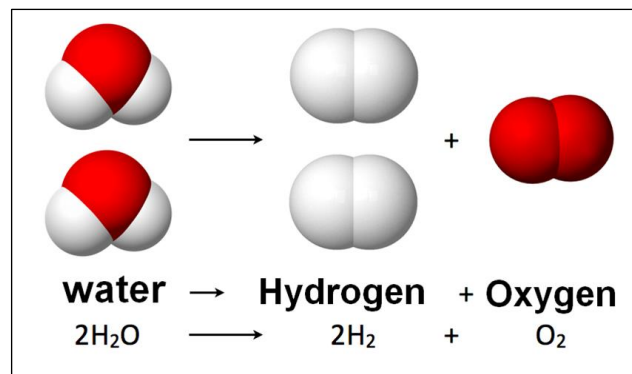


Figure 9: Dual structure of the water molecule.

Similarly, one of the most important and vital gas for life, namely: Oxygen, is composed of a **pair of 2 atoms** (O_2) (CAS 2026).

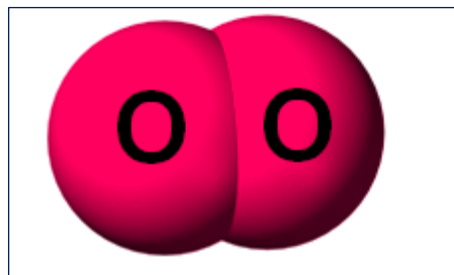


Figure 10: The oxygen molecule (O_2) consists of two oxygen atoms.

More basically now and from a physiological point of view, we may ask ourselves: “How are we able to see?” In fact, the scientific answer involves two duality-based responses:

- From the macroscopic aspect, we are able to see thanks to our **2 eyes**: right eye and left eye – so, **2 types** then.

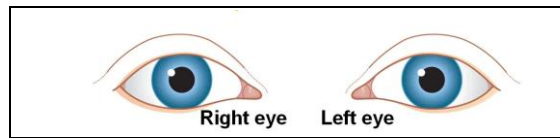


Figure 11: The pair of eyes.

- From the microscopic aspect, we are able to see thanks to the Retina organ, which contains **2 types** of vision cells (Kolb 2025): Rod cells (*grayscale vision*) and Cone cells (*color vision*) – so, 2 types too.

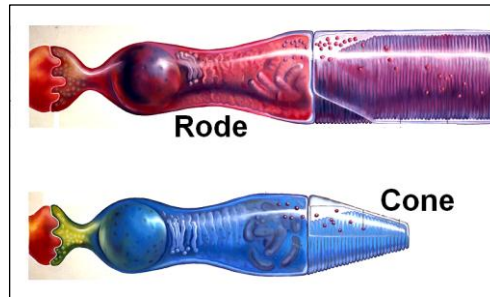


Figure 12: Two types of vision cells.

Again, in the context of vision, light has been found to exhibit a Wave-Particle **duality (2 different natures)**: it behaves as an Electromagnetic Wave and as a Stream of Photons (Norton 2022).

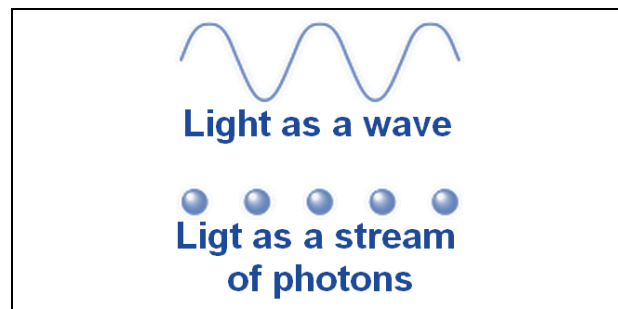


Figure 13: Light duality: wave and photons.

In the daily life, a human being can be either Alive or Dead – **2 possible states** – and this is also a fixed **duality** that controls everyone on earth.

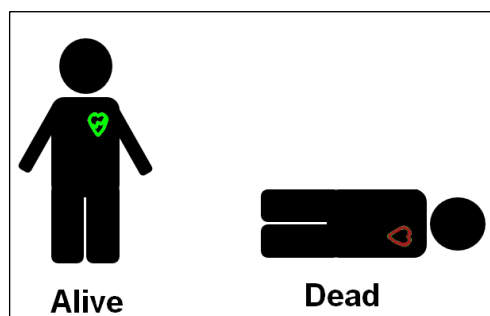


Figure 14: Two possible Human states: can be either alive or dead.

In psychology, emotions are commonly described along a valence dimension (Charland 2005), with **2 main types**: positive (*pleasant*) vs. negative (*unpleasant*). This is one of the most well-established dimensions in emotion research (*e.g., in circumplex models of affect like Russell's 1980 model*).

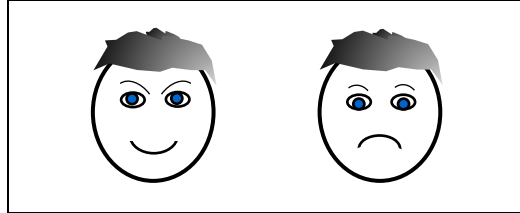


Figure 15: Two Human emotion categories: positive (*pleasant*) vs. negative (*unpleasant*).

In mathematics, there are **2 types** of infinite limits: + infinity ($+\infty$) and – infinity ($-\infty$), as described in mathematics theory (Dawkins 2026).

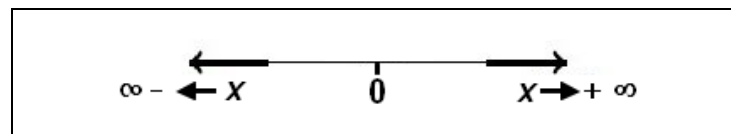


Figure 16: Two types of infinite limits.

There are also **two main types** of natural numbers (*or integers more generally*): Even numbers and Odd numbers (Fields 2026).



Figure 17: Two main types of natural numbers.

In Acoustics or speech production, speech sound is divided into **2 types** of phonemes: Voiced Speech (*eg. A, O, V, Z, ...*) and Unvoiced Speech (*eg. S, T, K, P, ...*) (Calliope 1989). The first type involves vibration of the vocal cords, while the second one does not (*no vibration*).

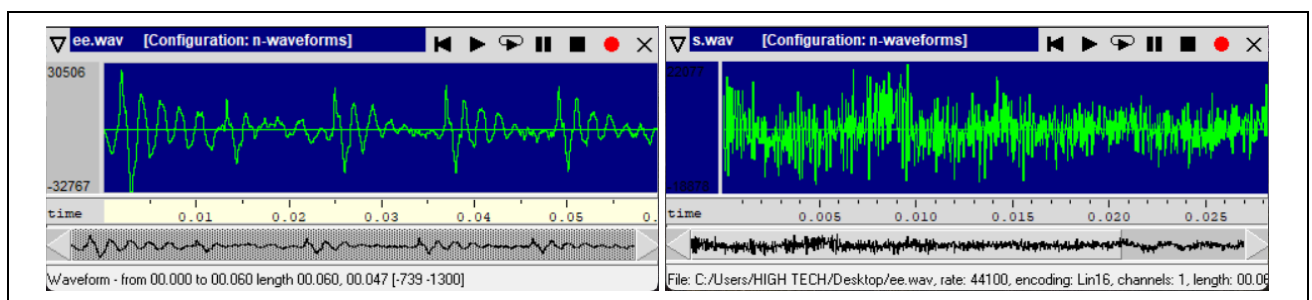


Figure 18: Two types of speech: Voiced sound “a” (left) and Unvoiced sound “s” (right).

Even if we observe our faces or simply our bodies, we notice **duality**: **2** hands, **2** feet, **2** eyes, **2** ears, **2** genital organs, **2** kidneys, **2** eyelids, **2** lungs, **2** jaws, **2** brain hemispheres, etc.



Figure 19: Humans possess two hands.

There are also **2** intestine types, **2** breasts, **2** vertebra exits (*2 spinal nerves per vertebra*), **2 types** of blood (*oxygenated and deoxygenated*) (Canu 2021), **2 types** of muscle (*voluntary and involuntary*), etc.

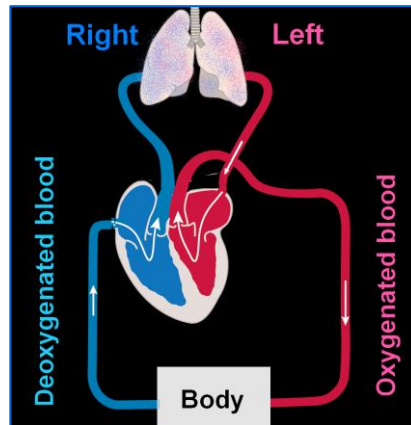


Figure 20: Two types of blood (*oxygenated and deoxygenated*).

Sometime, one can observe organs that might not appear double, like the Nose for instance. However, if we deeply analyze its anatomy, one will find **2** nasal channels: right nasal channel and left nasal channel, which confirm its **duality** criteria as well.

Similarly with the Heart, though it may appear a singular one-piece organ, its accurate anatomy reveals **2 types** of atriums (*Right atrium and Left atrium*) and **2 types** of ventricles (*Right ventricle and Left ventricle*) (Canu 2021), which still confirms the presence of **duality**.

Again, if we observe the Spinal Cord, it may seem to be one single organ, but in reality, the Spinal Cord does have bilateral symmetry dividing it into **2 parts**, and where from any vertebra exit **2** spinal nerves, namely a right spinal nerve and a left spinal nerve (Hartline 2026), which represent the **2** extensions of the spinal cord – This shows why an ipsilateral damage of the left part of the spinal cord causes body disorders (*e.g. motor paralysis*) at the left part of the body and vice-versa – and which proves its respect to **duality principle** once again.

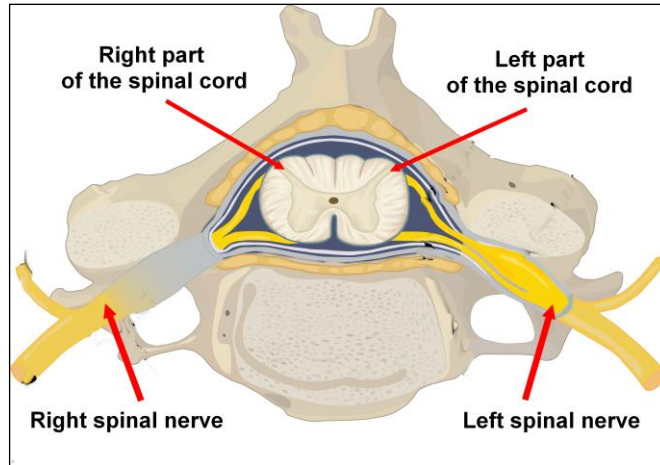


Figure 21: Two spinal nerves in vertebra.

(Image credit: retouched image from "Spinal Cord within Vertebra" by Sofia Elizondo, license CC BY-NC-SA 4.0)

It is basically difficult to enumerate all the things where such duality has been discovered, but we have tried to cite some of them in table 1, which displays about 110 examples of things that exist in dual form (*i.e.*, with 2 types).

Table 1. Examples of things that exist in dual form (with 2 types)

N	Type	Type 1	Type 2
1.	Human being	Male (Man)	Female (Woman)
2.	Animal (Gonochoric)	Male (Animal)	Female (Animal)
3.	Plants/Flowers	Male (male part)	Female (female part)
4.	Matter/ ions	Positive ions/Cations	Negative ions/Anions
5.	Electricity	Positive charge	Negative charge
6.	Electrical cable	Cable 1	Cable 2
7.	Charged elementary particles	protons	electrons
8.	Atom	Central Nucleus	Orbiting particles
9.	Stars/Planets	Central star or planet	Orbiting planet or moon
10.	Light	Illumination	Darkness
11.	Light: electromagnetic wave.	electric field	magnetic field
12.	Light: Particle Model.	Wave-like part	Particle-like part (photons)
13.	Emotions	Positive (eg. Happiness, ...)	Negative (eg. Sadness, ...)
14.	Life	Alive	Dead
15.	Limits (mathematical limits)	+ infinity	- infinity
16.	Transformation	Start/Beginning	End
17.	Water synthesis/components	Oxygen	Hydrogen
18.	(Tele)Communication	Emitter	Receiver
19.	Computer data – bits	1	0
20.	Logics	True	False
21.	Human Chromosomes	1 st Chromosome (of the pair)	2nd Chromosome (of the pair)
22.	Sex chromosomes	X	Y
23.	DNA strands	Leading strand	Lagging strand
24.	Mechanical forces in the Universe	Centripetal force (gravity)	Centrifugal force (Pseudo force due to movement inertia)

25.	Ethics	Good behavior (eg. Honesty, ...)	Bad behavior (eg. Deception, ...)
26.	Day period	Daytime (light)	Nigh (obscurity)
27.	Earth's magnetic poles	North pole	South pole
28.	Star's magnetic poles	North pole	South pole
29.	Eyes	Right eye	Left eye
30.	Ears	Right ear	Left ear
31.	Hands	Right hand	Left hand
32.	Feet	Right foot	Left foot
33.	Types of Molecules	Polar molecules (eg. Water, ...)	Nonpolar molecules (eg. Oxygen, ...)
34.	Main types of High-Energy nuclear transformation	Fusion	Fission
35.	Type of Water on earth	Salt water (eg. Sea water)	Fresh water (eg. River water)
36.	Wings	Right wing	Left wing
37.	Breathing gases for humans and animals	Oxygen	Carbon dioxide
38.	Breathing Gases for plants in Photosynthesis	Carbon dioxide	Oxygen
39.	Speech sound	Voiced (eg. A, O, V, Z, ...)	Unvoiced (eg. S, T, K, P, ...)
40.	Human activity	Awake	Asleep
41.	Mountains topology	Mountain / high altitude	Valley / low altitude
42.	Sheet of paper	Recto: Front side of the sheet	Verso: Back side of the sheet
43.	Natural Fire components	Combustible	Oxygen
44.	Alphabet	Consonant	Vowel
45.	Blood	Deoxygenated blood (Darker red)	Oxygenated blood (Bright red)
46.	Temperature radiation	Heating tool: producing heat (eg. Sun, fire, ...)	Refreshing tool: producing coldness (eg. Cool breeze, Ice, ...)
47.	Main parts of the Human being	Soul	Body
48.	Types of Animals based on Blood Temperature	Warm-blooded: endothermic (eg. Humans, cat, eagle ...)	Cold-blooded: ectothermic (eg. Snake, fog, ant ...)
49.	Religious belief	Believers	Unbelievers
50.	Natural magnet (eg. Fe_3O_4)	North pole	South pole
51.	Cell development used in growth, tissue repair, and maintenance (Mitosis)	Cell daughter 1	Cell daughter 2
52.	Food categories	Solid (eg. Bread, fruit, ...)	Liquid (eg. Water, milk, ...)
53.	Vertebra	Right exit (right spinal nerve)	Left exit (Left spinal nerve)
54.	Articulation in the body	Direct movement	Reverse movement
55.	Mobile skeletal joint muscle	Agonist muscle (eg. Biceps, Hamstrings, ...)	Antagonist muscle (eg. Triceps, Quadriceps, ...)
56.	Natural memory change	Information storage (new memorization)	Information loss (forgetfulness)
57.	Moon	Visible face	Hidden face
58.	Money variation	Credit	Debit
59.	Numbers	Even	Odd
60.	Blood pressure measure	Systolic	Diastolic
61.	Matter types in physics	Matter	Antimatter
62.	Cells	Prokaryotic	Eukaryotic

63.	Electric Currents	AC (Alternating current)	DC (Direct current)
64.	Coins	Head	Tail
65.	Human cell division type	Mitosis	Meiosis
66.	Nervous system	Central	Peripheral
67.	Waves types (by vibration direction)	Transverse (eg. Light)	Longitudinal (eg. Sound in air)
68.	Rocks	Igneous (eg. Granite)	Sedimentary (eg. Sandstone)
69.	Economic systems	Capitalism	Socialism
70.	Government systems	Democracy	Autocracy
71.	Type of memory in computing	Volatile memory	Non-volatile memory
72.	Vision cells (in the retina)	Rod cells (sensitive to low light levels – grayscale vision)	Cone cells (specialized for color and detail)
73.	Muscle types	Voluntary (skeletal)	Involuntary (smooth and cardiac)
74.	Reproduction cells	Sperm cells	Egg cells
75.	Brain	Left hemisphere (Language processing, Controls the Right side of the body)	Right hemisphere (Emotional processing, Controls the Left side of the body)
76.	Daily light change	Morning (sunrise)	Evening (sunset)
77.	Breathing	Inhale	Exhale
78.	Heartbeat	Systole	Diastole
79.	Cholesterol	HDL ("good cholesterol")	LDL ("bad cholesterol")
80.	Celestial Date and season indicators	Sun (Time, season, Gregorian date...)	Moon (Hijri Date)
81.	Leaves	Deciduous (fall seasonally)	Evergreen (remain year-round)
82.	Social sacred male-female partnership	Marriage	Divorce
83.	Lens	Convex	Concave
84.	Emotional psychologic tone	Positive (motivation, energy, hope)	Negative (depression, weakness, despair)
85.	Calendar	Lunar (Hijri)	Solar (Gregorian)
86.	Planets composition	Terrestrial (Earth, Mars, ...)	Gas giants (Jupiter, Saturn, ...)
87.	Communities	Urban	Rural
88.	Paint type	Oil-based	Water-based
89.	Water taps	Hot	Cold
90.	Antenna	Emitting antenna	Receiving antenna
91.	Chemical Solution composition	Solvent (ex: water, ...)	Solute (ex: salt, ...)
92.	Semiconductor types	N-type semiconductor	P-type semiconductor
93.	Space-Time relativity	Space	Time
94.	Quantum entanglement in Physics in monogamy (max entanglement)	Particle 1	Particle 2 (entangled with particle 1)
95.	Normal Speech communication	Hearing	Speaking
96.	Writing/ Displaying text on paper, panel or screen	Foreground color (ex: black, ...)	Background color (ex: white, ...)
97.	Blood Cells (globules)	Red Blood Cells (Erythrocytes)	White Blood Cells (Leukocytes)
98.	Human intestine	Small Intestine	Large Intestine
99.	Normal distribution in probability	Right part ($X > \text{mean}$)	Left part ($X < \text{mean}$)
100.	Lungs	Right lung	Left lung
101.	Kidneys	Right kidney	Left kidney

102.	Genital organs	Right genital organ (Right testicle / ovary)	Left genital organ (Left testicle / ovary)
103.	Jaw/ Mandible	Right mandible	Left mandible
104.	Skin	Epidermis	Dermis
105.	Eyelid	Upper eyelid	Lower eyelid
106.	Sense of rotation	Clockwise rotation	Counterclockwise rotation
107.	Human Name	First Name	Surname (Last name)
108.	Essential elements of a masonry wall	Building block (Bricks, stones)	Mortar (cement, lime, clay)
109.	Brain Tissue composition	Gray matter	White matter
110.	Brain cells	Neurons	Glial cells
111.	Types of atomic orbital overlap	Axial overlap → σ bond	Lateral overlap → π bond

Discussion

Our short survey was centered around the verse (51:49) of the holy Quran, which says: (وَمِنْ كُلِّ شَيْءٍ خَلَقْنَا زَوْجَيْنِ لَعَلَّكُمْ تَذَكَّرُونَ), and which can be translated into: “*We created all things in pairs (two kinds), so that you may reflect and ponder*”.

To that aim an investigation about duality has been conducted on several entities in the world ranging from microscopic elementary particles to huge stellar structures in our universe.

Interestingly, this survey revealed many instances of paired entities respecting the principle of duality – more than 110 examples have been enumerated in this work showing the wide variety of elements respecting this duality.

In fact, the results of this investigation were extremely interesting and convincing about the real existence and extensive presence of this duality in the world.

In the verse (4:82), our Lord says:

أَفَلَا يَتَذَكَّرُونَ الْقُرْآنَ ۚ وَلَوْ كَانَ مِنْ عِنْدِ غَيْرِ اللَّهِ لَوَجَدُوا فِيهِ اخْتِلَافًا كَثِيرًا (4:82)

This holy verse can be translated into: “*Will they not contemplate upon the Quran? If it had been from other than Allah, they would surely have found in it many contradictions (much inconsistency)*” (4:82).

Indeed, a declaration such as the one in verse (51:49) can lead to inconsistency if not well founded. However, the results of this survey strongly support its truthfulness across the many entities investigated herein, even though we were not able to cite all of them in this short document.

Consequently, and according to these findings, we do not see any possible source for the Quran apart from our Lord: Allah, the All-Knowing and All-Powerful.

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