Fundamental Law of Information: Proved by Both Numbers and Characters in Conjugate Matrices

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Abstract

- Its **purpose** is to prove information law by logic, mathematics and translation. The **method** involves: the generalized bilingual logic established on both Aristotle 's formal logic and Frege' s mathematical logic, the linkage function established on both Turing's strong artificial intelligence using numbers and Searle's weak artificial intelligence using characters, the ontological knowledge established on both Saussure's general linguistics and Chomsky's formal linguistics. The **result** is that the basic law can be proved by digital and textual twin matrices. Its **significance** lies in that the global positioning system should be regarded as a special case of the generalized bilingual system.

Keywords

- Information Law

- Bilingual Logic

- Linkage Function

- Ontological Knowledge

1. Introduction

- The **purpose** of this paper is to prove the fundamental law of information in three verifiable ways: by logic, mathematics and translation. That **involves**: the basis of both Aristotle 's formal logic based on language[1] and Frege' s mathematical logic based on arithmetic[2], the basis of both Turing's strong artificial intelligence view based on digital computation[3] and Searle's weak artificial intelligence view based on natural language[4], the basis of both common knowledge [5]and expert knowledge[6] ontologically with interdisciplinary, cross-field and cross-industry, on the basis of both Saussure's general linguistic view[7] and Chomsky's formal linguistic view[8], the reference between English and Chinese and its alternative bilingual[9] to the relation of translation[10].

2. Materials and Methods

- The main **materials or background** relates to: the generalized bilingual logic of sequence and position (the premise), the linkage function between digital and textual of conjugate matrices, common knowledge and expert knowledge ontologically with interdisciplinary, cross-field and cross-industry, and English and Chinese and its alternative bilingual. It is to establish the relation of generalized translation based on the ontology of knowledge.

- The main **specific method** of expert knowledge acquisition involves the following steps:

- **The first step**, any user can put a piece of text (a standardized expression of expert knowledge) into our sequencing positioning system software, **the second step**, the software will automatically generate a pair of chessboard generalized bilingual sequencing positioning system, and **finally**, through Man-machine collaboration, selection and construction of formatted expression of expert knowledge ontology or core terminology framework.

3. Results

- The result is that the fundamental law can be proved by digital and textual twin matrices.

3.1. The Fundamental Law of Information Proved by Both Brain and Computer

- 3.1.1. Proved by Logic
- 3.1.2. Proved by Mathematics
- 3.1.3. Proved by Translation

3.2. The Digital and Textual Twin Matrices

- **Facts speak louder than words**.
- Through a set of facts, that is, the typical embodiment, everyone can feel that the effect of the expert knowledge acquisition method based on the twin checkerboard is accurate, simple and efficient.

The English version of the paragraph through Figure 1 and Table 1, you can verify our language chessboard and its application generated knowledge chess-menu and original chess-soul.

- Representatives: Aristotle, Frege, Zou. Innovative Knowledge Contributions:

KB ≡   ◉ Administrator

Board 3.1.1. Proved by Logic   🐾 Index > Articles > Board

Totals: 22   [Group] [Sentence]

Representatives: Aristotle,Frege,Zou. Innovative Knowledge Contributions:Formal **Logic** for deduction with class,Mathematical **Logic** for calculation with case,Generalized Bilingual **Logic** for both class and case with characters and numbers.

Board ID

| 13 | 34 | 49 | 50 | 55 | 56 | 58 | 60 | 61 | 81 | 107 |
| 151 | 167 | 205 | 206 | 300 | 401 | 733 | 1422 | 1423 | 1424 | 1425 |

Board

and | logic | generalized | bilingual | both | aristotle | formal
frege | mathematical | knowledge | for | calculation | case
numbers | characters | with | representatives | contributions
zou | innovative | deduction | class

generated knowledge chess-menu and original chess-soul

- Formal Logic for deduction with class, Mathematical Logic for calculation with case, Generalized Bilingual Logic for both class and case with characters and numbers.

through Figure 1 and Table 1, you can verify our language chessboard and its application generated knowledge chess-menu and original chess-soul

Figure 1. This is a formal twin chessboard and its application listed as: (a) Description of what is language chessboard; (b) Description of what is knowledge chess-menu and original chess-soul.

Table 1. This is a table with chess-menu placed in three rows and columns.

Attributes	Concept	Types
Formal	Logic	class
Mathematical	Logic	Case
Bilingual	Logic	class and case

The English version of the paragraph through Figure 2 and Table 2, you can verify our language chessboard and its application generated knowledge chess-menu and original chess-soul.

- Representatives: Turing, Searle, Zou. Innovative Knowledge Contributions:

generated knowledge chess-menu and original chess-soul

- Strong Artificial Intelligence based on Digital Computation by using numbers, Weak Artificial Intelligence based on Natural Language by using alphabet, Generalized Intelligence based on Bilingual Mathematics by using both characters and numbers.

through Figure 2 and Table 2, you can verify our language chessboard and its application generated knowledge chess-menu and original chess-soul.

(a)

(b)

Figure 1. This is a formal twin chessboard and its application listed as: (a) Description of what is language chessboard; (b) Description of what is knowledge chess-menu and original chess-soul.

Table 1. This is a table with chess-menu placed in three rows and columns.

Attributes	Concept	Types
Artificial	Intelligence	Strong
Artificial	Intelligence	Weak
Generalized	Intelligence	Bilingual

The English version of the paragraph through Figure 3 and Table 3, you can verify our language chessboard and its application generated knowledge chess-menu and original chess-soul.

- Representatives: Saussure, Chomsky, Zou. Innovative Knowledge Contributions:

generated knowledge chess-menu and original chess-soul

- General Linguistics with human's natural language understanding, Formal Linguistics with computer's natural language understanding, Generalized Bilingual Linguistics with both on surfaces, but essentially only arithmetic.

KB ☰ ⊙ Administrator

Group 3.1.3. Proved by Translation   🕮 Index > Articles > Group

Totals: 9   Board   Sentence

Representatives:Saussure,Chomsky,Zou. Innovative Knowledge Contributions:General Linguistics with human's **natural language understanding**,Formal Linguistics with computer's **natural language understanding**,Generalized Bilingual Linguistics with both on surfaces, but essentially only arithmetic.

3(3)   1(3)   2(3)

general linguistics   formal linguistics   bilingual linguistics

essentially only arithmetic   ✚

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through Figure 2 and Table 2, you can verify our language chessboard and its application generated knowledge chess-menu and original chess-soul.

3.3. Three Kinds of Identity: Mathematical Information Law

- The truth is clear. With the aid of the corresponding analytic geometric model and the linkage function, the equivalence relation between the three types of polynomials is given by means of the three types of equations of the number, the twins, the text and the solution of the three kinds of identities. In the specific series Of the man-machine collaboration process, their constraints were also found.

All numbers and characters should be putted in one of the main twin boards as（a）and（b）with three types of identities

$$I_d = n^2$$ (in board a)   Digital number

$$I_k + I_u = m^2$$ (in board b)   Textual character

(a)   (b)
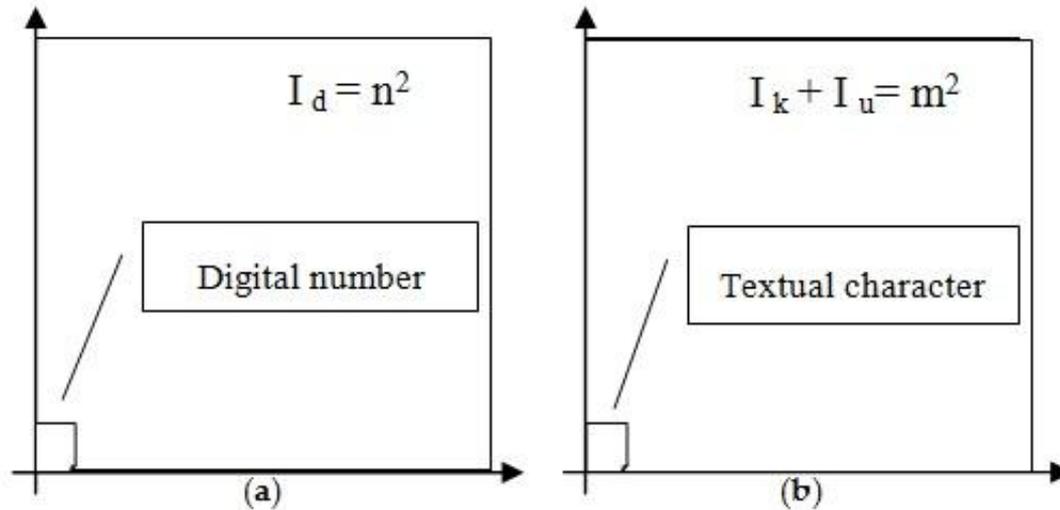
Figure 1. The same formal matrix both in（a）and（b）listed as: (a) Description of what is contained in the equation $I_d = n^2$; (b) Description of what is contained in the equation $I_k + I_u = m^2$.

The digital, twins, textual equations:

$$I_d = n^2 \tag{1}$$

$$I_d = I_k + I_u \tag{2}$$

$$I_k + I_u = m^2 \tag{3}$$

The above three types of identities, combined with their analytical geometric form, respectively, from the digital, twins, and textual of the three types of character system perspective, from the matrix

4. Conclusions

- The sequence and position of the digital function record, which itself is the only constant on the grid of the matrix.

- The linkage function is based on the logical and mathematical synonyms (parallel, correspondence, conversion).

Its significance lies in that

- Its significance lies in that the Global Positioning System (GPS) should be regarded as a special case of the generalized bilingual system that should be looked like the Global Hardware Positioning System (GHPS) with its Global Software Positioning System (GSPS), Global Language Positioning System (GLPS) and Global Knowledge Positioning System (GKPS).

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