

## **Numerical Heka**

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*Numerical Heka is the magical practice of ritual recitation of passages and Moon Arithmetic (Modular Arithmetic). Divination, future telling and astrology are some of the potential benefits to Numerical Heka. KryptoMagick's experience with Drawing Down the Star can testify to the usefulness of Moon Arithmetic when in a trance producing the shifts contained within the Book of Egyptian Cryptography – Code Generator. Numerical Heka is only magic when applied with creative interpretation of linguistic patterns connected with lores, gods, star phenomena and genealogy.*

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### **Numerical Heka**

The purpose of Numerical Heka is to provide a modern set of divination tools to Tarot readers. Numerical Heka is not Tarot. Although the creation of Numerical Heka was inspired by Tarot, it is not considered a traditional Tarot system. Numerical Heka is a mathematical system over a number of physical entropy sources. Numerical Heka arms the N Heka reader with as many numerical points as possible with which to construct Tarot like readings.

Numerical Heka, if thrown into a pot, is one part mathematical, one part spiritual and two parts cryptographic. Interpretation of N Heka may or may not be derived from the included Egyptian Fetu Glossary, however, the design of N Heka was to be used in conjunction with common astrological and astronomical signs of Ancient Egyptian Astronomy and the modern understanding of the night sky including various celestial objects.

The system of Numerical Heka allows for one to create verbose card readings. For example, a typical KryptoMagick Reading, based only card read information, may give a reader a brief story, shared in Fetu Egyptian, magic numbers and words the recipient of the reading may take with them and potentially a set of public keys exchanged on paper.

Numerical Heka is by no means limited to the concepts outlined in this document. Numerical Heka expands practice into different moduli, crossing language moduli barriers and expansion to Fetu Egyptian.

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### **Divination**

By employing the technique of adding names modulo a number, typically 26 (or the length of the target alphabet), one can uncover obvious linguistic patterns that the reader can glean from. The readers knowledge of language, spiritual belief systems, history, the night sky, science and mathematics all factor into the method of interpretation by the reader.

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## **Egyptian Numerical Heka**

In order to grasp this concept of Numerical Heka one has to believe in the supernatural and must have a fundamental understanding of the ancient Egyptian language and lore. Connecting names and numbers with Egyptian God/Goddess signs, cross correlating God/Goddess elements, parallels and forms.

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## **Moon Arithmetic**

Moon Arithmetic or modular arithmetic is the practice of adding, subtracting, multiplying or exponentiation modulo a particular number. The mathematical system relies on one dividing a number by the modulus and taking the remainder after division as the result.

Numerical Heka most typically performs Moon Arithmetic modulo 26 (signifying 26 letters of the English alphabet or half of the length of a typical French playing card deck).

Two or more letters can be added or subtracted to form new letters.

### **Addition Examples**

$$A + B \text{ modulo } 26 = B$$

or

$$0 + 1 \text{ modulo } 26 = 1$$

$$C + C \text{ modulo } 26 = E$$

or

$$2 + 2 \text{ modulo } 26 = 4$$

$$N + U \text{ modulo } 26 = H$$

or

$$13 + 20 \text{ modulo } 26 = 7$$

### **Subtraction Examples**

$$B - A \text{ modulo } 26 = Z$$

or

$$1 - 0 \text{ modulo } 26 = 25$$

$$N - U \text{ modulo } 26 = G$$

or

$$13 - 20 \text{ modulo } 26 = 7$$

$$F - T \text{ modulo } 26 = O$$

or

$$5 - 19 \text{ modulo } 26 = 14$$

Using Moon Arithmetic, one can combine linguistic patterns such as names, places and more to create mystical codes and linguistic patterns. Moon Arithmetic is the primary tool of KryptoMagick.

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## **Fetu Cards**

Fetu Cards can be used as a form of Tarot. It allows one to utilize a standard 52 card deck of playing cards for divination. Fetu mathematics allows one to generate alphabetical/linguistic codes from decks of cards as well as binary data. A shuffled deck of cards in Fetu can generate 52 bits of entropy.

Because of the many resulting calculations that can be sourced from a Fetu deck, the N Heka (Fetu Cards) Python programs allow for one to shuffle a real deck of cards and input the deck into the computer and have the program give a Fetu Deck Report on the deck. This allows for quick readings and quick computer aided calculations that save time as well give more opportunity to the reader to focus on developing a strong reading.

Although this document describes many of the ways with which to use the entropy sourced from a Fetu Deck, it does not even begin to describe the limitless ways in which one can combine human ingenuity, math and elbow grease to form

### **Fetu Deck**

A Fetu Deck consists of a standard 52 card deck. The standard Fetu deck order was derived using Wiccan and Pagan myths and lores. Queen or Goddess first then King, ending in the Ace signifying the

least valuable card. A Fetu Deck is read upside down (bottom facing up), where the bottom most card is the first card and the top card is the last.

Jokers. 54 cards may be counted including 2 Jokers which are used as valueless index cards for indexing or organizing a Fetu Deck only. Although with value assigned to the Joker cards, one can extract slightly more entropy from a Fetu Deck. At the time of writing this document and in best practices of N Heka, Jokers are primarily physical index cards with no value.

In the KryptoMagick fashion, a deck reading may be stored by placing guardians on the outside or Joker's on either end of a deck reading.

### Fetu Card Characteristics

Each card in a Fetu deck has multiple values that can be easily calculated. It's suggested that one keep a hardcopy glossary of the Fetu card values.

The standard values are simply the number of the card in the standard order (0-51). The Moon Arithmetic values are derived by calculating the standard values modulo 26 creating two even sets of (0-25).

Fetu values are calculated by counting the suit and value symbols on a standard Bicycle playing card and multiplying them plus one.

The binary value of a card depends on the suit. Black suited cards are 0 and red suited cards are 1.

### N Heka Neutral Deck Order

QS, KS, JS, 10S, 9S/, 8S, 7S, 6S, 5S, 4S, 3S, 2S, AS, QD, KD, JD, 10D, 9D, 8D, 7D, 6D, 5D, 4D, 3D, 2D, AD, QC, KC, JC, 10C, 9C, 8C, 7C, 6C, 5C, 4C, 3C, 2C, AC, QH, KH, JH, 10H, 9H, 8H, 7H, 6H, 5H, 4H, 3H, 2H, AH

### Standard Values

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51

### Moon Arithmetic Values

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

### Fetu Values

### Fetu N Heka Values

The N Heka Values give favorable numeric value to the face cards. Number cards all equal their face value and the Ace guardian cards all equal one.

Queens = 16

Kings = 12

Jacks = 11

10 = 10

9 = 9

8 = 8

7 = 7

6 = 6

5 = 5

4 = 4

3 = 3

2 = 2

Ace = 1

### Fetu Suit Symbol Values

Each Fetu suit symbol has a different specified value. The values below have been carefully chosen by KryptoMagick but may be changed to signify other numerical patterns.

Spade = 20

Diamond = 4

Club = 10

Heart = 8

### Fetu Suit Symbol Counts

Queen = 4

King = 4

Jack = 4

10 = 12

9 = 11

8 = 10

7 = 9

6 = 8

5 = 7

4 = 6

3 = 5

2 = 4

Ace = 3

### Fetu Value Symbol Counts

All cards have a Fetu Value symbol count of 2.

### Fetu Symbol Values

The total of all Fetu symbols on a card is calculated using the following formula:

(Standard Fetu Symbols are derived from the symbol frequency of the standard Bicycle playing card)

QS = (2591), KS = (1921), JS = (1761), 10S (4801), 9S (3961), 8S (3201), 7S (2521), 6S (1921), 5S (1401), 4S (961), 3S (601), 2S (321), AS (121), QD = (513), KD = (385), JD = (353), 10D (961), 9D (793), 8D (641), 7D (505), 6D (385), 5D (281), 4D (193), 3D (121), 2D (65), AD (25), QC = (1281), KC = (961), JC = (881), 10C (2401), 9C (1981), 8C (1601), 7C (1261), 6C (961), 5C (701), 4C (481), 3C (301), 2C (161), AC (61), QH = (1025), KH = (769), JH = (705), 10H (1921), 9H (1585), 8H (1281), 7H (1009), 6H (769), 5H (561), 4H (385), 3H (241), 2H (129), AH (49)

### Binary Values

0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1

### Neutral Binary 4 bit values

[0, 0, 0, 0], [0, 0, 0, 0], [0, 0, 0, 0], [0, 1, 1, 1], [1, 1, 1, 1] [1, 1, 1, 1], [1, 1, 0, 0], [0, 0, 0, 0] [0, 0, 0, 0], [0, 0, 0, 1], [1, 1, 1, 1], [1, 1, 1, 1], [1, 1, 1, 1]

### Fetu Deck Report

The Python program attached with this document allows easy processing of a shuffled Fetu Deck. This section describes the various calculations that are given in a Fetu Deck Report.

Fetu Deck Order – denotes the order number of the card (0-51)

Fetu Moon Arithmetic Value – denotes the value of the card modulo 26

Fetu N Heka Value – denotes the static N Heka value of a card

Fetu Fetu Value – denotes the static Fetu symbol value of a card

Fetu Deck Phrase – a 52 letter alphabetic encoding of a deck

Fetu Moon Arithmetic values – values of the cards modulo 26

Fetu Moon Arithmetic total – the total sum of all MA values

Fetu Wiqa Sequences – 3 distinct alphabetic sequences each of length 52

Fetu Binary Sequences – 13 distinct 4 bit binary sequences

Fetu Hexadecimal Signature – a unique 52 bit binary string

Fetu Decimal Signature – a unique decimal number

### Fetu Card Actions

Using data derived from a shuffle of Fetu Cards, one can perform a number of operations.

1. Add or subtract multiple decks (this allows the generation of permuted sequences derived from the deck)
2. Uniquely identify decks
3. Extract binary entropy (52 bits of entropy is available for extraction from a Fetu deck of cards)

### Fetu Tarot

Fetu Tarot is not easily explained and takes experience to be gained by the reader in order to develop the best Fetu Tarot readings. KryptoMagick's method of Fetu Tarot begins by assigning gods and goddess to the three royal cards of each suit. One may also do this for the numbered cards, however, in KryptoMagick's practice the numbered cards generally represent different things depending on the reading such as certain cards signifying elements, directions or places.

One can also apply these principles to the magic phrase derived from a Fetu deck.

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### **Fetu Card Arithmetic**

In order to transmit messages, Fetu Cards are added and subtracted modulo 26 from a Fetu Deck Order. Fetu Deck Order obfuscating is performed modulo 52. This preserves the original, neutral order of the Fetu Card universe.

In order to add two decks together, one lines the two decks up or deals from two separate decks (bottom-up).

The resulting encrypted deck order (0-51) can be stored in a box and later decrypted with the appropriate deck.

### Fetu Cards Statistical Properties

A Fetu deck of cards has a finite set of states from which to work with. This defined by the number of cards in the deck. A Fetu Deck typically consists of 52 factorial combination possibilities and resulting Fetu properties.

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### **A Deck used as a Magic Key**

Fetu decks may be used as unique keys to unlock other decks. The arrangement of a deck when combined using Moon Arithmetic may allow one to encrypt a deck of cards. The key deck is best represented as the numbers (0-51) and can be used to conceal a deck of cards. A Fetu Deck Moon Arithmetic interpreted gives two even distributions of 26 letters each 26 letters long and can be used to hide a text message of up to 52 letters.

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### **An Encrypted Deck**

An Encrypted Fetu Deck is one where another deck has been used to encrypted a deck. Multiple key decks can be used to conceal a deck and provide potentially geographic properties as one may choose different locations for the storage of different keys.

An example of a multi key use case would be for a number of priesthood members keeping secret a shared key. Until all members of the priesthood had applied their keys in order to the secret deck, the true contents of the deck could never be revealed.

The below example illustrates the concealment of a deck.

#### **Key Deck**

[31, 10, 3, 15, 2, 4, 29, 20, 14, 11, 32, 37, 38, 49, 30, 0, 39, 13, 28, 8, 45, 41, 19, 47, 34, 21, 50, 44, 12, 27, 5, 43, 23, 22, 26, 9, 40, 6, 18, 51, 16, 24, 33, 46, 25, 7, 1, 35, 36, 42, 48, 17]

#### **Hidden Deck**

[30, 19, 18, 36, 33, 47, 8, 35, 10, 17, 34, 15, 21, 25, 16, 44, 28, 31, 27, 41, 39, 45, 43, 37, 0, 29, 6, 2, 20, 46, 1, 23, 22, 26, 12, 14, 50, 3, 5, 49, 40, 24, 9, 42, 4, 51, 48, 11, 38, 7, 13, 32]

#### **Hidden Deck Concealed by the Key Deck**

[9, 29, 21, 51, 35, 51, 37, 3, 24, 28, 14, 0, 7, 22, 46, 44, 15, 44, 3, 49, 32, 34, 10, 32, 34, 50, 4, 46, 32, 21, 6, 14, 45, 48, 38, 23, 38, 9, 23, 48, 4, 48, 42, 36, 29, 6, 49, 46, 22, 49, 9, 49]

#### **Hidden Deck Unlocked by the Key Deck**

[30, 19, 18, 36, 33, 47, 8, 35, 10, 17, 34, 15, 21, 25, 16, 44, 28, 31, 27, 41, 39, 45, 43, 37, 0, 29, 6, 2, 20, 46, 1, 23, 22, 26, 12, 14, 50, 3, 5, 49, 40, 24, 9, 42, 4, 51, 48, 11, 38, 7, 13, 32]

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## **Fetu Dice**

The formula for Fetu dice is extremely simple. Simply combine two D10 ( $2 \times D10$ ) or D100 dice or the preferred D30 to form an even roll of 100 or 30. Roll discarding values over the desired modulus (26/52). Using the Fetu standard die of D30, one can more quickly achieve values modulo 26.

The numbers resulting from rolling the dice can be used to create entropy pools, decimal and binary number sequences, and alphabetic phrases.

Translating any evenly sided die roll into a binary sequence simply requires one to signify whether the roll of the die was even (0) or odd (1).

Any other number of Fetu principles can be applied to data derived from Fetu Dice.

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## **Expending Entropy**

There are many uses for the various forms of entropy derived from a Fetu deck of cards. One can perform a great number of mathematical and cryptographic actions based on the given entropy. Some actions are listed below.

1. Using the alphabetic phrase generated from a Fetu Deck, one can use this stream as a part or all of a one time pad.
2. Using the hexadecimal phrase generated from a Fetu Deck, one can use this stream as a part or all of a binary one time pad.
3. Using the deck signature number (or other numbers), one can create numbers with which to perform number theory operations such as public key generation (Diffie-Hellman, RSA, Fetu).
4. Using the alphabetic phrase, one can create a Fetu Scroll by iterating the Wiqua Cipher sequence or adding multiple decks together.

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## **Creating a Reader's Source Set**

A Numerical Heka Reader may have the desire to establish a magical signature for oneself. Such a magical signature as illustrated in this chapter gives the reader a mathematically verifiable way to show that a reading has been signed by a particular reader.

### **Generating a Reader Source Set**

In order to generate a Reader Source Set, one has to create an initial entropy pool. The suggested size for the initial entropy pool is 2080 bits or the combined entropy of fourty (40) deck shuffles. A Reader Set makes use of modern public key cryptography in order to produce signatures as well as other

cryptographic work. (The reason for such a large source entropy pool for the reader is to ensure that modern computing cannot timely factor the Reader Source Public Modulus).

The easiest public key signature scheme to implement using Fetu data is the RSA public key algorithm. In order to generate a RSA modulus, the entropy pool is separated into two 1040 bit halves and the nearest prime number is calculated. The resulting two numbers (p, q) are multiplied together resulting in the RSA modulus N. In order to proceed further in generating RSA keys, one must calculate Phi of N by multiplying  $(p - 1)(q - 1)$ .

In order to reach the current industry standard RSA moduli size, one would need to either double or triple the entropy pool size.

This document does not describe the process of which to use Fetu Cards to derive RSA public and secret exponents.

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## **Conclusion**

Numerical Heka including the disciplines of Moon Arithmetic, Fetu Cards and Fetu dice offers the reader a vast numerical universe to explore. Although the amount of entropy one can source from a Fetu Object is finite, the numerical possibilities are endless.