理法（Lǐfǎ）Script

A Phonetic–Logical Re-architecture of Mandarin

Daniel Forrester

2026 年 1 月 16 日

Summary

理法（Lǐfǎ）Script is a phonetic–logical re-architecture of Mandarin Chinese. It is not an orthographic reform of Hanzi and not a constructed-language experiment. Rather, it is a deterministic, reversible, and procedural writing system designed to make the phonetic, grammatical, logical, and mathematical structure of Mandarin explicit.

Lǐfǎ separates pronunciation, grammatical role, and semantic domain into distinct, composable layers. All lexical content is written phonemically, fully expanded into its pinyin letter sequence, and then disambiguated using a closed set of explicit markers. This design removes reliance on contextual inference while preserving a one-to-one correspondence with spoken Mandarin.

Unlike romanisation systems such as Hanyu Pinyin and Zhuyin, which encode sound but omit structure, Lǐfǎ treats phonetic transcription as only the first layer of representation. Grammatical roles, negation, conjunction, classification, identity, and scope are marked formally, yielding a representation that is unambiguous and machine-interpretable. Unlike Hanzi-based reforms, Lǐfǎ does not retain morphographic characters and therefore avoids their inherent opacity to formal analysis.

Lǐfǎ is not intended to replace Mandarin grammar or introduce new constructions. Every Lǐfǎ sentence corresponds directly to an existing Mandarin sentence, and the mapping is reversible by design. A built-in mathematics and logic layer extends the same principles to arithmetic, variables, functions, and comparison, allowing linguistic and mathematical expressions to coexist under a single evaluation model.

In summary, Lǐfǎ provides a formal, phonetic, and logically annotated representation of Mandarin that is precise, analyzable, and computationally compatible, addressing limitations left unresolved by existing writing systems.

1 Alphabet (Letters)

Latin	Lifa	Spoken
A	夕	夕
B	币	币乙
C	从	从乙
Ch	出	出乙
D	大	大乙
E	儿	儿
F	非	非乙
G	工	工乙
H	火	火乙
I	乙	乙
J	几	几乙
K	开	开乙
L	力	力乙
M	木	木乙
N	乃	乃乙
O	冂	冂
P	丕	丕乙
Q	千	千乙
R	人	人乙
S	厶	厶乙
Sh	山	山乙
T	土	土乙
U	匕	匕
Ü	女	女乙
W	王	王乙
X	小	小乙
Y	元	元乙
Z	子	子乙
Zh	中	中乙

2 Core Rules (Specification)

- All pinyin syllables must be fully expanded into their phonetic letter sequence; no phoneme may be omitted, merged, or abbreviated.

- Canonical order rule: [**Tone**] + [**Phonetic letters**] + [**Domain**] + [**Word-type marker**].

- Adjacent words sharing a single word-type marker are one compound.

- Negation precedes the word it negates and scopes until punctuation.

- Freeze punctuation semantics: ',' clause boundary; '。' sentence end; ';' logical separation (stronger than comma).

- Commas bind clauses loosely; semicolons bind logic; periods terminate scope.

- If ambiguity remains, append a domain determinative; use sparingly; do not number.

- Style levels: **Formal**: all markers present; **Compact**: markers only at ambiguity points.

- 丿 marks proper nouns and replaces the concrete-noun marker 犭.

- 丨 replaces all disjunctive conjunctions ("or"), including 或、或者、还是.

- 十 replaces all additive conjunctions ("and"), including 和、及、与、并、且、跟、同、以及、并且、而且, and represents logical addition.

- 一 replaces negation words (不、没) and precedes the word it negates, scoping until punctuation.

- 乂 replaces division, distribution, and rate expressions, including 每、每个、每人、每次、分之、除以、按、平均、各自, and is read as "per / divided by / each".

- 八 replaces temporal partition and interval expressions, including 在、于、到、每逢、每隔、按时、时候、期间, and is read as "at / every / by / interval of".

- 二 replaces identificational copulas ("is"), including 是、为、属于、即、等于 (identity use only), and marks identity or definition.

- 三 marks classification or membership ("is a kind of / belongs to"), replacing 属于、算是、作为、是一种.

- 了 marks questions and replaces 吗、呢; 二了 specifically marks identity questions ("X is what?").

- ◇ replace comparative words (比、更、最) when expressing degree or comparison.

- 「」 mark direct speech or quoted content; 『』 are used for nested quotations.

- Verb at clause end marks completion; verb reduplication marks ongoing or habitual aspect.

- All lexical content must be written phonemically; no Hanzi are permitted except approved domain determinatives.

3 Particles (Legacy Forms)

Particle	Lifa (with tone)	Notes
个	‘工乙	removed by default
的	大儿	removed by default
是	‘山乙	removed when descriptive/equative
在	‘子夕乙	removed when location is clear
有	ˇ元冂匕	optional / often removed
了	力儿/ˇ力乙夕冂	kept (了 character reused as question marker)

4 Tone System

Tone is marked using standard pinyin diacritics placed before the word (intended to be above the toned vowel in future typography); tone may be omitted only when context makes it unambiguous:

$$\text{-- (1st),} \quad \acute{\ } \text{ (2nd),} \quad \check{\ } \text{ (3rd),} \quad \grave{\ } \text{ (4th)}$$

5 Word-Type Markers

Each lexical word carries a word-type marker to fix its grammatical role; in Formal writing all markers are present, while in Compact writing markers may be omitted where context is unambiguous but must be restored whenever ambiguity could arise.

Role	Lifa Marker
Pronoun	亻
Verb / Action	彳
Concrete noun	犭
Proper noun	丿
Abstract noun	忄
Adjective	阝
Connector	辶
Grammatical / function word	扌

Pronouns refer to the nearest compatible antecedent within the same sentence unless overridden.

6 Domain Markers (Only Permitted Hanzi for Lexical Disambiguation)

If ambiguity remains after tone and word-type marking, insert exactly one domain determinative immediately before the word-type marker; no other Hanzi are permitted for lexical content other than these.

Domain	Lifa Marker
General / Education	教
Science / Technical	技
Mathematics / Logic	理
Law / Rules	律
Society / Institutions	会
Physical / Natural World	自
Language / Speech / Text	言

Add a new domain only if ambiguity cannot be resolved by context + existing domains.

7 Optional Logic Extensions (Scope / Reference / Modality)

Quantifier Scope

Quantifier scope is determined by parentheses, where a numeral governs only the smallest immediately following parenthesised phrase unless its scope is explicitly extended

by larger parentheses; in the absence of parentheses, quantifiers bind minimally and rely on context, and parentheses are used only when ambiguity would otherwise arise.

Anaphora (Reference Resolution)

Pronouns refer to the nearest compatible antecedent within the same sentence, with proper nouns taking precedence over common nouns, domain mismatches blocking reference, and punctuation resetting reference priority in the order comma, semicolon, then period.

Modality

Modal force may be optionally expressed using comparison operators placed before the verb phrase, where equality denotes factual assertion, greater-than denotes obligation, and less-than denotes permission, with modal scope extending until punctuation.

8   Example Usage (Mandarin → Lǐfǎ)

Simplified Chinese Mandarin

今天八点鲍勃和菲尔在学校学习数学和物理，鲍勃是学生菲尔是一种老师，他们每天三次学习每小时学习两课，鲍勃不学习物理学习学习数学所以成绩更高，老师说「数学是科学吗」，鲍勃问学生是什么。

Pinyin Mandarin

jīn tiān bā diǎn bào bó hé fēi ěr zài xué xiào xué xí shù xué hé wù lǐ bào bó shì xué shēng fēi ěr shì yì zhǒng lǎo shī tā men měi tiān sān cì xué xí měi xiǎo shí xué xí liǎng kè bào bó bù xué xí wù lǐ xué xí xué xí shù xué suǒ yǐ chéng jì gèng gāo lǎo shī shuō 「shù xué shì kē xué ma」 bào bó wèn xué shēng shì shén me.

理法 Lǐfǎ

‾几乙乃‾土乙夕乃八困 ´帀夕冂丿十 ´非儿乙丿彳从乙‾丕乙乃工理忄 十火于 ˌ自犭 ，´帀夕冂丿二‾从乙工‾山儿乃工教犭 ´非儿乙丿三‾力夕冂‾山火乙教犭，彳八困次彳从乙乂‾山火乙教犭 彳从乙囚‾开儿教犭 ，´帀夕冂丿一彳从乙火于 ˌ自犭 彳从乙从乙‾丕乙乃工理忄 人乚冂讠 〉，‾力夕冂‾山火乙教犭讠 「‾丕乙乃工理忄 二‾开儿技忄 了」，´帀夕冂丿讠 ‾从乙工‾山儿乃工教犭 二了。

9 Mathematics

Lifa Digits

Digit	Lifa	Spoken
0	口	力乙乃工
1	回	元乙
2	囚	儿人
3	因	厶夕乃
4	困	厶乙
5	囚	王于
6	囡	力乙于
7	囝	千乙
8	国	币夕
9	团	几乙于

Lifa Operators

Operation	Lifa
+	十
-	一
*	乂
/	八
^ (power)	个
$\sqrt{}$	厂
=	二
. (decimal point)	|

Mathematical expressions are written in infix form and evaluated by fixed operator precedence and associativity; brackets are optional and used only to override precedence or improve readability.

Example (Infix)

$$\sqrt{(8^2)} + (9/3) + 2 \cdot 4 - 7 - 6 + 5 + 1 - 0 = 12.0$$

厂国个囚十团八因十囚乂困一囝一囡十囚十回一口二回囚\|口

9.1 Greek Notation (Lǐfǎ Equivalent)

Greek symbols denote operators by default; when preceded by 丿 they denote lowercase Greek values or parameters, and when preceded by 丨 they denote variables or indices; the combined prefix 丨丿 marks a variable that holds a derived result. Greek symbols use the form [**role marker**][**Greek glyph**].

Uppercase Greek (Operator Forms)

Name	Greek UC	Meaning	Lǐfǎ usage
alpha	A	constant / coefficient	夕
beta	B	coefficient / parameter	帀
gamma	Γ	gamma function / operator	工 (乃)
delta	Δ	change / difference operator	大从
epsilon	E	error / tolerance	儿
zeta	Z	zeta function	子 (乃)
theta	Θ	angle / parameter	土
lambda	Λ	eigenvalue / rate operator	力
mu	M	mean (definition)	回厶乃乂乃
pi	Π	product operator	回丕乃
rho	P	density / correlation operator	人
sigma	Σ	summation operator	回厶乃
phi	Φ	function / mapping	非 (从)
omega	Ω	domain / sample space	从 王

Lowercase Greek (Scalar/Result Forms)

Greek lc	Meaning	Lǐfǎ lc	Notes
	scalar parameter	丿夕	scalar value
	scalar parameter	丿帀	scalar value
	gamma value	丿工	scalar result
	small change	丿大	may appear as 丿大从 when bound to a variable
	small quantity	丿儿	scalar small value
	zeta value	丿子	scalar result
	angle value	丿土	scalar angle
	specific eigenvalue	丿力	scalar eigenvalue
	mean value	丿木	scalar mean
	circle constant	丿丕	scalar constant
	density value	丿人	scalar density
	standard deviation	丿厶	scalar deviation
	function value	丿非	scalar output
	specific element / limit	丿王	scalar element

Standard Deviation Example

Standard text form:

$$\sigma = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(x-\mu)^2}$$

Lǐfǎ form (using your operator mapping):

丿厶二厂 ((回厶丨乙 ((丨从一丿木) 个囚)) 八乃)

10 Functions (Mathematical)

The prefix 非 marks a function, binding to the immediately following symbol and its argument list; it may precede ordinary or variable-marked symbols; it binds tighter than arithmetic and looser than parentheses; and it exclusively identifies callable constructs.

11 Optional Extensions

The mathematics layer is complete, with limits, vectors, matrices, and calculus as optional extensions that must reuse existing operators and scope rules.

12 Short-Form Concept Labels (Optional, One Hanzi + Lǐfǎ)

Lexical mathematical concepts such as matrix, vector, domain, and limit function as optional descriptive labels and are not required for procedural expressions, which are fully specified by operators and scope alone.

Concept (Chinese)	1 Char	Lǐfǎ
无穷 (infinity)	极	几乙
极限 (limit)	限	力乙乃
函数 (function)	函	火夕乃
变量 (variable)	变	币夕乃
常数 (constant)	常	出夕乃
向量 (vector)	向	小乙夕乃
矩阵 (matrix)	矩	木乙女
概率 (probability)	概	工夕乙
均值 (mean)	均	几于乃
方差 (variance)	差	出夕
域 (domain)	域	元于
值域 (range)	值	中乙