The Jai'ai Whitepaper

An Embodied Ternary Movement Practice Derived from the Lingua-U Vowel Space

Version 0.1

Addresses per WP Alpha v1.2; glosses per DS v0.2.1

Working draft — not for citation

Status of This Document

This is Version 0.1. It states a schema by which the vowel tier of Lingua-U can be performed by the whole body, precisely enough that someone can practice it and find out whether it is worth anything.

It covers the Center, the three cardinal forms, the nine addressed forms, one axis of effort, and the paths between forms. It does not cover the consonants. Chapter 3 explains why that is a matter of architecture rather than of sequence.

The document is built on WP Alpha v1.2, DS v0.2.1, Part I Chapter 11, and Part II, and is version-locked to them. Jai'ai composes no glosses of its own: the DERIVATION block of every entry prints the Lingua-U long form, short form, and sense range unchanged, generated from the address rather than written. What this document contributes is the ARTICULATION stratum. Chapter 6 states how the strata divide and which of them may be discarded.

Nothing here has been tested. No practitioner other than the author has performed these forms, no observer has been asked to distinguish them, and no teacher of any established art has reviewed them. Chapter 15 gives a protocol by which a practitioner can check the schema against their own body; that is self-checking, not validation, and the difference is stated there rather than left to be inferred.

Readers who want to know what was inherited, what was decided, and what was invented should begin at Appendix B. One departure from the Derivation Spec is declared in Chapter 10 and recorded again there.

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1. What Jai’ai Is

Lingua-U locates every speech sound of General American English in a ternary address space, and it does so by what the vocal tract actually does. A vowel’s address records two things and nothing else: how far the mouth is open, and where the tongue body sits along the front-to-back axis. Read the address and you know the posture. Nothing is assigned by taste.

Jai’ai asks what those same coordinates specify when the performer is not the tongue but the whole body.

The question is not arbitrary, and the *Introductory Exercises* are the reason. That document exists to make the addresses proprioceptive rather than notational. Its closing note says that once this happens the addresses stop being notation and begin to read as descriptions of something the reader can do. Jai’ai takes that sentence at its word and enlarges the instrument.

One stratum, performed by a larger body

The Derivation Spec divides every Atlas entry into five strata, and the second is ARTICULATION: what your mouth does. Its rules require the second person, plain instructional prose, no system vocabulary, and a minimal-pair check that makes a single coordinate palpable.

Jai’ai is that stratum, performed by the whole body. This is the cleanest statement of what the project is, and it has a consequence that runs through the whole document: Jai’ai does not write glosses. The DERIVATION block of every entry below prints the Lingua-U long form, short form, and sense range exactly as the spec generates them. What Jai’ai supplies is the articulation, and what it must not do is let a movement leak into a derivation.

So the provenance is exact at every entry. If a line sits under DERIVATION it came from DS §3.5 and §5 and can be regenerated from the address. If it sits under ARTICULATION it was written here. If it sits under RESONANCE it can be deleted without loss.

The one thing it has that nothing else has

The address is shared. A practitioner holding a Jai'ai form can sound the vowel that occupies its coordinates, and the sound and the shape are not two symbols for one idea — they are one address performed by two instruments.

Taiji and Baguazhang have no phonetic layer. The mantra traditions have sound in great depth and no movement grammar of comparable structure. Steiner's eurythmy comes closest and is the honorable precedent, but it works from an inherited alphabet rather than from a generated address space. The simultaneity is the reason to build this rather than something else, and it is the first thing a later version should try to break.

2. What Version 0.1 Does Not Claim

Because a document of this kind attracts overclaiming the way a magnet attracts filings, this chapter is placed early and stated plainly.

- Jai'ai does not claim to be a martial art. Version 0.1 contains no contact, no partner work, no strikes, no throws, and no joint techniques. Chapter 3 explains that this is a consequence of the architecture rather than a precaution laid over it.
- Jai'ai does not claim any therapeutic effect. No health outcome is asserted, measured, or implied.
- Jai'ai does not claim to be a branch, lineage, or transmission of Taiji, Baguazhang, Daoism, Confucianism, or any school of Chinese internal arts. It claims no teacher and no authority derived from one.
- Jai'ai does not claim to interpret the *Taixuanjing*. Lingua-U borrows Yang Xiong's glyph inventory as notation and offers no reading of the text; this document does the same and adds nothing.
- Jai'ai does not claim to cultivate, circulate, or affect qi, or any subtle energy, field, or channel. See below.
- Jai'ai does not claim that its value names carry established qualitative meaning. Chapter 5 sets out a conflict between three available readings and declines to resolve it.
- Jai'ai does not claim that practitioners will converge on these correspondences. Whether two people given the same two component phrases produce recognizably the same movement is the central open question and is untested.
- Jai'ai does not claim to cover the address space. The eighty-one consonant tetragrams are absent, and the twenty-seven named in Chapter 4 do not exist as a defined tier in Lingua-U or here.
- Jai'ai does not claim that its derivations are its own work. They are Lingua-U's, printed unchanged.

On qi and subtle energy

This deserves its own section, because it is the clearest difference between Jai'ai and the practices it most resembles.

Taiji and qigong are ordinarily taught with an energetic vocabulary. There is something to be cultivated, sunk, circulated, rooted, and issued; it gathers at the dantian and travels by channels; the quality of a movement is described by what it does to that something. The vocabulary is old, it is internally consistent, and a great many capable practitioners find it indispensable.

Jai'ai makes no claims in that register and does not use it in any block that cannot be discarded. Every instruction in the ARTICULATION stratum is stated in terms a physical therapist would recognize — how wide the arms are carried, where the weight sits, how much effort is being spent, what the breath is doing. Nothing here asserts that a practitioner is moving anything other than their own mass, and nothing asserts that they are not.

The silence is methodological rather than skeptical. This document takes no position on whether energetic descriptions are true, useful, or the best available account of what practitioners actually feel; it is not competent to take one. What it can say is that Jai'ai's claims are meant to be checkable by whoever wants to check them, and Chapter 15's checks are all of the form "can this distinction be produced, felt, and told apart at reduced amplitude." An energetic account would place the central claims where those checks cannot reach them. That is a real cost and a specific one. It is not the whole of what the schema has going for it — the shared address space of Chapter 1, the compositional derivation of Chapter 14, and the accessibility that Chapter 3 derives rather than concedes would all survive intact — but checkability is the property this section exists to protect.

Practitioners who use that vocabulary are not asked to drop it. The RESONANCE stratum exists for exactly this and is marked discardable at every entry. Bring it, put it there, and see whether it describes what the nine forms do.

What Version 0.1 does claim is narrow. It claims that the two component phrases of a Lingua-U vowel digram can be given whole-body readings stated clearly enough to be performed, that the nine resulting forms differ from one another in exactly the terms the components contribute, and that a practitioner can check both claims against their own body in an afternoon.

3. Why the Vowels First

There is a prudent reason to begin with the vowels and a structural one. The prudent reason is that slow solo movement is where a new practice should start. The structural reason is better, and it is the one this chapter makes.

Part I of the Atlas opens its vowel chapter with the distinction: the consonant frame addresses obstruction — what closes, how, where, and what the larynx does while it happens. Vowels have no obstruction to describe. They are the sounds made with the tract open enough that nothing impedes the airstream, and what distinguishes one from another is the shape of the resonating space rather than any event within it.

Carry that into the body and the consequence is immediate. Contact belongs to the consonant tier by construction. Everything that involves meeting, obstructing, sealing, deflecting, or being met is encoded in the tetragrams, because obstruction is what a consonant is. The vowel tier is not a version of the practice with the contact removed. It is the region of the address space in which contact does not arise.

Two further consequences follow from the same source, and they are stated in every Atlas entry at the vowel tier. There is no laryngeal position, because vowels are voiced by definition. And there is no position for the lips at all, which Chapter 13 takes up. The vowel frame runs on two positions rather than four, and it is complete on those two.

So the accessibility of Version 0.1 is not a concession. Someone can practice the Center, the three cardinal forms, and the nine addressed forms for years without ever encountering a partner, and be practicing the whole of what this tier contains.

4. The Tiers: 3 / 9 / 27 / 81

Lingua-U uses three address tiers, distinguished by length. The tier lengths are one, two, and four digits.

Length	Tier	Holds	In Jai'ai
1 digit	Monogram	three cardinal vowels	the three cardinal forms
2 digits	Digram	nine coordinates, all occupied	the nine addressed forms
4 digits	Tetragram	eighty-one consonant cells	deferred entirely

Table 4.1 — The Lingua-U address tiers and their Jai'ai correlates.

Three, nine, and eighty-one are therefore inherited. Twenty-seven is not, and the distinction matters enough to make in full.

On the twenty-seven

A ladder of 3 → 9 → 27 → 81 is arithmetically irresistible and appears in every discussion of ternary systems, including Yang Xiong's own division of the *Taixuanjing* into regions, provinces, departments, and families. It is tempting to present Jai'ai as occupying that ladder.

Lingua-U has no trigram tier. Appendix B.3 of the Whitepaper records that a three-position architecture was built and tested against the four-position one; it scored slightly better on topology preservation and was rejected anyway, because only one of its three positions corresponded to a single phonetic feature and the other two were mixtures the optimizer had found useful. Under such a code one cannot say what a digit contributes, and compositional derivation becomes impossible.

So a twenty-seven tier in Jai'ai cannot be an inheritance. If one is ever defined it will have to be a truncation of the tetragram, and that definition requires an argument this document does not make. The number is named here so the ladder is legible and so that no later version can quietly pretend it was always there.

Where Version 0.1 stops

At nine. The eighty-one are the consonants, and they are where contact, obstruction, place, and laryngeal state live. They are not covered, not sketched, and not previewed.

5. The Value Names, and an Unresolved Conflict

The formal system requires no names for its three values. It operates on the digits 0, 1, and 2, and DS §9 requires that derivation blocks use digits rather than names for exactly that reason. But a practice will not be operated on digits alone, and Lingua-U Chapter 12 supplies working names: Hahn for 0, Sheen for 1, Yun for 2.

Jai'ai adopts them as names and observes the same rule the spec imposes on itself: no prose anywhere in this document depends on the sound, spelling, or letterform of a value name. The names are provisional and will be find-replaced; prose that breaks under substitution is a defect.

Three readings, and they do not agree

The first is Lingua-U's own working reading: 0 as expansion and release, 1 as refinement and constriction, 2 as grounding and continuity. Chapter 12 says these follow the articulatory character of the domains at Position I, and immediately adds that whether they hold elsewhere, whether they carry phenomenological weight, and whether practitioners converge on them are open questions.

The second is the familiar cosmological one: 0 as yang, 1 as yin, 2 as ren. Lingua-U Chapter 13 examined this and discarded it. In classical yin-yang discourse yin is associated with darkness, receptivity, descent, and diffuseness, while value 1 in that system is refinement, concentration, and constriction — narrow, high, and bright. That is close to an inversion.

The third has better provenance than the second and is often confused with it. The *Taixuanjing*'s own line values are the undivided line, the once-broken line, and the twice-broken line, conventionally heaven, earth, and human. That is Yang Xiong's reading and it is not the yin-yang mapping. But it is a cosmology, and Lingua-U states flatly that it does not claim to interpret the *Taixuanjing*.

The case for exploring the terms anyway

Having set out the conflict, this chapter must also set out what an inherited vocabulary is worth, because the argument above is one-sided and a practitioner should have both halves.

Many people who come to a practice of this kind arrive already fluent in yin, yang, and ren. They have spent years in Taiji or Baguazhang, where those terms are not decoration but the working vocabulary by which a body sorts what it is doing — full and empty, opening and closing, substantial and insubstantial, and the human term that stands between heaven and earth. Asking such a practitioner to set that vocabulary aside and work from bare digits is not a neutral request. It discards a real instrument, and it discards precisely the instrument most likely to notice whether the schema is describing anything.

There is also a substantive reason to think the mismatch may be less damaging than Chapter 13 makes it look. Yang Xiong did not append a third term to a binary. He built a system in which three values are primitive, and a third irreducible term should be expected to redistribute the qualities that a two-term system had assigned. If yin means something different when there are three values than it means when there are two, that is what one would predict from the ternary doing genuine work — not evidence that the mapping has failed. The transformation of the inherited qualities is arguably the point of a ternary system rather than an objection to it.

If that is right, then the question Chapter 13 asked may be the wrong question. “Does yin fit value 1?” assumes yin arrives with its binary sense intact. The better question is what yang, yin, and ren become when there are three of them and none is a modification of the others — and whether that transformed set fits. Nobody can answer that from a document. It can only be answered by people who know the terms well enough to feel when they have shifted, working through the nine forms and reporting what happened.

So Jai’ai does not merely permit that exploration. It wants it, and it regards a practitioner steeped in the *Taixuanjing* or in the internal arts as unusually well placed to conduct it. Version 0.1 also gives it a place to live: the RESONANCE stratum, which is marked discardable at every entry and which DS §2 defines as the block a reader may reject without the document ceasing to be correct. That is where a cosmological overlay belongs — not because it is unimportant, but because it is the practitioner’s and not the schema’s.

Unicode is not a tiebreaker

A reader looking for adjudication in the character names will not find it there. Working group document N2988 records that Earth and Human were transposed throughout the Tai Xuan Jing block, and the Unicode charts annotate the first monogram with a note that it is ren. The monogram assigned to value 1 carries the name MONOGRAM FOR YIN, which accidentally reproduces the exact inversion Chapter 13 describes discarding. The Unicode names have no semantic function in Lingua-U and none here.

What Version 0.1 does

It picks neither, and it legislates nothing. Hahn, Sheen, and Yun are used as bare names for the values 0, 1, and 2. No equivalence is asserted to yang, yin, and ren, and none to heaven, earth, and human. No equivalence is denied either.

The one thing Version 0.1 asks is that a practitioner not hold two glosses silently at once. Someone who has spent a year internalizing Sheen as narrowing and selection, and who then meets Sheen glossed as yielding receptivity without noticing that the two are different claims, is carrying an unresolved contradiction in the body rather than in a footnote. Explored deliberately, the same two readings are a useful experiment. The difference is whether the practitioner knows which one they are working with.

On divergence from Lingua-U

Jai'ai is derived from Lingua-U and is not bound by it. The two may develop along different tracks, and this chapter is the most likely place for the divergence to begin.

Lingua-U rejected the yin mapping for reasons internal to a phonetic system: its value 1 at Position I is articulatory constriction, narrow and bright, and yin sits badly on that. Jai'ai's value 1 at the vowel tier is a half-open frame, and at Position II a forward gathering of mass. These are different objects, and an argument that defeats a correspondence for one of them does not automatically defeat it for the other. It is entirely possible that the terms fail in the mouth and work in the body.

So if practice shows the vocabulary to be productive here, Jai'ai may adopt terminology that the current version of Lingua-U has declined, and it may do so without waiting for Lingua-U to change. What it may not do is adopt it quietly. Chapter 10 contains one declared departure already, and it is declared in the text and again in Appendix B; a later version taking up yang, yin, and ren should meet the same standard.

6. The Five Strata

Every entry in this document has five blocks in fixed order, following DS §2. The order is load-bearing: the reader meets the frame, then the body, then the gloss, then what is offered, then the evidence. A gloss encountered before articulation reads as an assertion about a movement; encountered after, it reads as a consequence of one.

#	Stratum	Status	Source	Discardable?
1	ADDRESS	definitional	WP Alpha v1.2	No — entry is void without it
2	ARTICULATION	descriptive	this document	No
3	DERIVATION	deterministic	DS v0.2.1 §3.5, §5, §6	No — but fully regenerable
4	RESONANCE	offered	author	Yes — marked so at every entry
5	ATTESTATION	empirical	PHOIBLE via WP App. D	No

Table 6.1 — The five strata, after DS §2.

The rules that make the division real

- S1. No stratum may contain material proper to another. RESONANCE may not restate a derived gloss; DERIVATION may not contain a phenomenological claim; ARTICULATION may not use system vocabulary.
- S2. Every entry carries the stratum labels visibly, with the status tags above. The reader must never have to infer which stratum they are in.
- S3. RESONANCE is optional per entry. Where no honest resonance exists the block reads —. Manufactured resonance is worse than absent resonance.
- S4. Deleting every RESONANCE block must leave this document complete and correct. This is the test of whether the derivation is doing the work.

What each stratum holds here

ADDRESS gives the two digits, the glyph, and the two standing facts about the vowel frame: it has no laryngeal term and no term for the lips.

ARTICULATION is the Jai'ai contribution and the reason the document exists. It says what the body does and what the mouth does, in the second person, without system vocabulary and without digits. It follows the A-rules of DS §8 as closely as a movement can: plain instructional register, and wherever possible a minimal-pair check that isolates a single coordinate by making one thing move against another held still.

DERIVATION is printed unchanged from Lingua-U. Jai'ai composes nothing and rewrites nothing. The long form is the components in address order; the short form is one word per position; the sense range prints the full pool of every contributing position, grouped by source, with no member selected over another. That last is DS §5.3 and it is why the ranges in this document repeat: adjacent cells share most of their range because cells inherit from slices rather than owning anything.

RESONANCE is where anything not derived is allowed to live: a movement image, a felt quality, a cosmological overlay from Chapter 5, an energetic description from Chapter 2. It is offered and it may be discarded. Most entries in this document have none, and that is the intended proportion rather than an omission.

ATTESTATION is the empirical band from PHOIBLE and never reads as meaning. That a coordinate is occupied by a common sound says nothing about whether its form is good, and the two must never become confusable.

7. The Two Coordinates

A vowel digram has two positions. The component phrases are fixed by DS §3.5 and are reproduced here exactly; the bodily readings beside them are this document's only contribution at this level.

Digit	Component	Short	Bodily reading
I · 0	the mouth fully open	open	the frame at its widest
I · 1	the mouth half open	half	the frame at moderate span
I · 2	the mouth nearly closed	closed	the frame drawn small
II · 0	the tongue at rest in the center	centered	the mass at rest in the center
II · 1	the tongue advanced	advanced	the mass advanced
II · 2	the tongue withdrawn	withdrawn	the mass withdrawn

Table 7.1 — The vowel components of DS §3.5 and their bodily readings.

There are only two decisions in this document and they are made in the fourth column.

Aperture becomes the volume of the occupied frame

In the tract, aperture is how far the mouth is open: how far the jaw has dropped, how close the tongue body sits to the roof of the mouth. It is a property of the resonating space, not of the effort spent making it.

In the body it is the volume of space the structure encloses. Fully open is the widest span the practitioner can carry without strain — arms well away from the torso, chest and back broadened together. Half open is a moderate rounded frame at roughly a forearm's distance. Nearly closed is the frame drawn small, hands near the torso, at the least span that does not become compression.

Aperture is not effort, not muscular tension, and not the size of the practitioner. A large person and a small person occupy different absolute volumes at the same value. It is not speed. And it is not strength: an open frame is not a strong frame, and a closed frame is not a tense one. Chapter 10 gives effort its own axis precisely so that aperture does not have to carry it.

Orientation becomes the placement of mass, held as a state

In the tract, orientation is where the tongue body sits along the front-to-back axis. The spec's wording is *at rest in the center*, *advanced*, and *withdrawn*, and although two of those are participles they name positions rather than journeys — where the tongue has arrived, not what it is doing.

In the body, orientation is where the practitioner's mass is gathered along the same axis. At rest in the center is weight distributed evenly with no sagittal commitment. Advanced is mass gathered forward. Withdrawn is mass gathered rearward.

Reading these as states rather than directions is the most consequential decision in the document, and Chapter 12 depends on it: if orientation were a direction of travel, the nine forms would already be nine movements and there would be nothing left for paths to do. Lingua-U makes the same separation explicitly — simple states take addresses, and movements between states are written as sequences, because a path is not a place.

The first value is worth dwelling on. *The tongue at rest in the center* is the only component in the vowel lexicon that names rest, and its pool is *neutral · unweighted · still*. The entire centered column of the grid inherits it. Chapter 8 shows what that does to the coordinate nearest the Center.

Three ways to read orientation

- Parallel stance, feet at hip width. Orientation reads as weighting toward the balls of the feet, the middle, or the heels. The smallest reading and the one to learn first.
- Small offset stance, one foot forward. Orientation reads as weighting toward the front foot, even distribution, or the rear foot. The largest reading and the clearest to an observer.
- Seated. Orientation reads as the placement of weight through the pelvis alone. Every distinction in this document survives seated practice, because none requires the feet to move.

The choice of scale is not part of the address. A form performed seated and the same form performed in an offset stance are the same address, and Chapter 15 treats the survival of the distinction across scales as a test of whether the schema is specifying anything.

What the body reads each coordinate with

As a working convention: aperture is read primarily at the arms and secondarily at the width of the stance; orientation is read at the pelvis and the feet. The spine stays long and the head stays suspended in all nine forms, and neither is a variable. Nothing at this tier asks the practitioner to bend, twist forcefully, or leave the vertical.

8. The Center

One vowel has no address at all. The schwa, /ə/, is the sound of the tongue at rest — the mouth neither open nor closed, neither forward nor back. Part I puts the principle in one sentence: a system that addresses sounds by their articulatory commitments has nothing to say about the sound defined by having none.

The consequences in the spec are exact and strict. The Center receives no derived gloss and no sense range; its derivation block records why rather than what. Nothing composes with it, because an unaddressed point has nothing to compose with. It may carry articulation and resonance, since neither requires an address. Jai’ai inherits all of this unchanged.

The Center · /ə/

ADDRESS — *definitional*

No address. No glyph. The Center takes no symbol and no digits.

ARTICULATION — *descriptive*

Stand comfortably upright. Feet at about hip width, knees unlocked, arms resting where they fall, weight through both feet, breathing without deliberate control. Let unnecessary effort diminish without pursuing relaxation as an achievement. Then let your mouth go slack — do not raise or lower the tongue, do not push it forward or pull it back, do not round or spread the lips — and make a sound. That is the vowel at the start of *about*. It is the only instruction in this document that asks you to do nothing, and it is harder to follow than it looks.

DERIVATION — *deterministic*

> *— The Center is unaddressed. An unaddressed point has nothing to compose with. No derived gloss and no sense range; nothing elsewhere in the frame composes with it.*

RESONANCE — *offered — discard freely*

The Atlas records a caution here and it is worth repeating rather than improving on: it is tempting to treat an unaddressed center as a profundity, and worth resisting. The schwa has no address because it has no articulatory commitments to encode, which is a structural fact rather than a mystery. What can be said is narrower and stranger — this is the most frequent vowel in spoken English, and it is the one speakers produce when they stop trying.

ATTESTATION — *empirical*

Not applicable. The Center is a structural position, not a survey result.

Where every sequence begins

Every sequence begins from the Center and may return to it. It has no address, takes no glyph, and is not a tenth form.

The nearest addressed thing to it

Coordinate 10 derives to *the mouth half open, the tongue at rest in the center*. Its second component is the one that names rest, and its second pool is *neutral · unweighted · still*. In General American /ə/ and /ʌ/ are close to identical, distinguished chiefly by stress, and many analyses treat them as one phoneme in two environments.

So the addressed coordinate nearest the Center differs from it not in shape but in commitment. Form 10 is the Center taken up: the same neutral organization, occupied rather than merely stood in. This is the smallest act of differentiation the system contains and it should be the first thing a practitioner learns. Nothing visible need change. If the practitioner cannot feel the difference between form 10 and the Center, the rest of the schema will not be legible to them either.

Part I attaches an honest caveat to this and Jai'ai carries it forward. Addressing /ʌ/ at 10 and leaving /ə/ unaddressed resolves a genuine near-merger cleanly, but it is a convenient resolution of a near-merger rather than a discovery about the sound. With a fourth vowel position or a different reference dialect the collision might not arise. The argument for the Center rests on the articulatory point and is strong enough to stand there.

9. The Three Cardinal Forms

Part I states this flatly because everything else rests on the opposite. A monogram's digit does not compose. It is an identity index: it says which cardinal — the first, the second, the third — and it says nothing whatever about where that cardinal sits. Read as a coordinate it means nothing; there is no sense in which /i/ is "one" of anything.

So the cardinals are derived by a different route. Each is located in the digram grid — /ɑ/ at 02, /i/ at 21, /u/ at 22 — and its gloss is composed from those coordinates with the tenseness component appended. Every cardinal entry states this in its address block. Without that line the entry misrepresents the system by implying a composition that did not happen.

Name	Monogram	Vowel	Coordinates	Short form
Hahn	0	/ɑ/	02	open · withdrawn · full
Sheen	1	/i/	21	closed · advanced · full
Yun	2	/u/	22	closed · withdrawn · full

Table 9.1 — The cardinals, their grid positions, and their derived short forms.

The three cardinal forms are therefore not abstract qualities to be distributed over the practice. They are three particular postures at three particular coordinates, held at extension.

Monogram 0 · ━ · /ɑ/ — Hahn

ADDRESS — *definitional*

0. The digit is an identity index, not a coordinate — it names a cardinal, not where that cardinal sits. The gloss below derives from this vowel's position in the digram grid, 0 · 2, with a tenseness term appended. This monogram and the digram at 02 stand to each other as tense to lax. Glyph U+268A. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Carry the frame as wide as it goes and settle the weight back, keeping the spine vertical rather than leaning after it. Hold both at their limit — this is the widest and rearmost thing the practice contains, and it is meant to be held at extension rather than allowed to settle. Now sound the vowel of *father*, *spa*, and *calm*: drop your jaw as wide as it will go and pull the body of your tongue back and down. Try to push past it in either direction. There is nowhere to go, and finding that is the point of the form.

DERIVATION — *deterministic*

Long: the mouth fully open, the tongue withdrawn, held at full extension

Short: open · withdrawn · full

Range:

I wide · unguarded · admitting

II back · dark · gathering

TENSE extremity · cardinal · unreduced

RESONANCE — *offered — discard freely*

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ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

Monogram 1 · ‒‒ · /i/ — Sheen

ADDRESS — *definitional*

1. The digit is an identity index, not a coordinate — it names a cardinal, not where that cardinal sits. The gloss below derives from this vowel's position in the digram grid, 2 · 1, with a tenseness term appended. This monogram and the digram at 21 stand to each other as tense to lax. Glyph U+268B. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Draw the frame in small and bring the weight forward, crown lifted, both held at their limit without the chest closing or the elbows squeezing. Sound the vowel of *beat* and *see*: raise the front of your tongue as high and as far forward as it will go without making friction, and spread your lips slightly. Push the tongue any higher and the air begins to hiss. That boundary is what makes this a corner of the space, and the body has the same boundary — draw in any further and the frame stops being a frame.

DERIVATION — *deterministic*

Long: the mouth nearly closed, the tongue advanced, held at full extension

Short: closed · advanced · full

Range:

I narrow · focused · fine

II forward · bright · reaching

TENSE extremity · cardinal · unreduced

RESONANCE — *offered — discard freely*

The most widely attested vowel in human language, and one of only three sounds anyone can identify by its limits rather than by its qualities. A practitioner inclined to find brightness or clarity in this form should note that the brightness is acoustic — a high front tongue produces high resonances — and that the metaphor came afterward.

ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

Monogram 2 · ⋯ · /u/ — Yun

ADDRESS — *definitional*

2. The digit is an identity index, not a coordinate — it names a cardinal, not where that cardinal sits. The gloss below derives from this vowel's position in the digram grid, 2 · 2, with a tenseness term appended. This monogram and the digram at 22 stand to each other as tense to lax. Glyph U+1D300. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Draw the frame in small and settle the weight back, both held at their limit. Same span as the previous form, opposite weighting; run the two together and only the weight should move. Sound the vowel of *boot* and *food*: raise the back of your tongue as high as it will go and round your lips firmly. The rounding is real and it is not encoded anywhere in the address — Chapter 13 says why, and what to do with it in the body.

DERIVATION — *deterministic*

Long: the mouth nearly closed, the tongue withdrawn, held at full extension

Short: closed · withdrawn · full

Range:

I narrow · focused · fine

II back · dark · gathering

TENSE extremity · cardinal · unreduced

RESONANCE — *offered — discard freely*

—

ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

What the cardinals are not

It is common in ternary movement schemes to give the three root values the roles of expression, reception, and mediation — the first asserts, the second yields, the third integrates. Version 0.1 declines that reading and the refusal is deliberate.

It is not derivable. Nothing in *the mouth nearly closed, the tongue advanced, held at full extension* makes that form receptive, and nothing in the third makes it mediating; those are qualities imported from a cosmology, and Chapter 5 has already declined to import one into a stratum that cannot be discarded. Worse, the third term in such a scheme is almost always described as a transition — mediating, carrying one condition into another. That makes it a path rather than a place, and Chapter 12 reserves paths for sequences with their own notation and their own composition rule.

Yun is a posture. It is closed and withdrawn, held at extension, and it is as static as the other two.

An open question the frame does not hide

Part I raises it and Jai'ai inherits it. A reader could reasonably ask why the cardinals have a tier of their own rather than simply being the digrams at 02, 21, and 22 with a tenseness marker. The answer the frame gives is that cardinality is a fact about the vowel space — these are its corners — and deserves to be visible in the notation. Whether that is worth an exception to compositionality is a fair question, and it has not been argued anywhere. If it is ever resolved against the exception, this chapter collapses into Chapter 11 and the practice loses nothing but a tier.

10. Tense and Lax

A cardinal and a digram at the same coordinates are the same region of the space held at its limit and held short of it: tense and lax. The spec makes this a named component — *held at full extension*, short form *full*, pool *extremity · cardinal · unreduced*.

The Atlas gives the demonstration at 21. Say *beat*, then *bit*, then *beat*: the tongue is in nearly the same neighborhood in both, and what changes is how hard it is working. The slack one is shorter and the tense one can be held.

The bodily axis

Take any coordinate. Hold it at extension. Then withdraw the effort that is not needed to hold it, without deliberately changing the shape, and let the form settle into whatever it becomes.

The configuration will barely change. The organization changes entirely. Externally this may be almost invisible; internally it is the difference between a frame that is being held and a frame that is being occupied.

A declared departure

DS §3.5 restricts the tenseness modifier to monograms. There are three monograms, so on the spec's terms the axis exists at three coordinates and nowhere else.

Jai'ai extends it to all nine, and this is a departure rather than an inference. The reason is that the bodily fact is not conditional on there being a vowel pair to hear. Any posture can be held at extension or allowed to settle, and a practitioner will discover this at the first form they hold for more than a few seconds whether or not the phonology licenses it.

The departure has a precise cost and Version 0.1 pays it rather than hiding it. DS C5 forbids any word in a derived gloss that the address does not license, so at the six non-cardinal coordinates the tenseness component cannot appear in a DERIVATION block. At those six the axis is an ARTICULATION-stratum instruction only. It is a thing the practitioner does; it is not a thing the address says.

Coordinates	Tense	Lax	Tenseness in derivation?
02	/ɑ/ as in *father*	/ɑ/ as in RP *lot*	yes, at monogram 0

Coordinates	Tense	Lax	Tenseness in derivation?
21	/i/ as in *beat*	/ɪ/ as in *bit*	yes, at monogram 1
22	/u/ as in *boot*	/ʊ/ as in *put*	yes, at monogram 2
the other six	—	the six digram vowels	no — articulation only

Table 10.1 — Where the tense–lax axis is derived and where it is performed only.

Where it can be heard

Learn the axis at 21, where it can be felt and heard at once — sound /i/, hold the form at extension, let the effort go, and hear it arrive at /ɪ/ while the body does the same thing. Then carry the same withdrawal to the other eight coordinates.

The pair at 02 needs a note. That coordinate is vacant in the reference variety, which merges the two, but the Atlas fills it: it holds the shorter, slacker back vowel of Received Pronunciation *lot*, attested in 7.4 per cent of surveyed inventories. So all three cardinal coordinates have a tense–lax pair; General American simply cannot hear one of them. A practitioner can still perform it, and the Atlas gives the instruction — say *father*, then make it shorter and slacker without moving the tongue forward.

Whether an observer can see the difference between a tense and a lax form, or whether it is available only to the practitioner performing it, is unknown and is recorded in Appendix C.

11. The Nine Addressed Forms

Every coordinate in the vowel grid is occupied. Three hold no vowel of the reference variety, and they are not therefore empty: they hold [a] at 86.1 per cent of surveyed inventories, /ɑ/ at 7.4, and /ɨ/ at 16.1. Every form in this chapter can be sounded, and the articulation blocks say how.

The derivations below are printed unchanged from Lingua-U and are generated from the address rather than written. Each is the aperture component, then the orientation component, in address order, with the full pool of both positions in the range.

Address	Glyph	Vowel	Short form	Attestation
00	𝌆	[a]	open · centered	Common, 86.1% — not in GA
01	𝌇	/æ/	open · advanced	assigned to GA
02	𝌈	/ɑ/	open · withdrawn	Attested, 7.4% — not in GA
10	𝌉	/ʌ/	half · centered	assigned to GA
11	𝌊	/ɛ/	half · advanced	assigned to GA
12	𝌋	/ɔ/	half · withdrawn	assigned to GA
20	𝌌	/ɨ/	closed · centered	Common, 16.1% — not in GA

Address	Glyph	Vowel	Short form	Attestation
21	⸬	/ɪ/	closed · advanced	assigned to GA
22	⸭	/ʊ/	closed · withdrawn	assigned to GA

Table 11.1 — The nine coordinates. Glyphs are from the lookup of WP §14 and are absent from many typefaces.

00 · 〓 · [a]

ADDRESS — *definitional*

0 · 0. Glyph U+268C. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Let the frame open as wide as it comfortably goes — arms carried well away from the body, chest and back broadening together — and keep the weight even through both feet, gathered neither forward nor back. Sound the vowel of Spanish *casa*: drop your jaw as far as it will go and leave your tongue lying flat, neither pushed forward nor pulled back. Now shift a little weight toward the front of your feet, letting the width stay exactly as it was. Only the weight has moved. Come back to even and feel it return.

DERIVATION — *deterministic*

Long: the mouth fully open, the tongue at rest in the center

Short: open · centered

Range:

I wide · unguarded · admitting

II neutral · unweighted · still

RESONANCE — *offered — discard freely*

English has no such vowel, and it is the second most widely attested in the world. Your mouth makes it easily; your language simply never asked for it. Whether the same is true of the body — whether this is a shape people can hold and have no habit for — is worth attending to and is not something the schema can tell you.

ATTESTATION — *empirical*

Common band, 86.1% of surveyed inventories. Vacant in the reference variety.

01 · 〓 · /æ/

ADDRESS — *definitional*

0 · 1. Glyph U+268E. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Open the frame as wide as it goes and bring the weight forward, keeping the torso vertical rather than inclining after it. Stop well short of the point where balance becomes a project. Sound the vowel of *cat* and *bad*: drop your jaw wide and push your tongue forward so the body of it crowds toward your front

teeth without touching them. Now say the vowel of *bed* and let the frame narrow by the same small definite amount your jaw closes. One thing moves; the forward weighting stays exactly where it was.

DERIVATION — *deterministic*

Long: the mouth fully open, the tongue advanced
Short: open · advanced
Range:
I wide · unguarded · admitting
II forward · bright · reaching

RESONANCE — *offered — discard freely*

—

ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

02 · 𝌢 · /ɑ/

ADDRESS — *definitional*

0 · 2. Glyph U+1D301. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Open the frame as wide as it goes and settle the weight back, spine vertical, without leaning after it. Let it be slack rather than held — this coordinate is the relaxed counterpart of the first cardinal form, and the difference is effort rather than shape. Sound *father*, then try to make it shorter and slacker without letting your tongue come forward. General American merges the two and you may hear no difference; the body can still perform it. Run this against the same width carried forward and only the weight should move.

DERIVATION — *deterministic*

Long: the mouth fully open, the tongue withdrawn
Short: open · withdrawn
Range:
I wide · unguarded · admitting
II back · dark · gathering

RESONANCE — *offered — discard freely*

—

ATTESTATION — *empirical*

Attested band, 7.4% of surveyed inventories. Vacant in the reference variety.

10 · 𝍐 · /ʌ/

ADDRESS — *definitional*

1 · 0. Glyph U+268D. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Bring the arms to a moderate rounded frame at about a forearm's distance from the body and keep the weight even. Nothing is wide, nothing is small, nothing is gathered anywhere. Sound the vowel of *cup*: let your jaw fall about halfway and leave your tongue at rest — not forward, not back, not high, not low. Then stand as you were standing before you began, arms at your sides, and take that up in the same way without changing it. The two are nearly the same posture. Finding the difference is the exercise.

DERIVATION — *deterministic*

Long: the mouth half open, the tongue at rest in the center

Short: half · centered

Range:

I poised · partial · between

II neutral · unweighted · still

RESONANCE — *offered — discard freely*

This is the form that is hardest to distinguish from doing nothing, and practicing it is practicing the difference between resting in a posture and occupying one. Nothing in the derivation says that; it is a report about what the form is like, and a practitioner who does not find it so should discard this paragraph.

ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

11 · 〓 · /ɛ/

ADDRESS — *definitional*

1 · 1. Glyph U+268F. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Hold the moderate rounded frame and bring the weight forward. Sound the vowel of *bed* and *set*: let your jaw fall about halfway and push your tongue forward. Now run *bat*, *bet*, *bit* slowly in that order and let the frame close in two steps to match, keeping the weight forward the whole way. Your jaw closes twice; your tongue stays forward throughout. The frame does the same thing. This is the middle step, and it is the clearest place in the practice to feel one variable change while the other is held.

DERIVATION — *deterministic*

Long: the mouth half open, the tongue advanced

Short: half · advanced

Range:

I poised · partial · between

II forward · bright · reaching

RESONANCE — *offered — discard freely*

—

ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

12 · 𓐍 · /ɔ/

ADDRESS — *definitional*

1 · 2. Glyph U+1D302. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Hold the moderate rounded frame and settle the weight back. Sound the vowel of *thought* and *caught*: let your jaw fall about halfway, pull your tongue back, and round your lips a little. If *cot* and *caught* sound identical to you, reach this one by saying *caught* with the lips pushed forward. The lip rounding has no coordinate in the address; let the forearms turn slightly as you round, and note that you have added something the address did not ask for. Chapter 13 is about that something.

DERIVATION — *deterministic*

Long: the mouth half open, the tongue withdrawn

Short: half · withdrawn

Range:

I poised · partial · between

II back · dark · gathering

RESONANCE — *offered — discard freely*

—

ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

20 · 𓐎 · /ɨ/

ADDRESS — *definitional*

2 · 0. Glyph U+1D303. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Draw the frame in small — hands near the body, elbows unsqueezed, chest not closed — and keep the weight even. Sound the vowel written *ы* in Russian: raise your tongue high as though for the vowel of *bit*, then draw it straight backward to the middle without letting your jaw open or your lips round. It sits between the vowel of *bit* and the vowel of *put* and is neither. Run this against the same small frame carried forward, then carried back, and let only the weight move.

DERIVATION — *deterministic*

Long: the mouth nearly closed, the tongue at rest in the center

Short: closed · centered

Range:

I narrow · focused · fine

II neutral · unweighted · still

RESONANCE — *offered — discard freely*

—

ATTESTATION — *empirical*

Common band, 16.1% of surveyed inventories. Vacant in the reference variety.

21 · 𐤈 · /ɪ/

ADDRESS — *definitional*

2 · 1. Glyph U+1D304. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Draw the frame in small and bring the weight forward, then let the effort go out of it without deliberately changing the shape. Sound the vowel of *bit* and *sit*: raise your tongue high and forward but stop short of the vowel of *beat*, letting it fall slack. Say *beat*, then *bit*, then *beat*, and let the frame tighten and release with them. The tongue barely moves and neither should the frame. What changes is how hard it is working.

DERIVATION — *deterministic*

Long: the mouth nearly closed, the tongue advanced

Short: closed · advanced

Range:

I narrow · focused · fine

II forward · bright · reaching

RESONANCE — *offered — discard freely*

This is the one coordinate where the whole tense–lax axis can be both felt and heard, and it is the place to learn it. Nothing in the derivation of this form says so; it is a fact about which pair of sounds the reference variety happens to keep distinct.

ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

22 · 𐤈 · /ʊ/

ADDRESS — *definitional*

2 · 2. Glyph U+1D305. No laryngeal term and no term for the lips; the vowel frame has neither.

ARTICULATION — *descriptive*

Draw the frame in small and settle the weight back, then let the effort out of it. Sound the vowel of *put* and *foot*: raise the back of your tongue high, round your lips, and let the tongue fall slack rather than reaching. Say *boot*, then *put*: the lips round in both and the tongue is high and back in both, and the difference is that one holds its extreme and the other relaxes just short of it. As at the half-open coordinate, the rounding is not in the address.

DERIVATION — *deterministic*

Long: the mouth nearly closed, the tongue withdrawn

Short: closed · withdrawn

Range:

I narrow · focused · fine

II back · dark · gathering

RESONANCE — *offered — discard freely*

—

ATTESTATION — *empirical*

Assigned to the reference variety. No inventory figure available.

Six of nine carry no resonance

That is the intended proportion and not an omission. DS §2 requires that where no honest resonance exists the block reads —, on the grounds that manufactured resonance is worse than absent resonance, and it requires that deleting every resonance block leave the document complete. What a reader might otherwise expect to find in that block — a movement image, a named felt quality — is supplied instead by the sense range, which is Lingua-U's and is printed in full at every entry.

12. Paths

Diphthongs are not given addresses. They are movements between vowel positions, written as sequences with a mandatory separator, and the reasoning is the one Jai'ai inherits: simple states take symbols and movements take sequences, because a path is not a place. Without the separator a two-step sequence and a tetragram would be indistinguishable in transcription.

So the nine forms are places. Travel between them is a path, written differently and composed differently. DS C6 gives the rule: a sequence yields gloss strings joined by *then*. The five paths below are therefore derivable rather than described, and their long forms are generated the same way the entries in Chapter 11 are.

The five canonical paths

The reference variety supplies five. Two begin at a monogram, which is to say at a cardinal held at extension rather than at a digram.

Sequence	Word	Short form	What travels
11·21	day	half · advanced then closed · advanced	aperture closes; orientation held
12·22	oh	half · withdrawn then closed · withdrawn	aperture closes; orientation held
0·22	how	open · withdrawn · full then closed · withdrawn	aperture closes; orientation held; extension released
12·21	boy	half · withdrawn then closed · advanced	aperture closes; orientation crosses
0·21	price	open · withdrawn · full then closed · advanced	aperture closes; orientation crosses; extension released

Table 12.1 — The five diphthong paths, composed per DS C6.

The long form of the last is what the rule produces without any decision being made about it:

> *the mouth fully open, the tongue withdrawn, held at full extension, then the mouth nearly closed, the tongue advanced*

A note on scope. The spec says the Atlas does not enumerate sequences — it specifies the operation and leaves formation to the reader. Enumerating five here is a small departure, made because these five are the ones the reference variety names and the ones a practitioner will meet first. Any other sequence composes by the same rule.

They order themselves by demand

The fourth column sorts the five without any decision being made about them, and the ordering is a curriculum.

- 11·21 and 12·22 move one variable. The frame closes and the weight is held — forward in the first, rearward in the second. They are mirror images and they are the place to start.
- 0·22 moves one variable and releases extension. The weight is held rearward throughout; what changes is the frame closing and the cardinal settling out of its limit.
- 12·21 moves two variables and holds effort. The frame closes while the mass crosses from rear to front. Nothing releases; the whole path is held.
- 0·21 moves two variables and releases extension. It is the longest path in the set and the only one that changes everything the vowel tier contains.

A practitioner who can perform 0·21 as one continuous thing — rather than as a shape change, then a weight shift, then a settling — has understood Chapters 7 and 10 at the same time. It is the hardest thing in Version 0.1 and should be attempted last.

Why this chapter exists

Lingua-U records a case that makes the point better than an argument could. In earlier drafts, /aɪ/ — the vowel of *price*, written here as 0·21 — was treated as one of three fundamental vowels, despite being a trajectory rather than a position. The current architecture gives symbols to simple states and sequences to movements, and calls the result both more coherent and more economical.

The same error is available to a movement practice and is easier to fall into, because a trajectory performed by a body looks exactly as much like a form as a form does. A path given an address would acquire a cell it cannot occupy, and the grid would quietly stop meaning what Chapter 7 says it means. This is also why Chapter 9 declines to gloss any cardinal as a mediating or transforming term: a cardinal that is secretly a transition is the same mistake wearing different clothes.

If the name of this practice is sounded /dʒaɪ.aɪ/, it contains 0·21 twice and no addressed form at all. Nothing follows from that. It is recorded because a reader will notice it, and because it is better to note a coincidence than to leave it available for someone else to make something of.

The traversal form

The nine forms can be walked in an order in which every transition changes exactly one digit.

00 → 01 → 02 → 12 → 11 → 10 → 20 → 21 → 22 → Center

Every step is a nearest neighbor: either the frame changes with the weight held, or the weight changes with the frame held, and never both. This makes the form a continuous minimal-contrast drill, in which the practitioner is at every moment doing exactly one thing and can name which.

Take it slowly and hold each form long enough to arrive in it. The point is not to flow between the nine but to be at each of them. A traversal in which the practitioner cannot say which coordinate is changing is not yet the form.

An enumeration in numerical order is easier to remember and worse to practice, because three of its transitions change both coordinates at once. The traversal is also not a path in the sense of this chapter: it is eight single-coordinate transitions, none of them named in Table 12.1, and none of them with a sound attached.

13. Spiral

The vowel frame has no term for the lips. Every entry in the Atlas says so, and Part I argues it at length: in most of the world's languages back vowels are rounded and front vowels are not, so reliably that many descriptions treat backness and rounding as one dimension. The frame encodes only backness. It has no position for the lips at all.

That works while the correlation holds and stops working for the front rounded vowels — /y/, /ø/ and their relatives, front in tongue position and rounded in lip posture, with no coordinate for the second half. The frame's answer is fusion: /y/ is written 1:2, combining the address of /i/ with the address of /u/, taking the tongue from one and the lips from the other.

Where spiral lives

Rounding becomes rotation in the body: the spiral through the limbs — the turn of the forearm and shoulder, and the corresponding winding from hip to foot — taken up without changing the frame's volume or the placement of mass.

It is tempting to treat spiral as a third variable of the schema alongside aperture and orientation. It is not one, and the reason is a matter of stratum rather than of content. Rounding is not derivable at the vowel tier because the frame does not encode it, so spiral may not appear in any DERIVATION block. It belongs to ARTICULATION, and that is exactly where the Atlas puts it — the articulation blocks at 12, at 22, and at the third cardinal all instruct the reader to round the lips, and no derivation at those addresses mentions the lips at all.

So spiral appears in this document in three articulation blocks and nowhere else. A practitioner performing 12 rounds the lips because the vowel requires it, and turns the forearms because that is the bodily reading of the same act. Neither is in the address. Both are real.

The confound, and how to break it

The correlation that lets the frame omit a lip position creates a predictable problem for practice. A practitioner moving to the withdrawn column — 02, 12, 22 — will tend to spiral automatically, because the vowels occupying those cells are rounded and the sounding will pull the body along with it.

This is a confound, not a correspondence. The evidence that the two are separable is fusion: /y/ is a front tongue with rounded lips, precisely the combination English does not use. The bodily equivalent is to take the second cardinal's coordinate — small frame, weight forward — and add spiral without letting either the span or the weight drift rearward, which is written 1:2 and composes, per DS C6, with the two glosses joined by *and at once*. If the body can do it, spiral is a real independent variable in the practice. If it will not, the schema has found something and should say so.

Whether it should become a coordinate

Part I names a rounding position as the strongest candidate for a third vowel coordinate and records the question as open. Version 0.1 does not promote it, on the straightforward ground that Jai'ai should not add a coordinate to a frame that has not added one. If Lingua-U ever does, this chapter becomes a chapter about a coordinate and the grid becomes twenty-seven cells, which would be the first honest 27 in the ladder of Chapter 4.

14. What Makes a Movement a Jai'ai Movement

Not its shape. Its derivation, and the stratum it sits in.

The apparatus Jai'ai borrows most heavily is not the address space but the honesty apparatus around it. The load-bearing commitment there is that no cell owns its gloss: a cell inherits from the slices that intersect at it, and a reader who takes a term as a description of the individual sound has inverted the derivation. Version 0.1 makes the same commitment about movements.

The rules

- Jai'ai does not compose glosses. Every DERIVATION block is Lingua-U's, generated from the address, printed unchanged. If a movement claim appears there, the entry is defective.
- Composition is in address order: the aperture component, then the orientation component, then the tenseness component where the address licenses one. No reordering for euphony.
- No form is designed by hand. If a form cannot be produced from its two component phrases by someone holding Chapter 7, it is not derived and does not belong in the practice.
- All 0x forms visibly share a fully open frame; all 1x a half-open one; all 2x a nearly closed one. All x0 forms are at rest in the center; all x1 advanced; all x2 withdrawn. A form that breaks its row or its column is wrong, however good it feels.
- No form owns its terms. *Fully open* belongs to the aperture value, not to form 00. This is why the sense ranges repeat: adjacent cells share most of their range because cells inherit from slices rather than owning anything.
- Anything not derived goes in RESONANCE, where it is marked discardable. Anything that cannot honestly go there goes nowhere.

The failure condition

If two addresses cannot be told apart bodily without reference to their names, the schema has failed at those two addresses. Not the practitioner — the schema. That is a specific, checkable, falsifiable condition and Chapter 15 gives the check.

The inverse is also a failure and is easier to miss. If a form is equally persuasive under a different address — if 21 could be argued for as 20 by anyone with a little fluency — then the address is not constraining anything and the practice has become choreography with ternary labels attached. Lingua-U discovered this failure mode in its own earlier draft, where shuffled glosses turned out to be justifiable roughly four times in five, and rebuilt the system compositionally in response. The guard against it is this chapter and the S4 test of Chapter 6.

Derivable but not performable

One category is reserved now rather than later. It is possible for an address to be well formed and its derived movement to be one no body should perform. Lingua-U has the analogue and handles it in a specific way: cells that no articulation can occupy are printed with their derivation intact and the articulation suppressed, on the argument that a gloss derivable for an address no sound occupies cannot have been taken from the sound.

Jai'ai reserves the same treatment. At the vowel tier it is unused — nothing here asks the body to leave a comfortable range, and all nine coordinates are performable. The category is established now because the consonant tier will need it, and a category invented at the moment it is first required tends to be invented in a way that is convenient.

15. Practicing and Checking

What follows is what a practitioner does to find out whether the schema is specifying anything. It is first-person and solo. It is not validation, and the distinction is not a formality: the person checking is the person who wrote the schema, which is the weakest possible arrangement. Lingua-U says so about its own shuffle test — that the judgment was made by the party that designed the assignments. The same caution applies with more force here, because a body that expects to feel a distinction will generally feel one.

These checks are worth running anyway. They will catch the gross failures, and they cost an afternoon.

The minimal-contrast drill

The articulation blocks of Chapter 11 already contain this in miniature, one contrast per entry, following the spec's rule that a body instruction should make a single coordinate palpable by moving one thing against another held still. Run them together and the drill is the chapter.

Hold the frame and run the weight: 00, 01, 02. Then 10, 11, 12. Then 20, 21, 22. Only the weight moves.

Then hold the weight and run the frame: 00, 10, 20. Then 01, 11, 21. Then 02, 12, 22. Only the frame moves.

At every step, name which coordinate will change before making the change.

The derivation check

Pick a coordinate you have not practiced as a named form. Produce it from the two component phrases of Chapter 7 alone, without consulting Chapter 11. Then read the entry.

If the two agree, the components are doing the work. If they do not, one of three things is true: the articulation block contains something its address does not license, the bodily readings are underspecified, or the practitioner has imported something. All three are worth knowing and the third is the most common.

The reduced-amplitude check

Perform the nine forms at full comfortable range. Then at about half. Then at about a quarter.

If the distinctions survive at a quarter, the addresses are specifying an organization of the body rather than a set of poses, which is the strongest claim this document could earn. If they collapse, the forms depend on visible gesture, and the schema is theatrical at whatever scale it stopped working.

This check matters twice over. It is the accessibility argument — a practitioner with limited range is performing the full form, not an accommodation of it — and it is the test of whether there is anything here beyond shapes.

The naming check

Perform a form and ask honestly whether you could argue for a different address with equal conviction. If you could, the address is not constraining that form.

This is the shuffle test performed on oneself, and it inherits the shuffle test's known weakness: the person judging has an interest in the answer. Its results are a floor. A distinction that fails this check has definitely failed; one that passes has only not yet failed.

The stratum check

Delete every RESONANCE block and read the document again. If anything necessary has gone missing, the resonance was carrying weight it should not have been carrying, and the material belongs in ARTICULATION or nowhere. This is S4 of Chapter 6 and it is the cheapest check in the set.

Keeping a record

For each form: the date, what was felt, what was ambiguous, and which neighboring address it was most easily confused with. Confusions are the useful data. A schema in which 01 is repeatedly mistaken

for 11 has a weak aperture distinction, and that is a specific defect at a specific position which can be repaired without touching anything else.

This is also where a practitioner exploring the value names of Chapter 5, or an energetic vocabulary from Chapter 2, should put what they find. Both are resonance-stratum material by construction, and both become more useful, not less, for being recorded as chosen rather than derived.

External review — practitioners of established arts, observers who do not know the schema, anyone qualified in movement safety — is out of scope for Version 0.1 by design and is named in Appendix C.

16. Safety and Scope

Everything in Version 0.1 is performed slowly, within a comfortable range, and can be stopped at any point.

- No forced positions. No locked knees or elbows, no deep stances, no compression of the chest, no forced spinal rotation, no forced stretching.
- No breath retention and no deliberate breath control. Sounding a vowel is a comfortable exhalation and nothing else.
- No rapid direction changes, no pivots under load, and no movement that requires momentum to complete or to recover from. Every form should be reversible from any point in it.
- No contact, no partner work, no strikes, no throws, and no joint techniques — not as a restriction imposed on the material, but because the vowel tier does not contain them. See Chapter 3.

Reduced amplitude is a complete expression of a form and not a lesser one. A practitioner who can shift weight a few centimeters is performing 01 as fully as one who can take a stance, and Chapter 15 treats the survival of the distinction at small amplitude as evidence about the schema rather than about the practitioner.

This document makes no therapeutic claims and is not medical advice. Anyone with a condition affecting balance, joints, blood pressure, breathing, or the ability to stand comfortably should treat that as the governing consideration and consult someone qualified; nothing here substitutes for that, and no part of the schema needs to be completed.

Appendix A — The Complete Vowel-Tier Table

Every addressed object in Version 0.1, with the Center. Glosses per DS v0.2.1; attestation per PHOIBLE via WP Appendix D.

Address	Glyph	Vowel	Long form	Short form	Attestation
—	—	/ə/	unaddressed; nothing composes with it	—	not applicable
Mono 0	▬	/ɑ/	the mouth fully open, the tongue withdrawn, held at full extension	open · withdrawn · full	assigned to GA
Mono 1	▪▪	/i/	the mouth nearly closed, the tongue advanced, held at full extension	closed · advanced · full	assigned to GA
Mono 2	⋯	/u/	the mouth nearly closed, the tongue withdrawn, held at full extension	closed · withdrawn · full	assigned to GA
00	〓	[a]	the mouth fully open, the tongue at rest in the center	open · centered	Common, 86.1%
01	⚌	/æ/	the mouth fully open, the tongue advanced	open · advanced	assigned to GA
02	⚍	/ɑ/	the mouth fully open, the tongue withdrawn	open · withdrawn	Attested, 7.4%
10	⚊	/ʌ/	the mouth half open, the tongue at rest in the center	half · centered	assigned to GA
11	⚎	/ɛ/	the mouth half open, the tongue advanced	half · advanced	assigned to GA
12	⚏	/ɔ/	the mouth half open, the tongue withdrawn	half · withdrawn	assigned to GA
20	⁝⁝	/ɨ/	the mouth nearly closed, the tongue at rest in the center	closed · centered	Common, 16.1%
21	⁞⁞	/ɪ/	the mouth nearly closed, the tongue advanced	closed · advanced	assigned to GA
22	⋮⋮	/ʊ/	the mouth nearly closed, the tongue withdrawn	closed · withdrawn	assigned to GA

Table A.1 — The Center, the three cardinals, and the nine coordinates. The monogram rows and the coordinate rows for 02, 21 and 22 describe the same regions held at extension and short of it; see Chapter 10.

The seven pools

Component	Pool
the mouth fully open	wide · unguarded · admitting
the mouth half open	poised · partial · between
the mouth nearly closed	narrow · focused · fine
the tongue at rest in the center	neutral · unweighted · still
the tongue advanced	forward · bright · reaching
the tongue withdrawn	back · dark · gathering
held at full extension	extremity · cardinal · unreduced

Table A.2 — The vowel sense-range pools of DS §3.6, printed in full at every entry that selects them.

Spiral is not tabulated. It is not a coordinate, it appears in three articulation blocks, and it is written with the fusion operator. Paths are not tabulated as addresses. They are sequences, composed per DS C6, and Table 12.1 lists the five the reference variety names.

Appendix B — Provenance

This appendix sorts the substantive commitments of Version 0.1 into three classes: inherited, decided, and invented. It exists because a reader has no way to tell them apart by looking, and because the proportion of the third class is the honest measure of how much this document rests on anything.

The third list is short, and the reason is structural rather than creditable. The derivations are Lingua-U's and are printed unchanged, so none of them is at issue here; and the five strata give everything not derived a place to sit — RESONANCE, where it is marked discardable and carries no weight the document depends on.

Inherited

Taken from WP Alpha 1.2, DS v0.2.1, Part I Chapter 11, or Part II, unchanged.

- The ternary architecture and the address tiers of one, two, and four digits.
- The two vowel components and their exact wording, from DS §3.5, together with their short forms.
- The seven sense-range pools of DS §3.6, and the rule at §5.3 that the full pool of every contributing position is printed with no member selected.
- Every long form and short form in this document, composed per C1–C5 and generated from the address.
- The five strata, the S-rules, and the discardability of RESONANCE, from DS §2.
- The monogram digit as identity index, the derivation of the cardinals from digram coordinates, and the tense–lax relation between the tiers.
- The Center as unaddressed, its derivation block wording, and the caution in its resonance block.
- The near-identity of /ʌ/ and /ə/ under stress, and the caveat that this is a convenient resolution of a near-merger rather than a discovery.
- The absence of a laryngeal term and of any term for the lips at the vowel tier, and the handling of rounding by fusion.
- Sequence composition by *then*, fusion by *and at once*, and the five diphthong paths of the reference variety.
- All attestation figures, the glyph lookup, and the occupancy of all nine coordinates.
- The compositional discipline of Chapter 14 and the derivable-but-not-performable category.

Decided

Choices made here, on a basis the document states and a reader can dispute.

- Aperture read as the volume of the occupied frame, on the ground that aperture in the tract is a property of the resonating space rather than of the effort making it.

- Orientation read as the sagittal placement of mass, held as a state. Chapter 7 argues it: reading orientation as a direction of travel would collapse the distinction between forms and paths.
- That Jai'ai composes no glosses of its own and prints Lingua-U's unchanged. The alternative — a parallel movement lexicon with its own components and pools — was available and was rejected, because it would have made the provenance of every line a matter of inspection rather than of stratum.
- The three stance conventions, and the claim that every distinction survives seated practice.
- The extension of the tense–lax axis to all nine coordinates. This is a declared departure from DS §3.5, which restricts the tenseness component to monograms. Chapter 10 states it, states its cost, and confines it to the articulation stratum at the six coordinates the spec does not license.
- Spiral as the somatic reading of lip rounding, placed in ARTICULATION rather than given a coordinate.
- The refusal to interpret Hahn, Sheen, and Yun, and the reason given in Chapter 5.
- The refusal to gloss the three cardinals as expression, reception, and mediation, and the reason given in Chapter 9.
- The nearest-neighbor traversal order of Chapter 12, and the enumeration of five sequences where the spec enumerates none.

Invented

Not derivable from anything. These are the parts of the document most likely to be wrong.

- Every ARTICULATION block. The component phrases constrain them but do not determine them, and someone else working from Chapter 7 could write twelve different blocks that satisfy Chapter 14 equally well. This is the whole of the Jai'ai contribution and it is the whole of what is at risk.
- The reading conventions of Chapter 7 — aperture at the arms, orientation at the pelvis and feet.
- The three RESONANCE blocks that are not —, which are offered and may be discarded without loss.
- The claim that the tense–lax axis is bodily available at all nine coordinates.

A reader who wants the shortest accurate summary of this document should take it from the first item of the third list. Everything else is either Lingua-U's or discardable.

Appendix C — Open Questions

Not comprehensive. This records what is known to be unfinished.

- OQ1 — Nothing here has been performed by anyone but the author. No observer has been asked to distinguish the forms, no practitioner of any established art has reviewed them, and no one qualified in movement safety has looked at them. This is the governing limitation and it sits above all the others.
- OQ2 — Whether two people given only Chapter 7 produce recognizably the same form for the same address. This is the central question. If they do not, the bodily readings underdetermine the movement and need tightening; if they do, Jai'ai has a generative grammar rather than a set of named shapes.
- OQ3 — Whether orientation-as-state survives contact with practice, or whether practitioners will import travel into it despite Chapter 7. If they do, the distinction between forms and paths collapses and Chapter 12 has nothing to describe.
- OQ4 — Whether the tense–lax distinction is legible to an observer or available only to the practitioner. If only the latter, it is still a real axis but cannot be taught by demonstration, which changes how the practice would have to be transmitted.
- OQ5 — Whether the departure of Chapter 10 is justified. If the bodily axis turns out to be legible only at the three cardinal coordinates, the spec was right to restrict it and Jai'ai should withdraw the extension.
- OQ6 — Whether the distinctions survive at reduced amplitude. The accessibility claim of Chapter 16 depends on this and it is untested.
- OQ7 — Whether the articulation blocks satisfy the spirit of DS §8. That section requires a generated skeleton against which finished prose is audited, so that fluent writing cannot quietly describe the wrong sound. Jai'ai has no movement skeleton and no audit, and the twelve blocks in this document were written by hand against the component phrases alone. Building the skeleton is the obvious next technical step.
- OQ8 — Whether spiral should become a third coordinate. Part I names a rounding position as the strongest candidate and records the question as open. Version 0.1 does not promote it, and a later version that does will owe an argument.
- OQ9 — The twenty-seven tier is named in Chapter 4 and does not exist. Defining it as a truncation of the tetragram requires an argument this document does not make.
- OQ10 — Version-lock. This document follows WP Alpha v1.2 and DS v0.2.1. The consonant frame carries unresolved questions of its own, including a quarantine suspending nine cells and a component definition that is wrong about the sound at one slice of domain 0. None bear on the vowel tier, which is why Version 0.1 can proceed as it does. A consonant-tier version would inherit all of them.

- OQ11 — Whether the sounding adds anything. The simultaneity of vowel and form is the reason given in Chapter 1 for building this rather than something else, and no one has yet checked whether performing a form while sounding its vowel differs in any respect from performing it in silence.
- OQ12 — Whether the schema can be taught and practiced entirely in the vocabulary of Chapter 2, or whether practitioners consistently reach for an energetic description the document does not supply. The second outcome would not by itself vindicate that vocabulary, but it would show that something in the practice is not being described here.
- OQ13 — Whether the cardinals deserve a tier. Part I asks whether cardinality is worth an exception to compositionality and records that the question has not been argued anywhere. If it is resolved against the exception, Chapter 9 collapses into Chapter 11.

Version 0.1. Addresses per WP Alpha v1.2; glosses per DS v0.2.1. Working draft — not for citation.