

Introductory Exercises for Lingua-U Practice

Version 1.0

Companion to the Lingua-U Whitepaper, Alpha 1.2

Working draft — not for citation

Status of This Document

This is Version 1.0. It exists to serve one purpose: to give a reader a way of coming to know the sounds of English proprioceptively rather than only intellectually.

That distinction is the whole of the document's reason for being. The whitepaper describes an address space in which every sound is located by its articulatory commitments — aperture and orientation for the vowels, domain, sub-manner, place, and laryngeal state for the consonants. A reader can follow those descriptions perfectly well without ever checking them against their own mouth, and a system learned that way remains a table to be consulted. The exercises here are intended to make it something else: a description of things the reader can feel themselves doing. Position III should be a journey the tongue takes from the lips inward, not a column heading. Position IV should be a vibration under two fingers on the throat.

Nothing here is a contemplative practice, and nothing here depends on the symbolic layer of Chapter 12, which remains provisional. The relation of these exercises to the rest of Lingua-U is closer to that of scales to music. They are preparatory, they are meant to be repeated, and they are worth doing before the material that assumes them.

The exercises are pitched at a first encounter. They ask for attention rather than accuracy, and they assume no phonetic training. Later work will require more: sustained production, discrimination between sounds the reader does not natively distinguish, movement through the address space at speed, and the reaching of cells that English does not occupy. As exercises for those increasing levels of fluency are developed, they will be added here and this document will be revised against them. Version 1.0 should be read as the first tier of a sequence rather than as a complete course.

General American is used as the reference variety throughout. Where a reader's own speech diverges from it — and it will — that divergence is information rather than error, and several exercises are designed to surface it.

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Preliminaries

Why phonemes

Lingua-U begins with phonemes rather than spelling. That single decision changes what the system can notice. Spelling records history — the accidents of scribes, printers, and borrowed words. Phonemes record what your body is doing right now, in the fraction of a second before a word leaves your mouth.

These exercises are for learning to attend to that. They sharpen your awareness of what your mouth, tongue, lips, breath, and voice are actually doing when you speak. Familiar words begin to reveal an acoustic and bodily structure that ordinary literacy usually hides. You spend your life producing these sounds — thousands of times a day, with the precision of a practiced instrumentalist — and almost never watching yourself do it.

How to use these exercises

Read aloud. Not silently — everything here rests on sounding each phoneme as you come to it, holding it a moment, and noticing where it lives in your mouth. Reading the description of a sound without producing it defeats the purpose entirely.

A mirror helps, particularly for the lip postures in Part I. A hand resting lightly on the jaw or the front of the throat helps more, and several exercises require it.

Work through Part I before Part II. The vowels are easier to feel, and they establish the habit of attention that the consonants demand. Within each part, the exercises are numbered so that they can be returned to individually; the closing note names the four worth keeping as periodic drills.

Take them slowly. A sound held for three or four seconds tells you considerably more than the same sound produced at conversational speed, and most of these exercises fail if hurried.

Part I — The Vowels

1.1 What a vowel is

A consonant is an obstruction. Something narrows or closes — lips, tongue tip, tongue body — and the airstream has to negotiate it.

A vowel is the absence of obstruction. Air moves from the larynx through an open tract, and what distinguishes one vowel from another is only the *shape* of that opening. Two things do nearly all the work:

Aperture — how open the tract is. How far the jaw has dropped, how close the tongue body sits to the roof of the mouth.

Orientation — where in the mouth the tongue body has gathered. Forward toward the teeth, back toward the throat, or neither.

That is the whole of it. Two variables, continuously adjustable, and every vowel you have ever produced is a point in that two-dimensional space. Lingua-U divides each axis into three, giving a three-by-three grid — with three positions singled out as extremes.

Exercise 1.1. Say “**see**”, then “**sue**”, then “**spa**”, slowly, with a real pause between each. Say them again. You are moving the same tongue through three very different postures, and you have been doing it since you were two years old without once deciding to.

1.2 The three cardinal vowels

Three vowels sit at the corners of the space. They are as far from each other as the human vocal tract can put them, and languages across unrelated families converge on exactly these three when they have only three to work with. Lingua-U gives them single-digit addresses — **monograms** — because they are landmarks rather than coordinates.

/ɑ/ — address 0

as in **father, palm, spa**

Open back. The jaw drops as far as it comfortably goes. The tongue lies low and slightly retracted, and the lips do nothing at all — no spreading, no rounding. This is the most open configuration your tract permits while still producing a vowel. It is why the doctor asks for it when they want to see your throat.

Exercise 1.2. Say /ɑ/ and let it run for three or four seconds. Put two fingers on the point of your chin and feel how far down it has travelled. Now try to make the sound with your teeth nearly closed. It will not come. The openness *is* the vowel.

/i/ — address 1

as in **fleece, see, machine**

Close front. The tongue body rises and pushes forward, bunching toward the hard palate and leaving a narrow channel just behind the teeth. The lips spread — the shape a smile makes. The sound is bright, high, and concentrated.

Exercise 1.3. Hold /i/ for several seconds. Feel where the sides of your tongue press against your upper molars. That contact is real and constant, and you have almost certainly never noticed it. Now slide slowly from /ɑ/ to /i/ without stopping. Your tongue is climbing and travelling forward at the same time.

/u/ — address 2

as in **goose, blue, food**

Close back. The tongue body rises toward the soft palate at the rear, and the lips round and push forward. The lip protrusion matters: it lengthens the whole resonating tube, which is why /u/ sounds so much darker than /i/ despite the tongue being just as high.

Exercise 1.4 — the fusion demonstration. Hold /i/. Then, without moving your tongue at all, round your lips. What you will get is a third sound — the French vowel in *tu*, the German in *über*. English does not use it. It is /i/'s tongue with /u/'s lips, which is why Lingua-U writes it as a fusion, **1:2**, rather than giving it a cell of its own. Two features you can vary independently, demonstrated by varying one and holding the other.

Note: many American speakers front their /u/ considerably, so “goose” lands closer to the middle of the mouth than the description above suggests. Say the word and see where yours sits.

1.3 The six secondary vowels

Everything else in the English vowel space is a coordinate rather than a landmark, and takes a two-digit address — a **digram**. Position I is aperture; Position II is orientation.

	0 • central	1 • front	2 • back
0 • open	—	/æ/	—
1 • mid	/ʌ/	/ɛ/	/ɔ/
2 • close	—	/ɪ/	/ʊ/

Read an address and you know where the sound is made. 21 is close and front; 12 is mid and back. Nothing is assigned by taste.

/æ/ — address 01 • near-open front

as in **trap, cat, hand**

The jaw drops nearly as low as for /ɑ/, but the tongue stays forward. In much of American English this vowel is also long and noticeably nasal, particularly before /n/ and /m/.

Exercise 1.5. Alternate /ɑ/ – /æ/ – /ɑ/ – /æ/. The jaw barely moves. What moves is the tongue body, sliding forward and back along the floor of the mouth. Then say **“cat”** and **“can”** back to back and listen for how much longer and more nasal the vowel goes in the second.

/ɛ/ — address 11 • mid front

as in **dress, bed, said**

The tongue is forward as for /i/, but lower, and the jaw sits at a middle height. Lip spreading is slight.

Exercise 1.6 — the front descent. Run /i/ → /ɪ/ → /ɛ/ → /æ/ as one slow descent. This is the tongue front dropping in stages. Feel the contact with the molars weaken and vanish as you go.

/ɔ/ — address 12 · mid back

as in **thought, law, caught**

Mid back, with some lip rounding — less than /u/, and less than it once had.

Exercise 1.7 — a dialect check. Say “**cot**” and “**caught**” in quick succession. If they are the same word for you, you have one vowel where the grid shows two. A large share of North American speakers have merged these. That is a fact about your speech worth knowing rather than correcting, and worth noting in the margin, because it will affect every later exercise involving /ɔ/.

/ɪ/ — address 21 · near-close front

as in **kit, sit, bin**

Nearly /i/, but the tongue sits a little lower and a little more toward the centre, and the whole articulation is laxer — less muscular effort, shorter duration.

Exercise 1.8. Say “**beat**”, then “**bit**”. Then hold /i/ and let the tension out of your tongue without deliberately moving it. It will settle into /ɪ/ on its own. The difference between these two vowels is largely a difference in *effort*.

/ʊ/ — address 22 · near-close back

as in **foot, book, put**

The same relaxation applied to /u/: slightly lower, slightly more central, with weaker lip rounding.

Exercise 1.9. Say “**pool**”, then “**pull**”. Watch your lips in a mirror. The rounding in the second is real but reduced — a gesture half-made.

/ʌ/ — address 10 · mid central

as in **strut, cup, blood**

The tongue at middle height, gathered in the middle of the mouth. Neither forward nor back, neither high nor low, with no lip activity to speak of.

Exercise 1.10. Say “**cup**” and hold the vowel. Now say “**about**” and hold *its* first vowel. They are very nearly the same sound — which is the subject of the next section.

1.4 The Center

One English vowel has no address at all.

/ə/ — the schwa — *as in the first syllable of **about**, the last of **sofa**, the middle of **camera**.*

It is the sound of the tongue at rest. Not open, not close, not front, not back. It is what English vowels collapse into when the stress comes off them: the *a* of *about*, the *o* of *problem*, and the *e* of *taken* are one sound in three spellings, and none of them is the vowel the spelling names.

Lingua-U leaves it unaddressed. The system locates sounds by their articulatory commitments, and this is the sound defined by having none. It sits at the Center — not as an ornament, but as an admission of what the coordinates cannot describe.

Exercise 1.11. Say “**a banana**” at conversational speed. Three of the four vowels are schwa. Now say it again very slowly and deliberately, and notice how hard you must work to *keep* them schwa rather than letting the spelling pull them toward /æ/. The schwa is what your mouth does when you stop making an effort — which is most of the time.

1.5 Movement

The ten sounds above are static positions. A great deal of English speech is travel between them.

Exercise 1.12. Say “**day**” slowly enough to hear the vowel move. It begins near /ɛ/ and arrives near /ɪ/ — written **11·21**, a sequence rather than an address, because it is a path and not a place. Do the same with “**how**” (/ɑ/ → /ʊ/, **0·22**) and “**boy**” (/ɔ/ → /ɪ/, **12·21**). Once you can feel the corners, you can feel yourself moving between them.

1.6 Full vowel run

Exercise 1.13. Sound the complete set in order, holding each for two or three seconds:

/ɑ/ · /ɪ/ · /ʊ/ — the three corners /æ/ · /ɛ/ · /ɔ/ · /ɪ/ · /ʊ/ · /ʌ/ — the interior /ə/ — the rest position

Ten sounds: every vowel in a standard American accent, and the raw material of every word you will say today.

Part II — The Consonants

2.1 Why these exercises are organised by feature

There are twenty-four consonants in General American, and going through them one at a time would be both tedious and misleading. A consonant address is a tetragram — four digits, each recording one articulatory decision — and the point of the architecture is that those four decisions are separable. What is worth practising is therefore not twenty-four sounds but four axes. Learn to feel the axes and the twenty-four addresses become readable.

The positions, in order:

Position	Records	Values
I — domain	what fundamentally happens	0 event · 1 channel · 2 continuum
II — sub-manner	the finer manner, <i>within</i> that domain	0 · 1 · 2, read relative to Position I
III — place	where in the tract	0 labial · 1 coronal · 2 dorsal/glottal
IV — laryngeal	the state of the larynx	0 voiceless · 1 voiced · 2 breathy/aspirated

One caution, carried over from Chapter 6. Position II is domain-relative: a 1 means *stop* inside domain 0 and *liquid* inside domain 2. Lingua-U branches rather than laying down four independent axes, and the exercises below reflect that — Position II is practised three times, once per domain.

If you want an easy first success, do §2.5 before §2.2. Voicing is the most immediately palpable of the four.

2.2 Position I — Domain

The coarsest cut. Three things a vocal tract can fundamentally do.

0 — event. Closure and release. The sound has a beginning and an end and cannot be sustained. Stops, affricates, /h/. **1 — channel.** A sustained constriction that air is forced through. Fricatives. **2 — continuum.** Open resonance. Nasals, liquids, glides.

Exercise 2.1 — one place, three domains. All three of these are made at the same place, the alveolar ridge just behind your top teeth. Only the domain changes.

- /t/ (0110) — build pressure, release it. Try to hold /t/. You cannot; the moment it is released it is over. This is an *event*.
- /s/ (1110) — hold it for five seconds. The tongue is in nearly the same position, but it has stopped a hair short of contact, and air is being driven through the gap. This is a *channel*.
- /n/ (2211) — hold it for five seconds. Full closure, as with /t/, but the velum has dropped and air is escaping through the nose. Sustainable indefinitely. This is a *continuum*.

Cycle: /t/ – /s/ – /n/ – /t/ – /s/ – /n/. Your tongue tip stays in essentially one region the entire time. What changes is what you are doing with the air.

2.3 Position II — Sub-manner

Read relative to the domain. Practise each domain separately.

Within domain 0 (events)

Value	Class	English examples
0	unobstructed breath	/h/
1	stop	/p b t d k g/
2	affricate	/tʃ dʒ/

Exercise 2.2. Sound /h/ (0020) — breath with the tract open and no constriction anywhere above the glottis. Then /k/ (0120) — the same domain, but with a complete closure. Then /tʃ/ (0220) — a closure whose release is deliberately slowed into friction. Say “**church**” and feel the two-part structure of the initial sound: a stop, then a fricative, welded into one segment. That welding is what puts affricates in the *event* domain rather than the *channel* domain.

Within domain 1 (channels)

Value	Class	English examples
0	non-sibilant fricative	/f v θ ð/
1	sibilant	/s z ʃ ʒ/
2	lateral fricative	— <i>empty in English</i>

Exercise 2.3 — friction, concentrated and diffuse. Alternate /θ/ (1010, as in *think*) and /s/ (1110). Both are voiceless fricatives at roughly the same region, but /s/ channels the air into a narrow groove aimed at the teeth, producing a high concentrated hiss, while /θ/ spreads it diffusely across a broad edge. Hold a hand a few inches in front of your mouth: /s/ arrives as a focused jet, /θ/ as a wash.

Exercise 2.4 — reaching an empty cell. The lateral fricative slot, **1210**, is unoccupied in English. It is not unoccupied in Welsh, Navajo, or Zulu, and /ɬ/ is recorded in 146 of PHOIBLE’s 3,020 inventories. To find it: set your tongue for /l/, then, without moving it, blow. The air must escape around the sides of the tongue, and it will hiss. That is /ɬ/ — the *ll* of Welsh *Llanelli*. Your mouth reaches a cell your language does not use. This is worth doing once, because it makes tangible what the whitepaper means when it says the address space is larger than English.

Within domain 2 (continua)

Value	Class	English examples
0	glide	/w j/
1	liquid	/l ɹ/
2	nasal	/m n ŋ/

Exercise 2.5 — degrees of closure. Sound /w/ (2001), /l/ (2111), /n/ (2211), each held for three seconds. All three are open resonance; they differ in how much the tract is obstructed and where the air goes. /w/ narrows without contact. /l/ makes central contact and routes air around the sides. /n/ closes the mouth completely and routes air through the nose.

Then: pinch your nose shut and try to sustain /**n**/ or /**m**/. The sound dies instantly. Do the same on /**l**/ and nothing happens. Nasality is not a subtle acoustic colouring; it is a physical routing decision, and you can prove it in two seconds.

2.4 Position III — Place

Eight English places of articulation are collapsed into three. This is a design decision rather than a discovery, and the three are best learned as a front-to-back progression.

0 — labial, at the outer threshold of the body. **1 — coronal**, at the central point of articulate contact. **2 — dorsal, postalveolar, or glottal**, inward toward the throat.

Exercise 2.6 — the stop series. Sound /**p**/ (0100) · /**t**/ (0110) · /**k**/ (0120), slowly, three times through. Attend to the location of the closure and nothing else. Lips. Ridge behind the teeth. Soft palate at the back. One digit advances at Position III; the closure travels inward by the same step.

Exercise 2.7 — the nasal series. Sound /**m**/ (2201) · /**n**/ (2211) · /**ŋ**/ (2221) — the last as in *sing*, held, not followed by a /**g**/. The same inward journey, in a different domain. Note that the two series differ *only* at Positions I and II; their place digits are identical, in the same order.

Then interleave them: /**p**/ /**m**/ · /**t**/ /**n**/ · /**k**/ /**ŋ**/. Each pair is made at the same place. What changes is whether the velum is up or down.

Exercise 2.8 — place across the fricatives. /**f**/ (1000) · /**θ**/ (1010) · /**ʃ**/ (1120). Labial, coronal, postalveolar — the same progression again, in the channel domain. English does not have a dorsal fricative, so the series stops short of the velum; if you want to hear where it would land, the *ch* of German *Bach* sits there.

2.5 Position IV — Laryngeal

The most immediately palpable of the four. Two values are used in English; the third is not.

0 — voiceless. The vocal folds are apart. The sound is made on breath alone. **1 — modal voiced.** The folds are vibrating. **2 — breathy or aspirated.** Unused in English; the Hindi /b^h d^h g^h/ series, the aspirated stops of Thai.

Exercise 2.9 — the throat test. Place two fingers flat on the front of your throat. Sustain /**s**/ (1110) for four seconds, then, without stopping the airflow or moving your tongue at all, switch to /**z**/ (1111). Under your fingers, a motor turns on. Nothing else has changed — same domain, same sub-manner, same place. One digit, one sensation.

Repeat with /**f**/ → /**v**/ (1000 → 1001) and /**θ**/ → /**ð**/ (1010 → 1011).

Exercise 2.10 — the pairs. Every voiced and voiceless pair in English differs at Position IV and nowhere else. Run all eight, fingers on the throat throughout:

/p b/ · /t d/ · /k g/ · /tʃ dʒ/ · /f v/ · /θ ð/ · /s z/ · /ʃ ʒ/

A single articulatory change produces a single symbolic change. This regularity was not imposed on the system; it fell out of the derivation.

Exercise 2.11 — reaching the third value. Hold a strip of paper in front of your mouth and say “**pin**”. It flutters: English voiceless stops are aspirated at the start of a stressed syllable. Now say “**spin**” — much less flutter. You already produce an aspiration contrast; English simply does not use it to distinguish words, which is why Position IV value 2 stays empty in the assignment tables and the address space keeps substantial room.

2.6 Reading an address off your own mouth

The two derivations below are given in Chapter 5 as demonstrations. Here they are performed rather than read.

Exercise 2.12 — /m/, address 2201. Sound /m/ and hold it. Take the digits one at a time and locate each in your body:

- **2** at the domain — open resonance. It is sustainable; you can hold it as long as your breath lasts.
- **2** at sub-manner — nasal. Pinch your nose and it stops.
- **0** at place — labial. Your lips are shut; nothing else in your mouth is doing anything.
- **1** at the laryngeal position — modal voice. Fingers on the throat confirm it.

A continuous voiced resonance, sealed by full closure, sounded at the outer threshold of the body.

Exercise 2.13 — /s/, address 1110. Sound /s/ and hold it.

- **1** at the domain — sustained friction, a channel.
- **1** at sub-manner — sibilant; the most concentrated friction available.
- **1** at place — coronal, the middle of the mouth.
- **0** at the laryngeal position — voiceless. Fingers on the throat confirm the absence.

A concentrated constriction at the centre of the mouth, sounded on breath alone.

Now try to exchange the two readings. You would be describing a labial segment as coronal and a voiced one as voiceless. Nothing obliges you to find either reading evocative — but neither can be moved without contradiction, and that is the whole of what the address system claims.

2.7 Optional — the value names

The names below belong to the provisional layer of Chapter 12. Nothing elsewhere depends on them, and this exercise is included because it is a good articulatory drill rather than because the names are settled.

The three ternary values have working names: **Hahn** for 0, **Sheen** for 1, **Yun** for 2. Each was built to demonstrate the position it names — each carries its own cardinal vowel, and each opens with a consonant from its own domain.

Exercise 2.14. Sound each name slowly and check the construction against what you have practised:

- **Hahn** — opens on /h/, a domain-0 consonant; carries /ɑ/, the cardinal at address 0.
- **Sheen** — opens on /ʃ/, a domain-1 consonant; carries /i/, the cardinal at address 1.
- **Yun** — opens on /j/, a domain-2 consonant; carries /u/, the cardinal at address 2.

All three close on /n/, a domain-2 consonant, which gives them a common grounding. Say them in sequence and you have sounded the three domains and the three cardinals in six segments.

Closing note

Two things tend to happen after a while.

The first is that spelling starts to look like what it is — a partial, historically compromised transcription of something more precise underneath. *Bead, machine, receive, and key* record one sound in four costumes.

The second is that the addresses stop being notation. Once you can feel Position III as a journey from the lips inward, and Position IV under two fingers on your throat, a tetragram reads as a description of something you can do rather than a label you have agreed to accept. That is the condition the rest of the system assumes.

Return to Exercises 1.13, 2.6, 2.7 and 2.10 as periodic drills. They cover the whole inventory between them.