

# SOUND ALPHABET TO VISUAL ALPHABET

A COMPREHENSIVE METHOD FOR CONVERTING  
PHONEMIC SOUNDS INTO VISUAL SYMBOLS

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A BRIEF HISTORY OF ENGLISH PHONEMICS

English phonemic (the study of its sound system), has evolved significantly. In Old English (450–1150), a rich vowel system, complex consonants, and stress-based phonology dominated, with Germanic roots shaping sounds and minimal French influence.

During Middle English (1150–1500), the Norman Conquest introduced French phonemes, and the Great Vowel Shift began, altering long vowel pronunciation (e.g., /i:/ → /ai/), while consonants simplified.

As McMahon notes, “the Great Vowel Shift represents a pivotal

restructuring of English phonology, fundamentally altering its vocalic system”. (McMahon, 2006, p. 154).

In Early Modern English (1500–1800), the Great Vowel Shift completed, standardizing vowel changes, and the printing press and Shakespearean era stabilized pronunciation, though regional variations persisted.

Modern English (1800–present) saw industrialization and global spread, leading to dialect diversification (e.g., American, British, Australian English), with phonemic standardization emerging through dictionaries (e.g., Webster, Oxford).

Today, English has ~ 44 phonemes (20 vowels, 24 consonants), varying by dialect. Key shifts include vowel changes, consonant loss (e.g., /x/), and stress patterns, with phonemics remaining dynamic due to global influences and technology. McMahon, A. (2006) Understanding language change. Cambridge: Cambridge University Press.



Manuscript miniature of the coronation of Henry III, accompanied by a short account of his reign in Anglo-Norman prose.

CHARACTERS AND GLYPHS FOR PHONEMICS

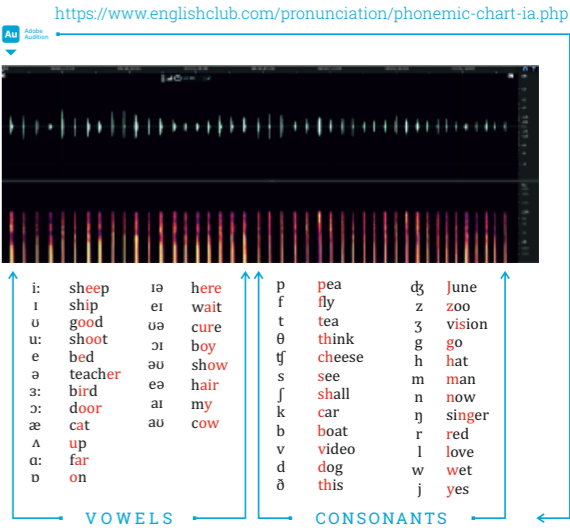
In the mid-19th century, early systems like Alexander Melville Bell’s Visible Speech (1867) used iconic glyphs to depict articulatory positions, but they were complex and language-specific.

The International Phonetic Association, founded in 1886, aimed for a universal system.

The IPA’s initial 1888 alphabet drew from Roman letters, diacritics, and modified glyphs. “The design of IPA symbols was driven by the need for a one-to-one correspondence between sound and symbol”. (Pullum & Ladusaw, 1996, p. 3).

By the early 20th century, typographic challenges led to collaborations with printerws to create standardised fonts.

The advent of digital typography in the 1980s, particularly Unicode (1991), revolutionized glyph production, encoding IPA symbols for global use. Ongoing revisions by the IPA ensure new sounds and diacritics are integrated, balancing linguistic precision with technological compatibility. Pullum, G. K. & Ladusaw, W. A. (1996) Phonetic symbol guide. 2nd ed. Chicago: University of Chicago Press.



SOUND ALPHABET TO VISUAL ALPHABET (S.A.V.A.)

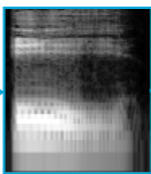
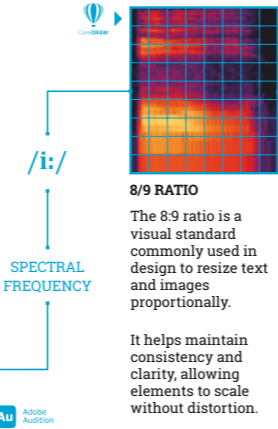
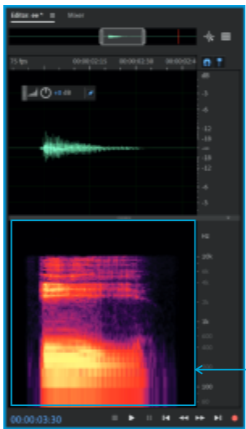
A COMPREHENSIVE METHOD FOR CONVERTING PHONEMIC SOUNDS INTO VISUAL SYMBOLS.

Modern phonetic systems, including the International Phonetic Alphabet (IPA), have their roots in the Latin and Greek alphabets. While the IPA provides a detailed system for representing speech sounds across languages, it remains tied to traditional script conventions, making universal adoption challenging.

The proposed SAVA system takes a different approach, avoiding historical and cultural constraints by converting organically phonemic sounds directly into visual symbols.

By analysing spectral frequencies and extracting the median vector representation, SAVA proposes more than a simple phonetic transcription system, it represents an emulation that merges graphic design, acoustics, and linguistics into an innovative mode of communication.

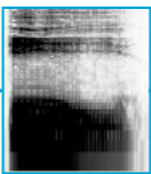
The aim of SAVA is to explore the potential for a global phonetic visualisation system—one that enhances cross-linguistic communication by representing sounds in a form that is accessible and recognisable to diverse audiences.



**GRAY SCALE**

The image is converted to greyscale to enhance definition and simplify form.

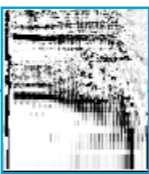
By removing colour, the focus shifts to structure and shape, making visual elements more distinct.



**INVERT**

Through colour inversion, the visual field is transformed, with the foreground receding into the background.

Areas shaped by sound are revealed within a more defined and unified structure.



**EMBOSS**

Embossing is applied to simulate shadow and dimensionality.

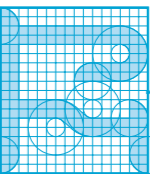
With a depth of 20, a level of 500, and a directional angle of 233°, this technique imparts a tactile weight to the evolving phonemic symbol.



**VECTOR**

The next step is to identify the median vector of the generated shadow.

The median vector forms the abstract base for the standardised glyph.



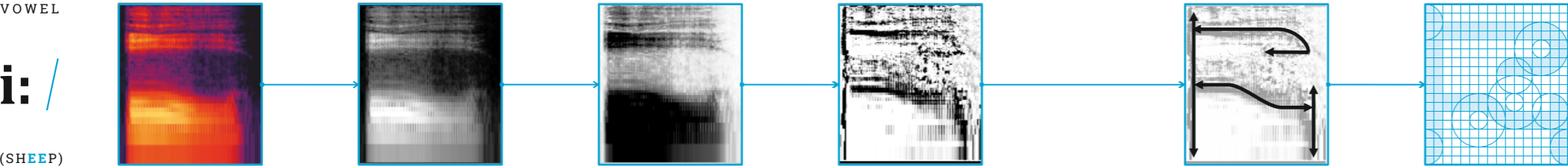
**STANDARD**

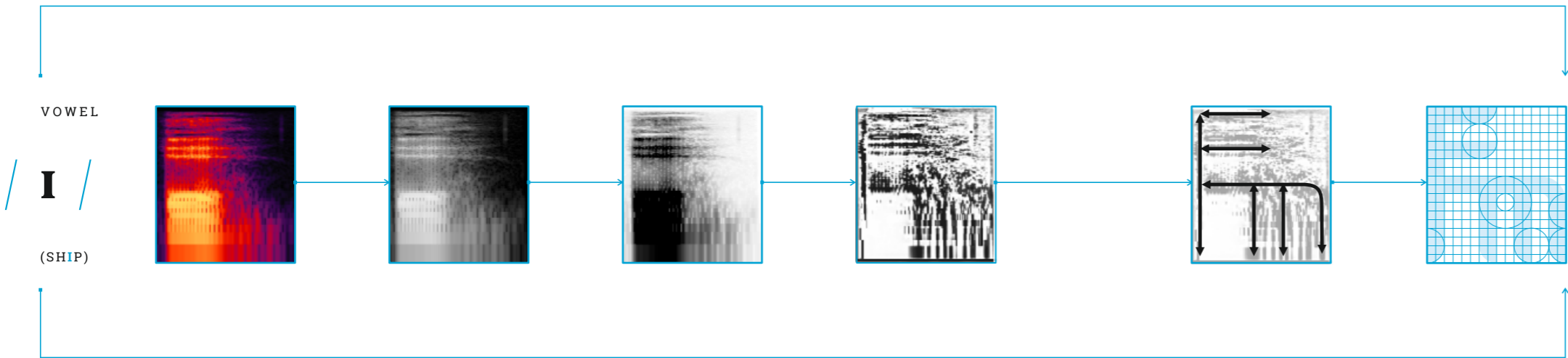
The final step is the standardisation of the design using the same 8 by 9 typographic proportions.

Minimal aesthetic deviations and adjustments are applied across all 44 glyphs.

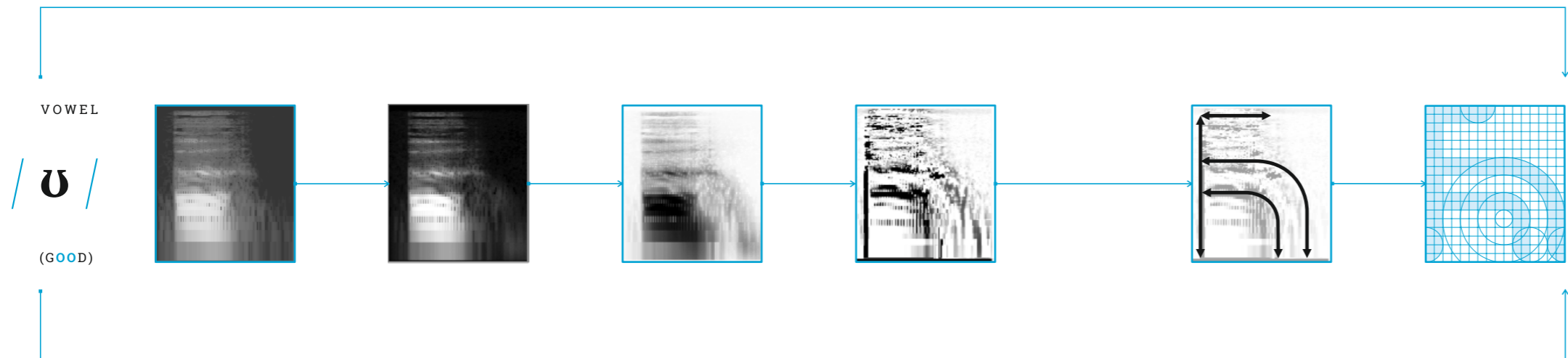


The proposed SAVA glyph

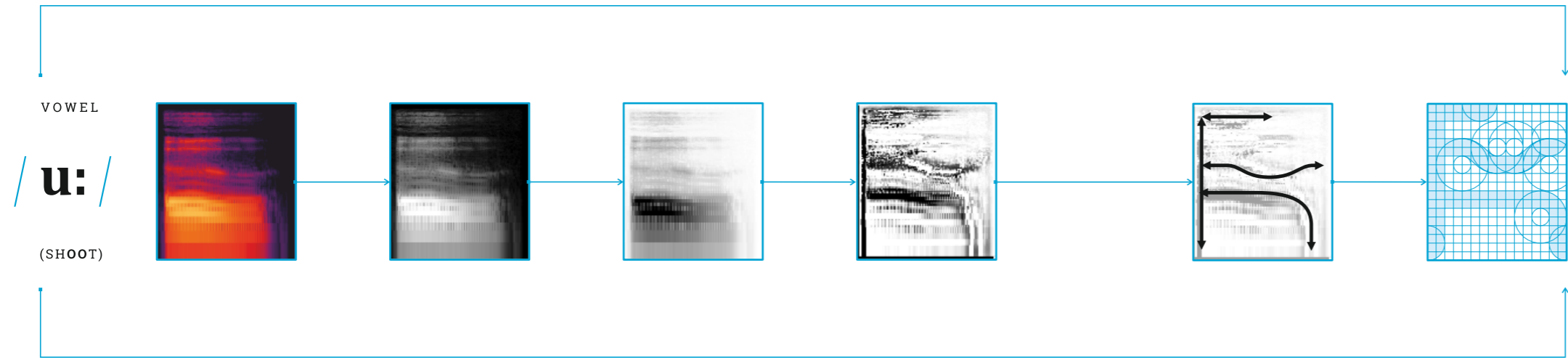




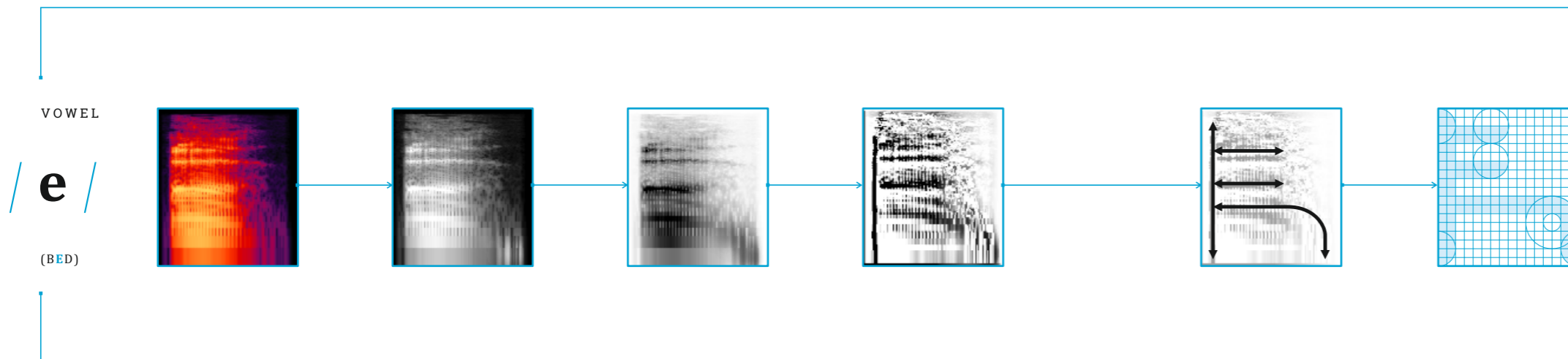
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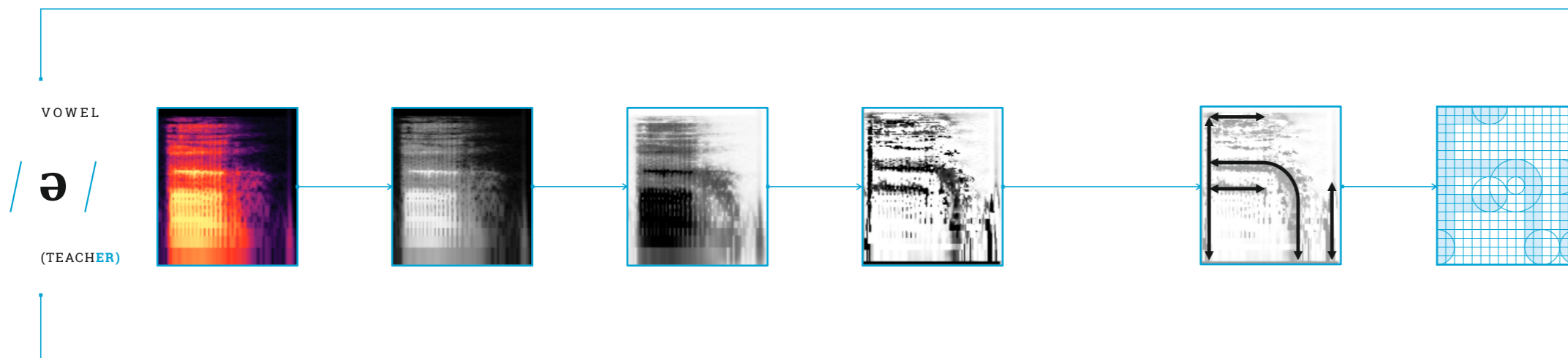
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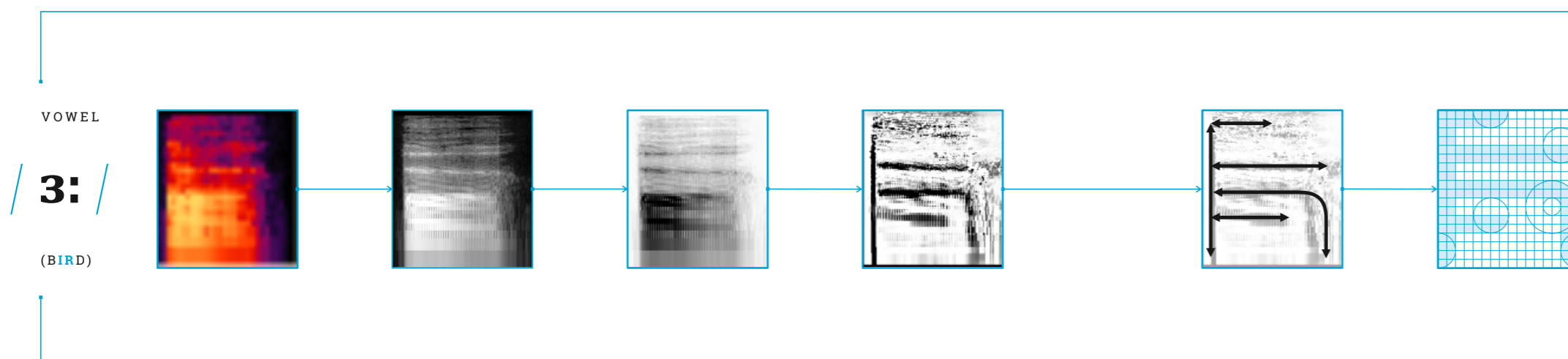
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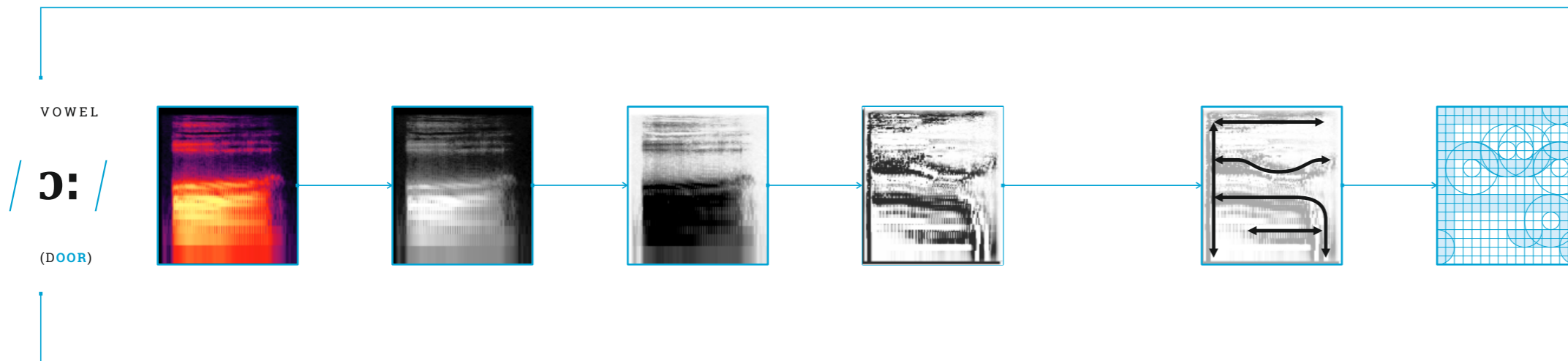
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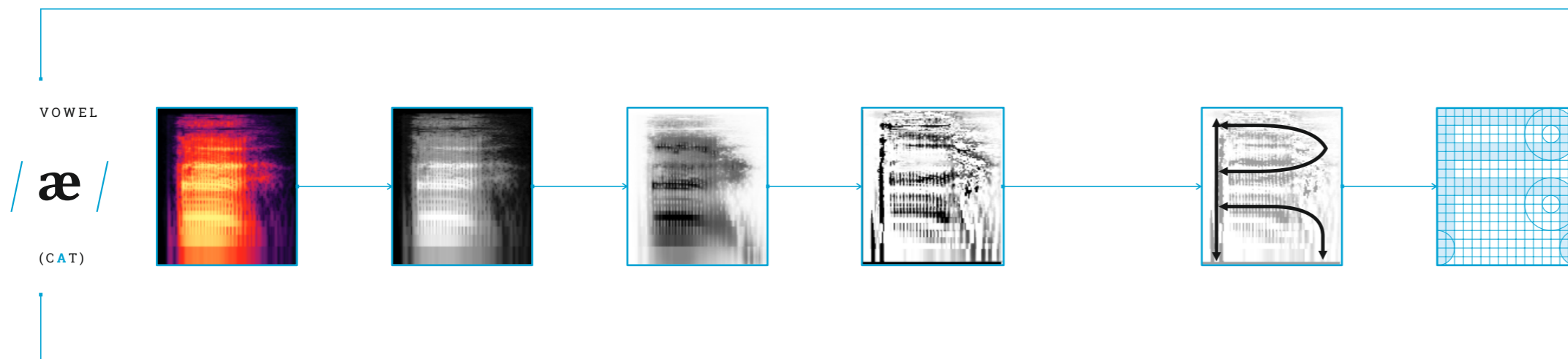
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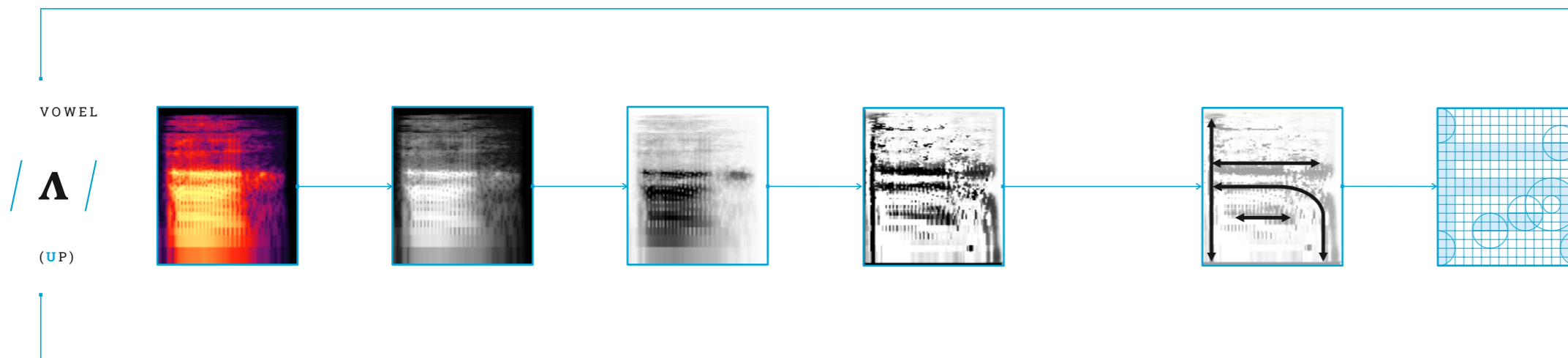
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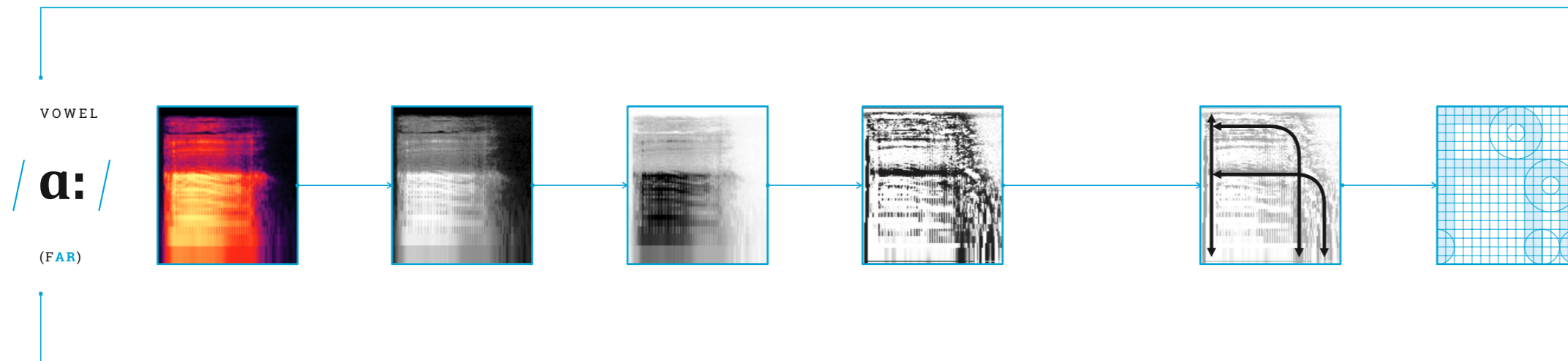
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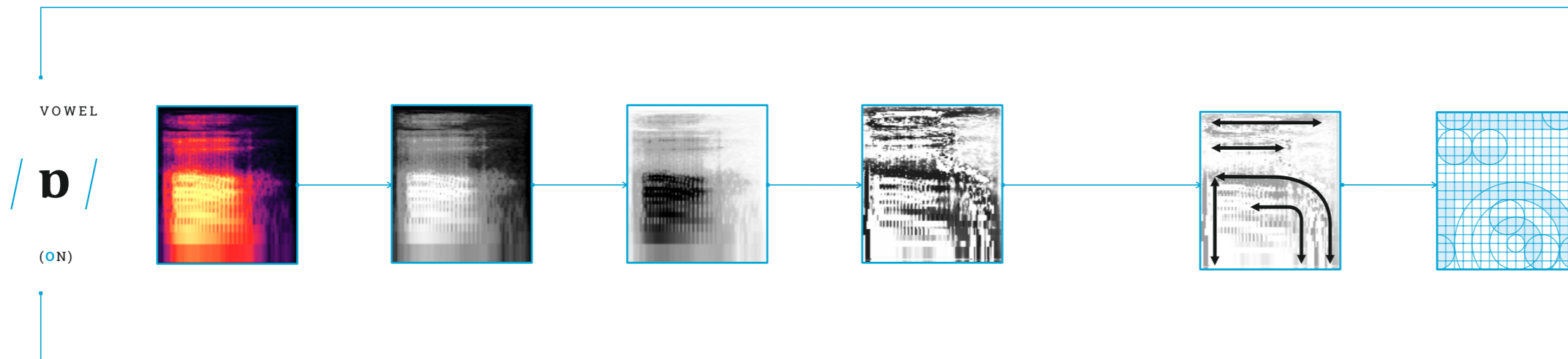
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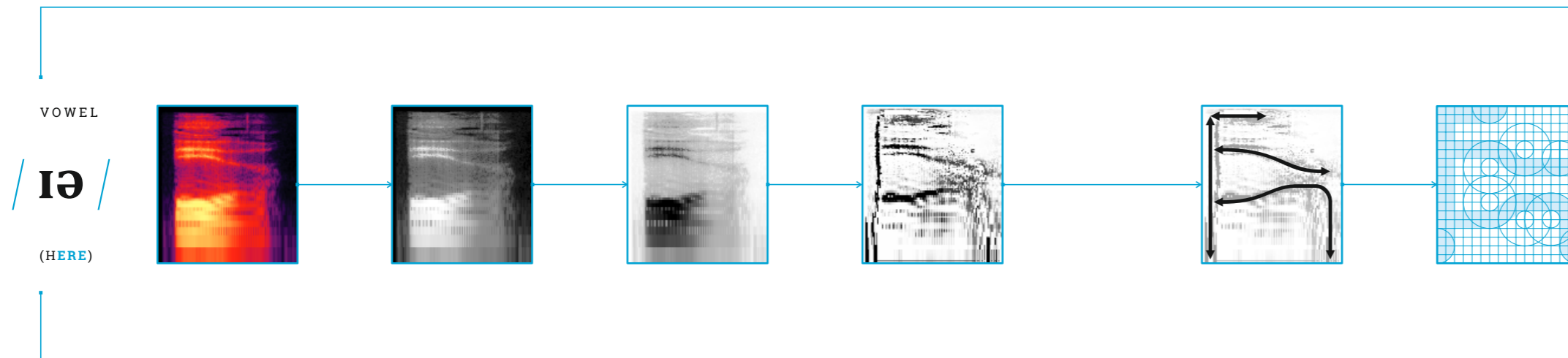
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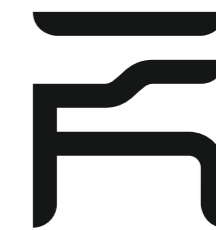
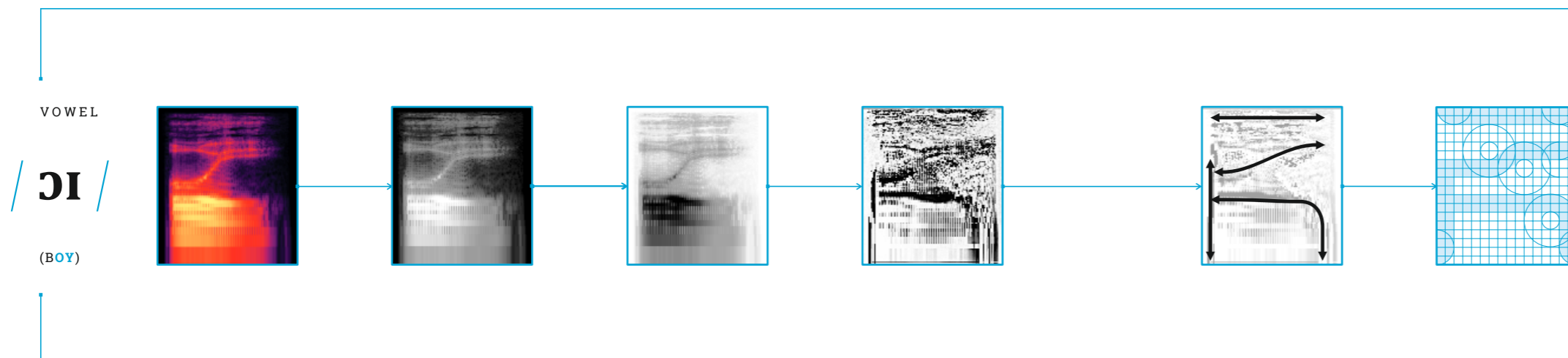
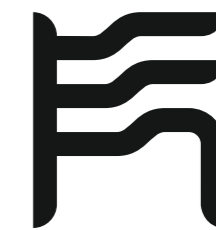
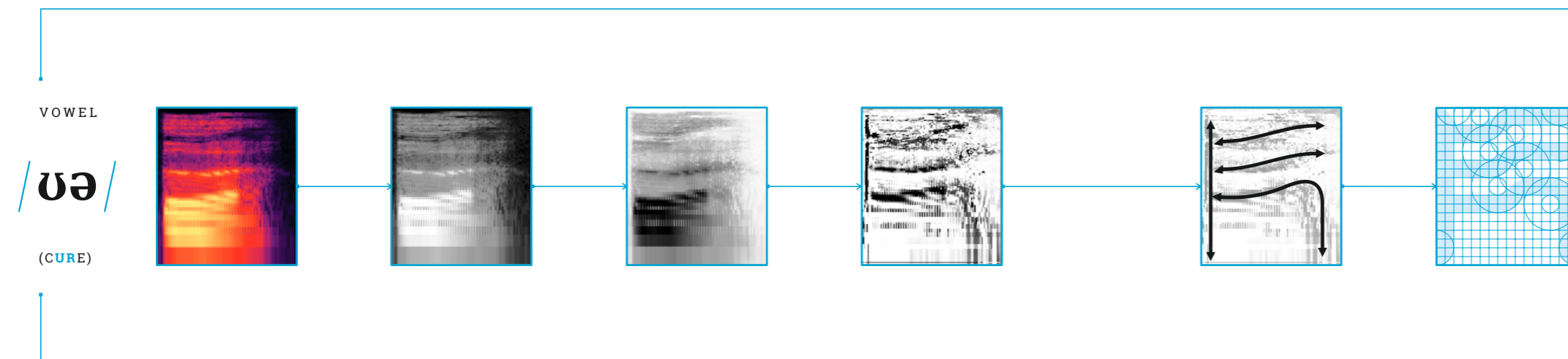
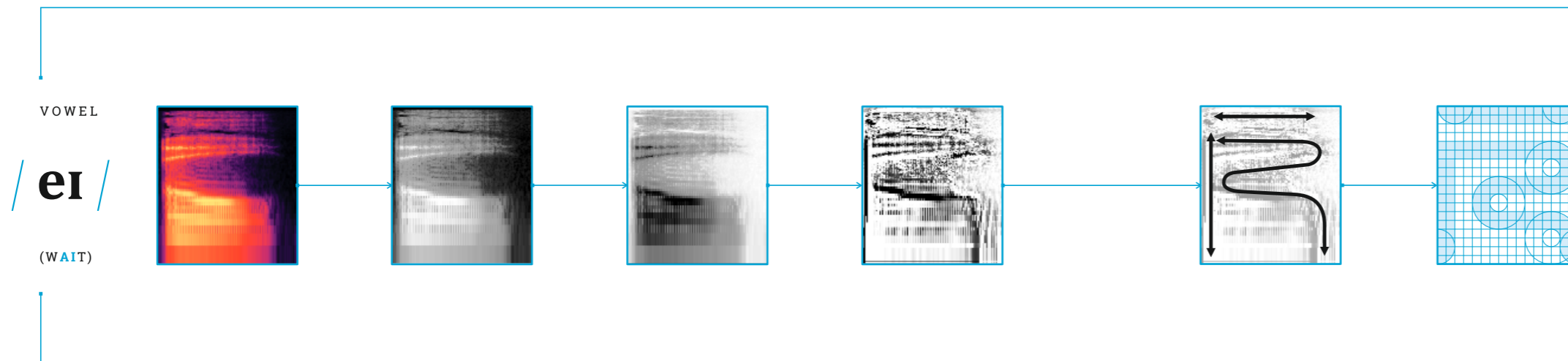
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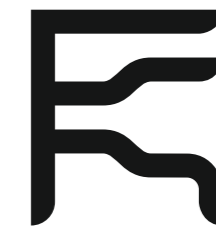
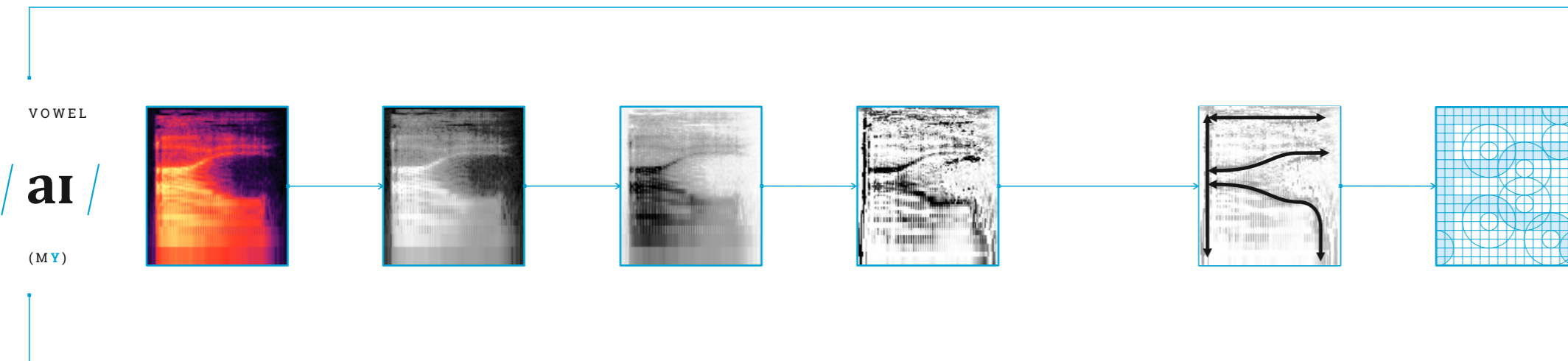
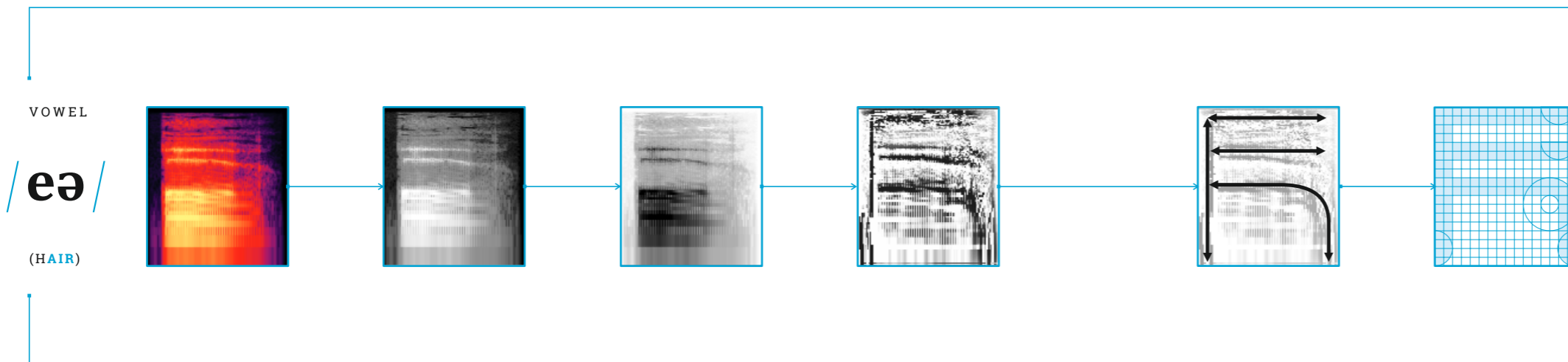
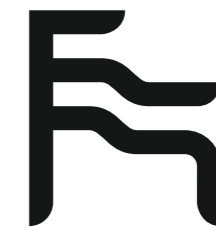
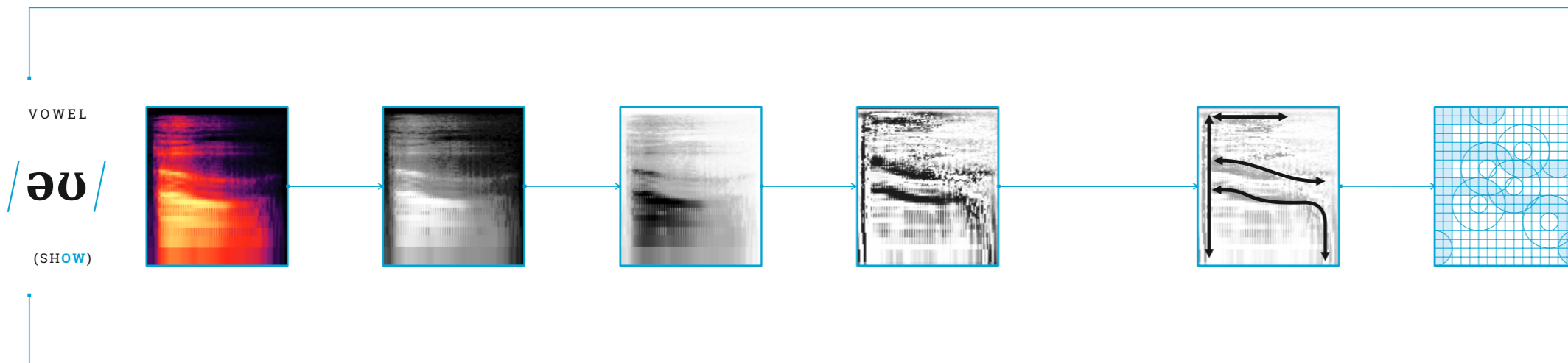


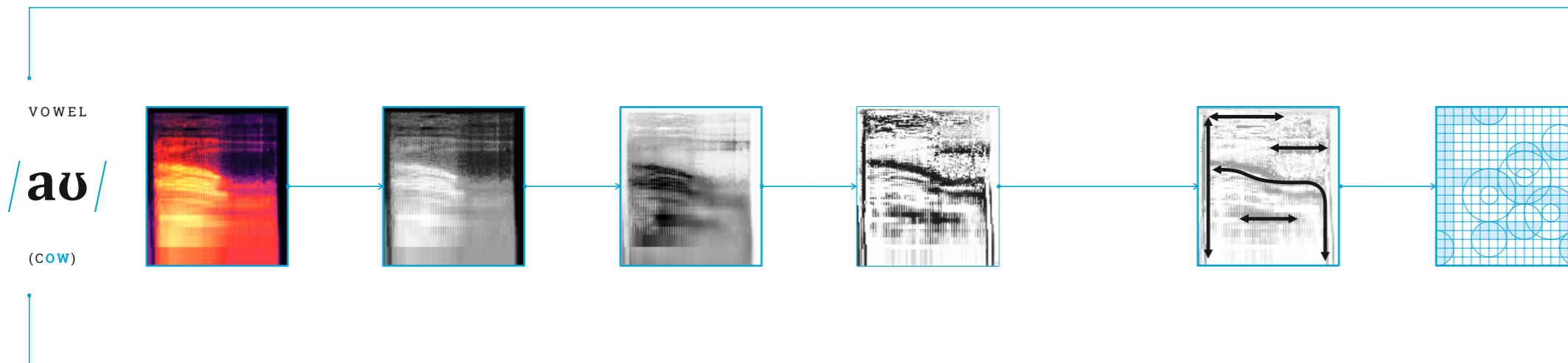
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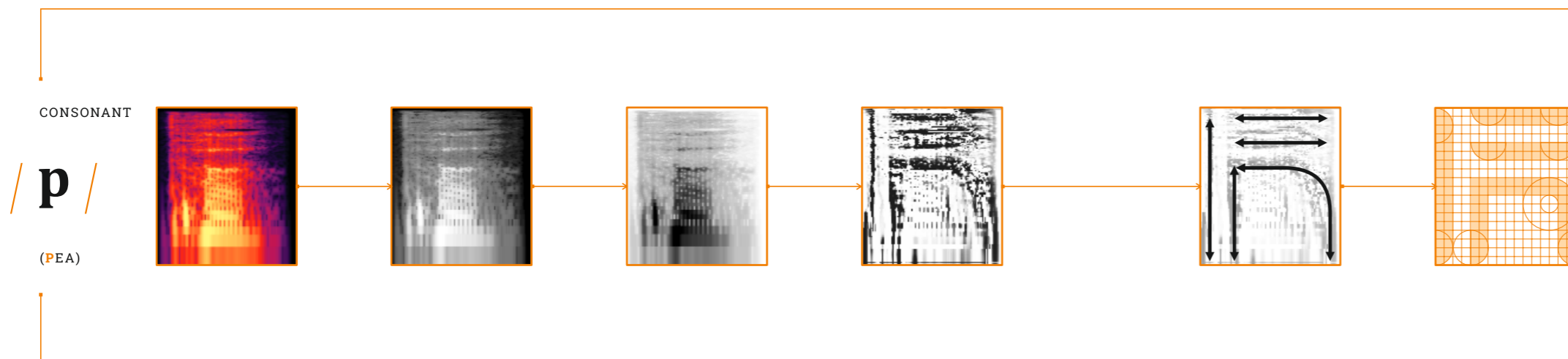
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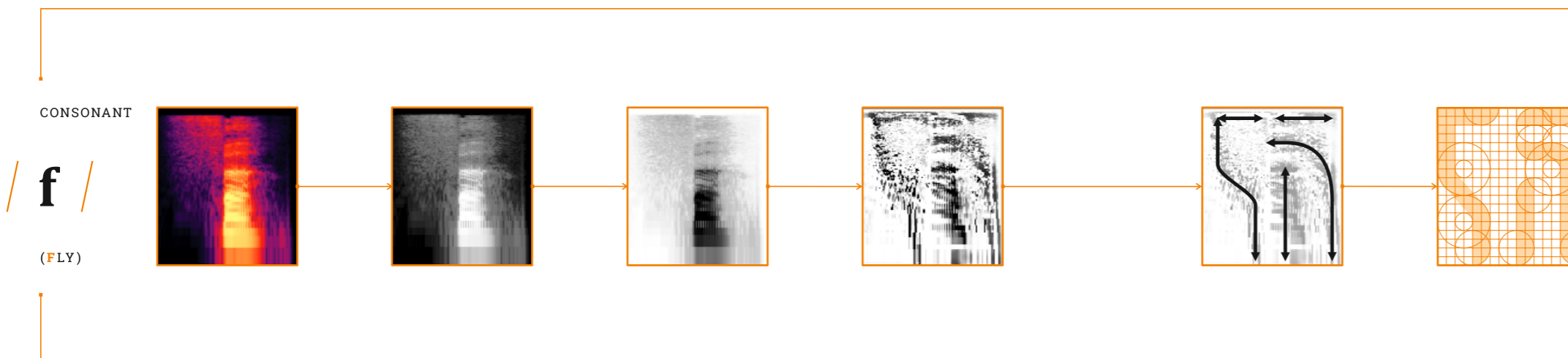




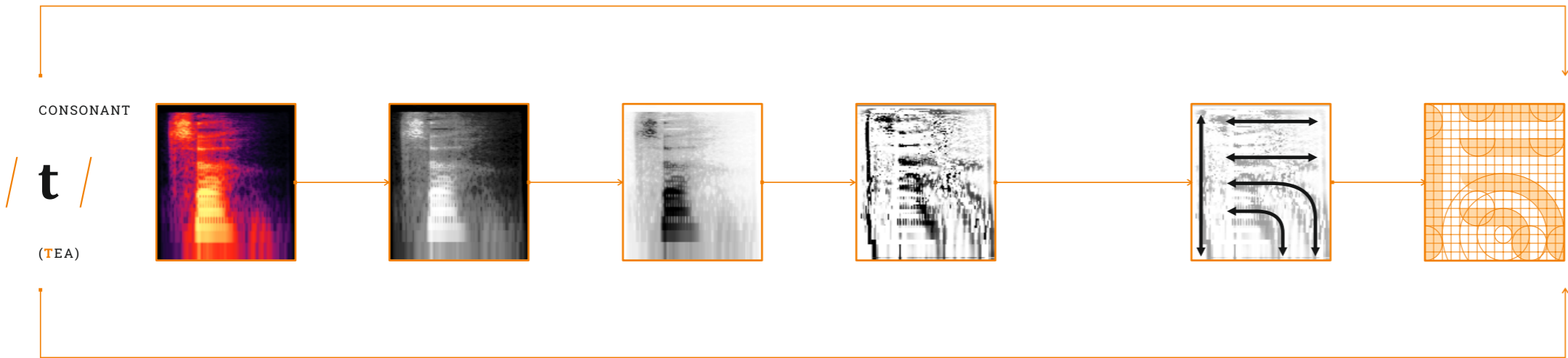
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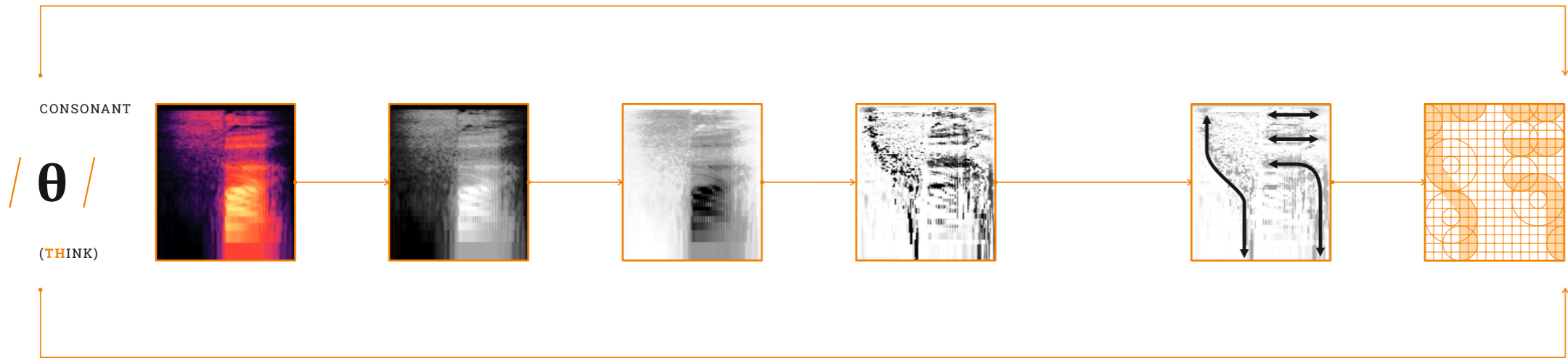
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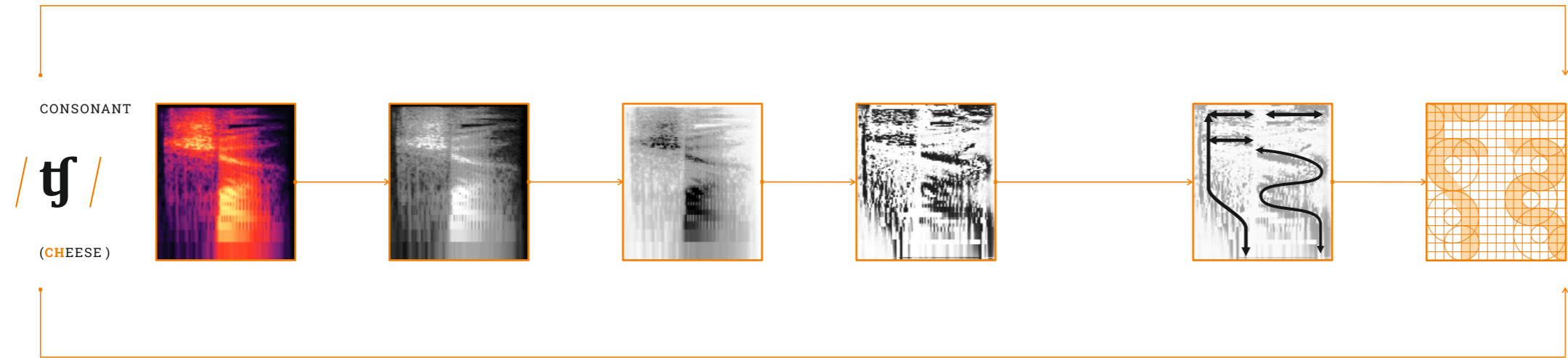
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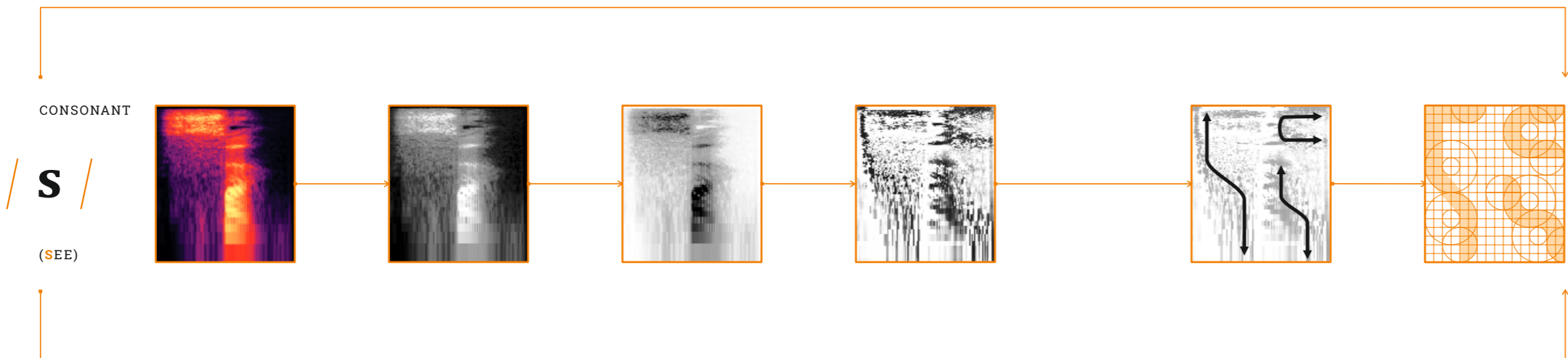
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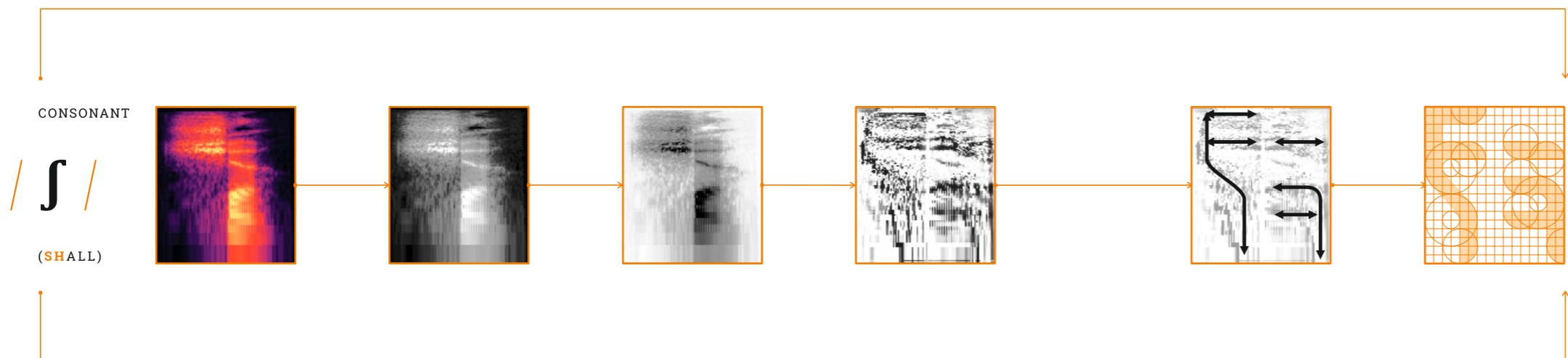
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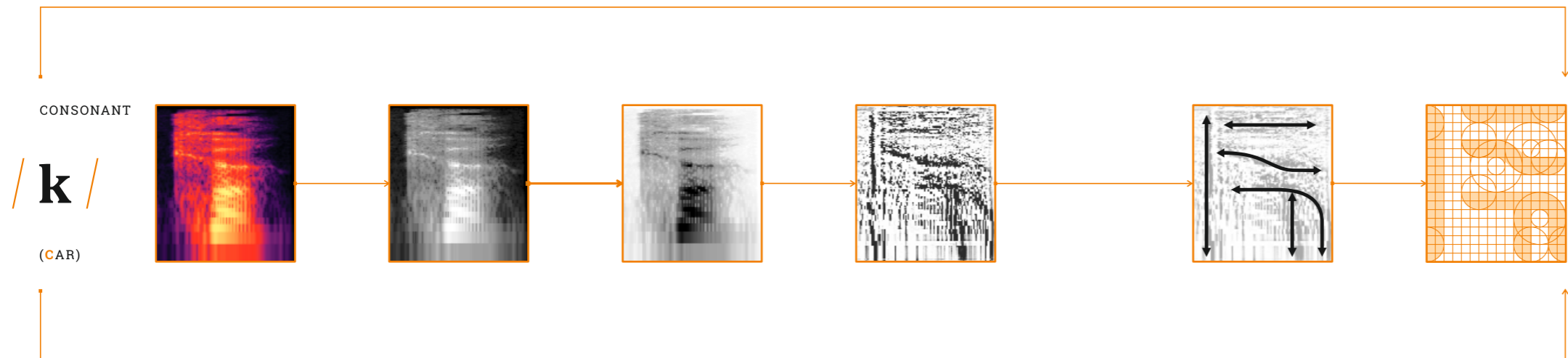
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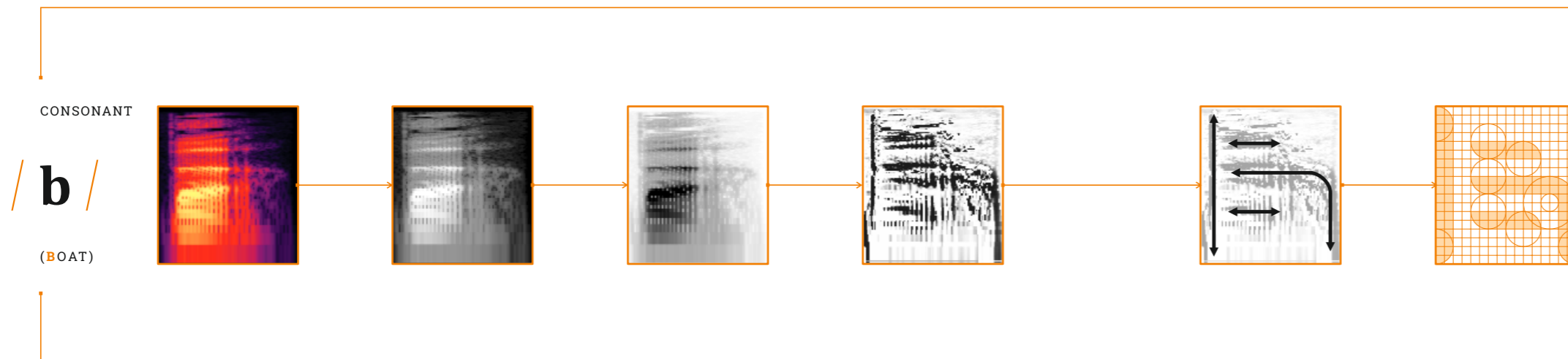
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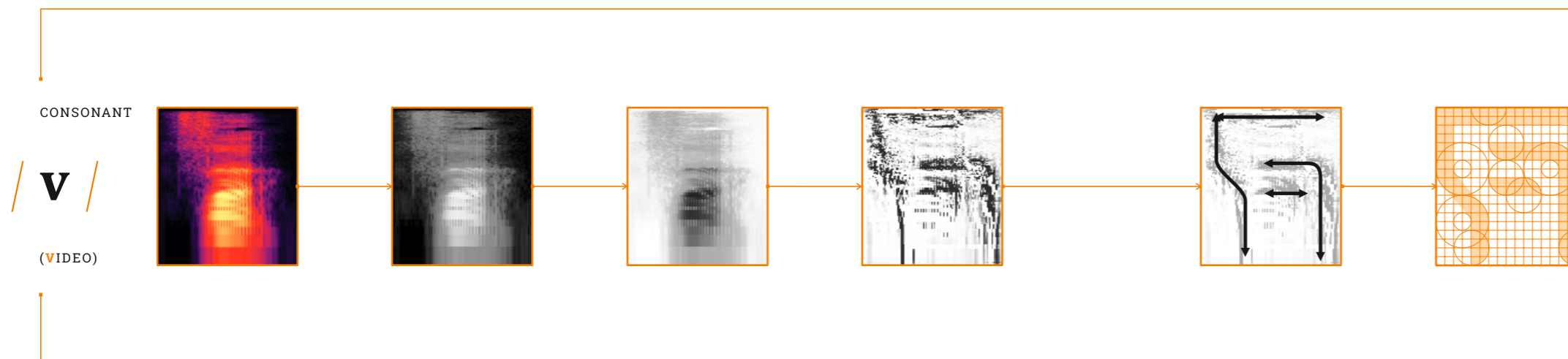
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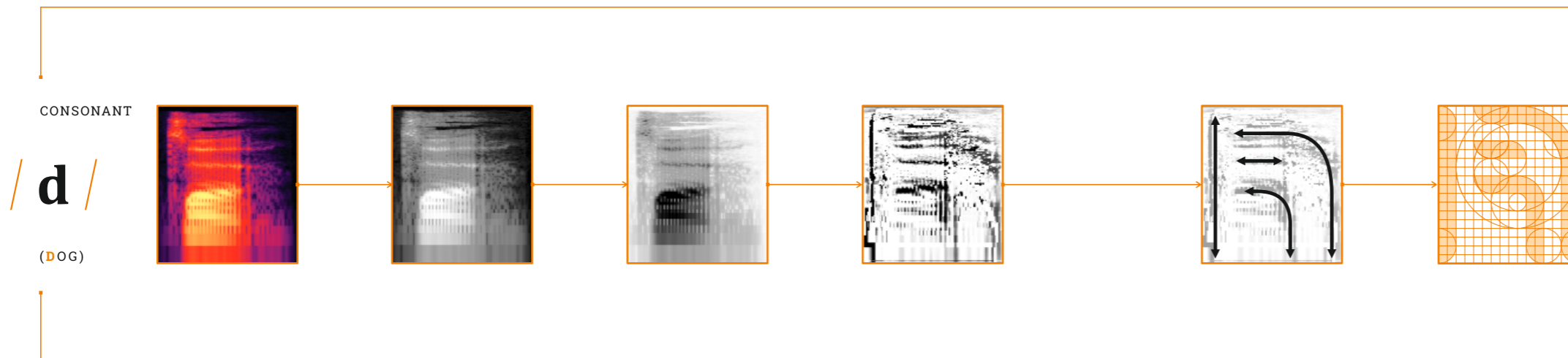
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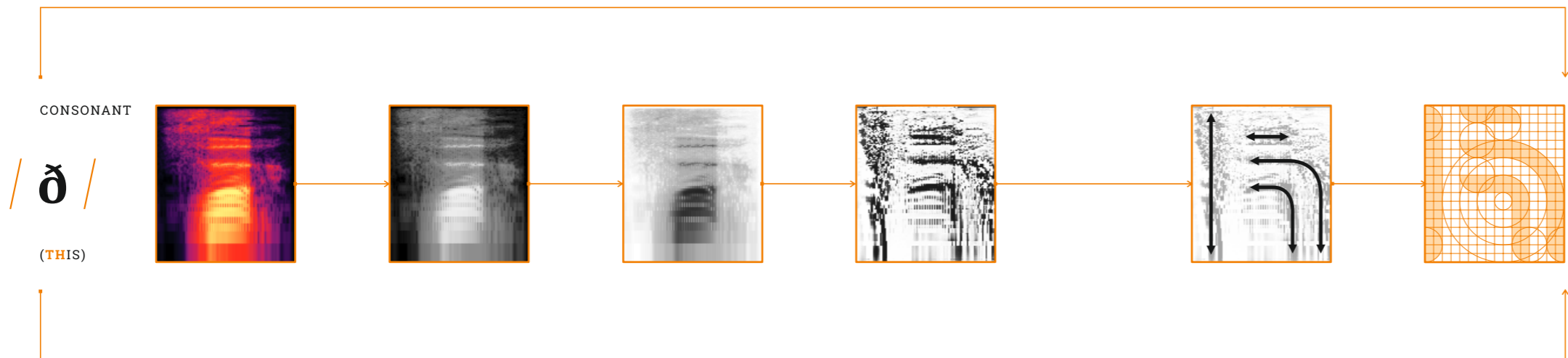
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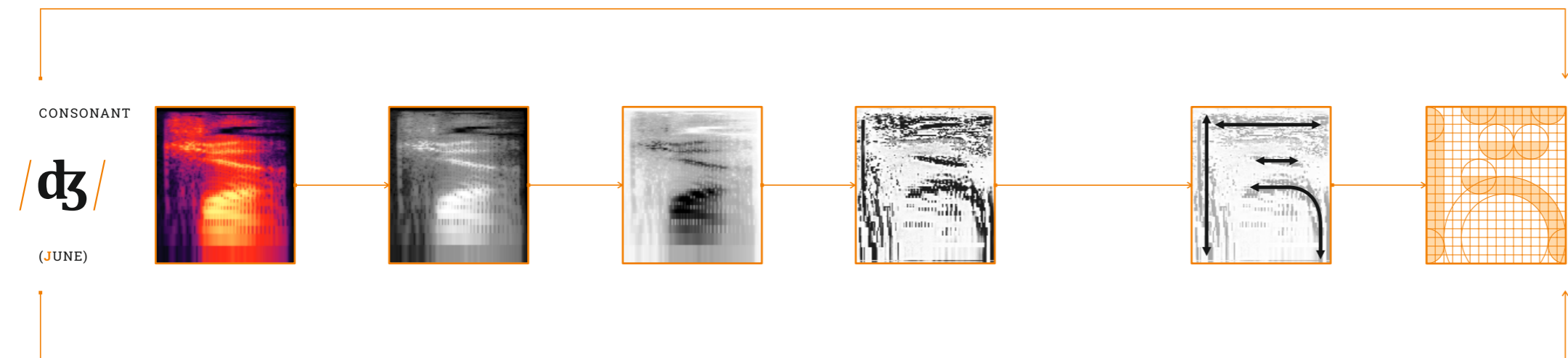
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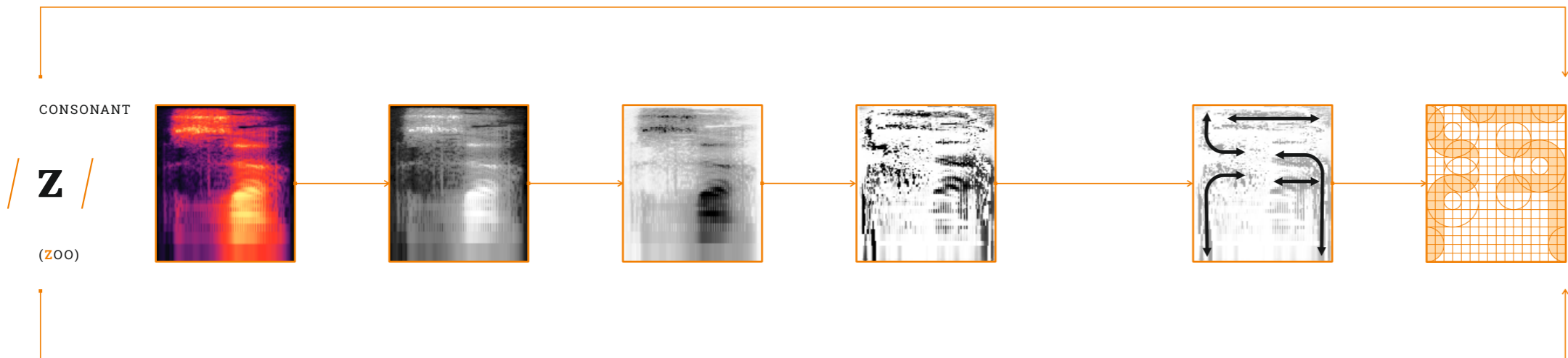
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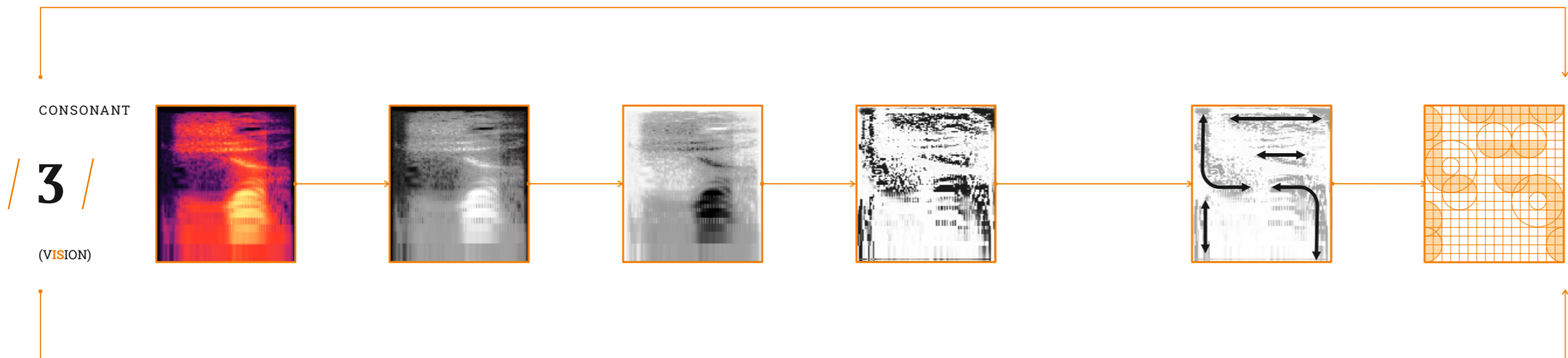
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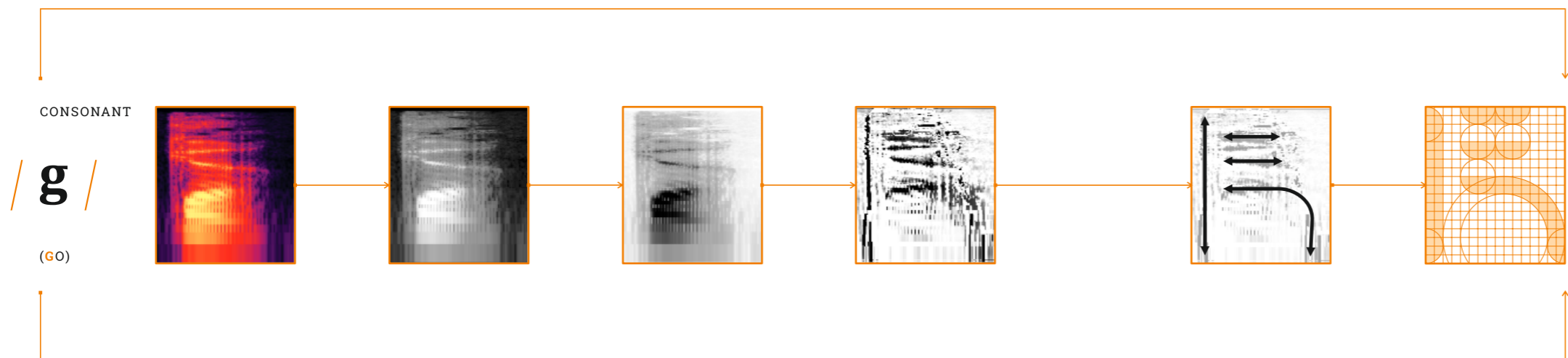
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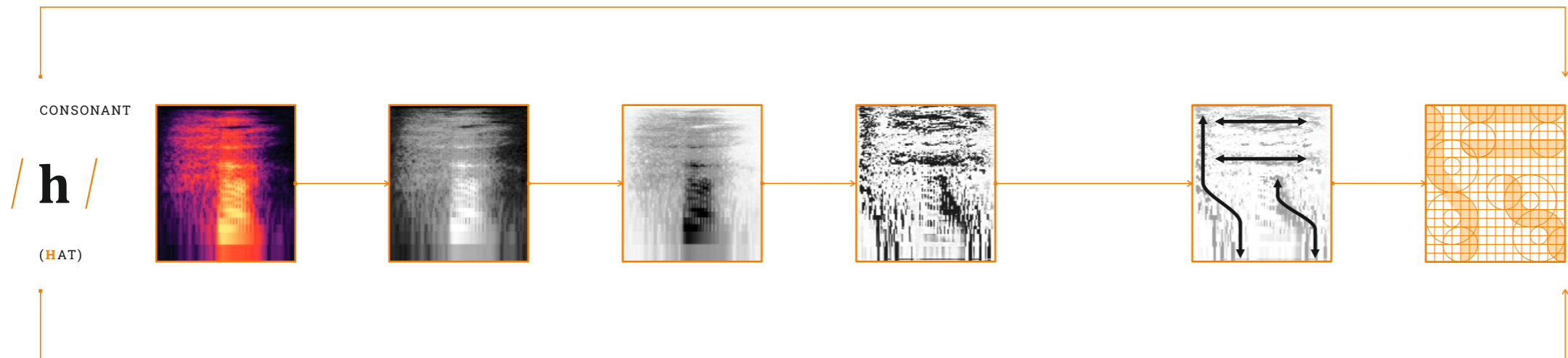
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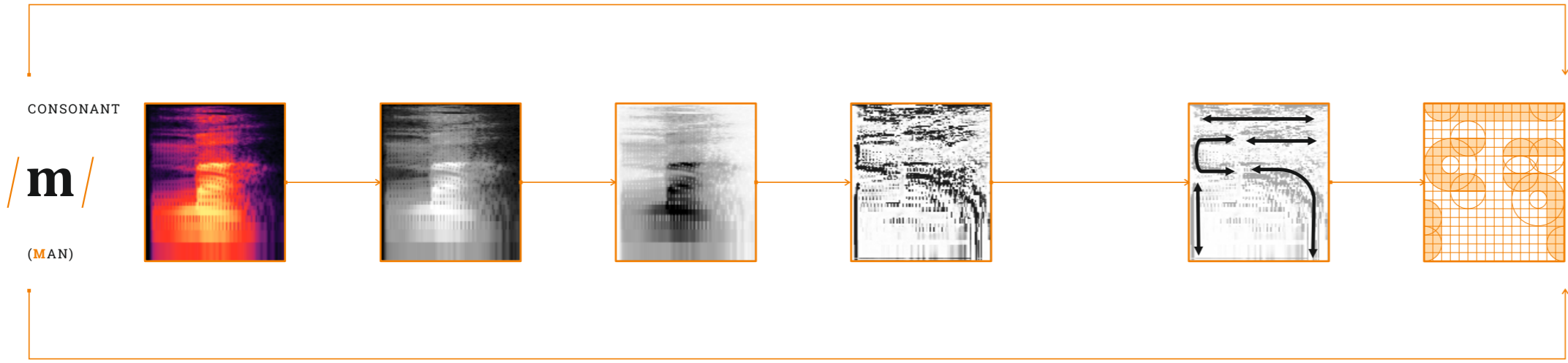
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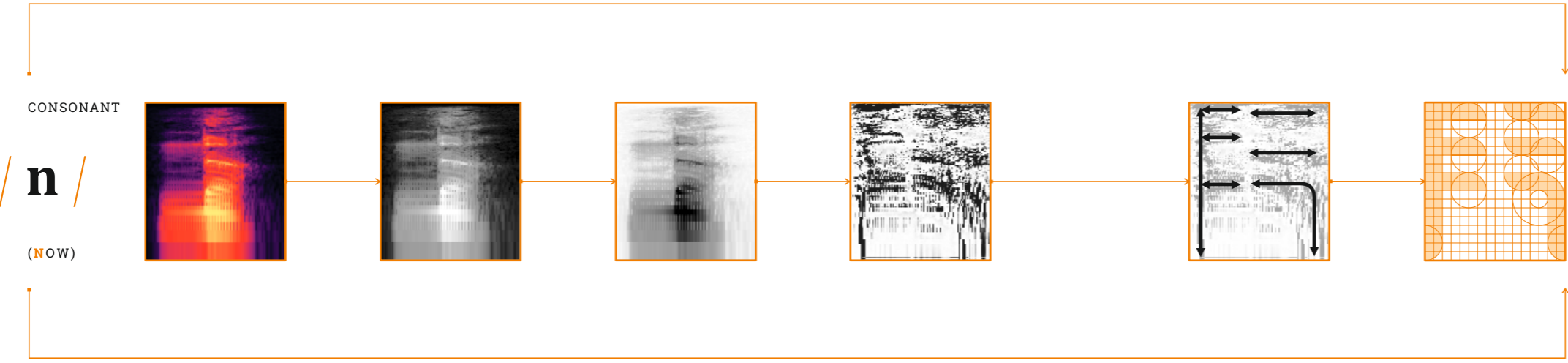
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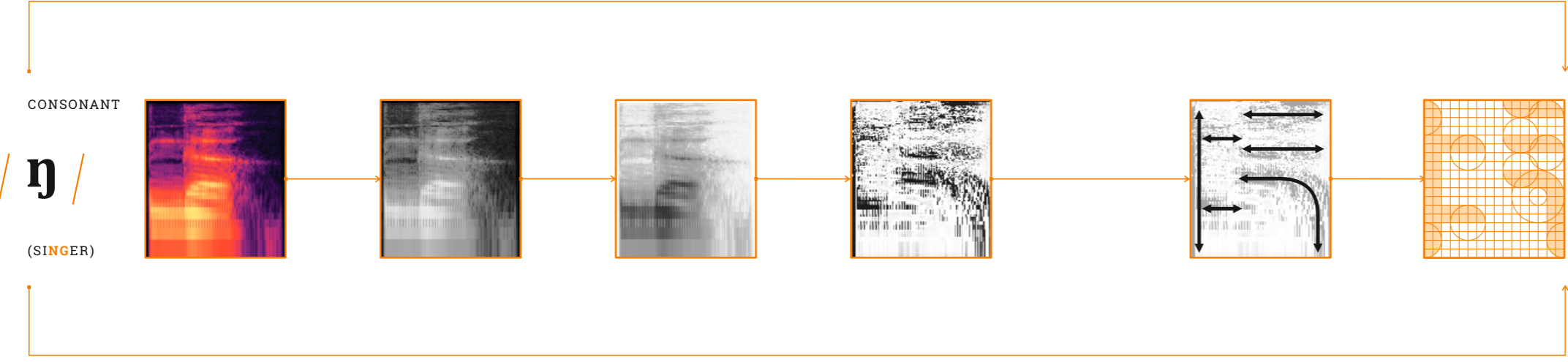
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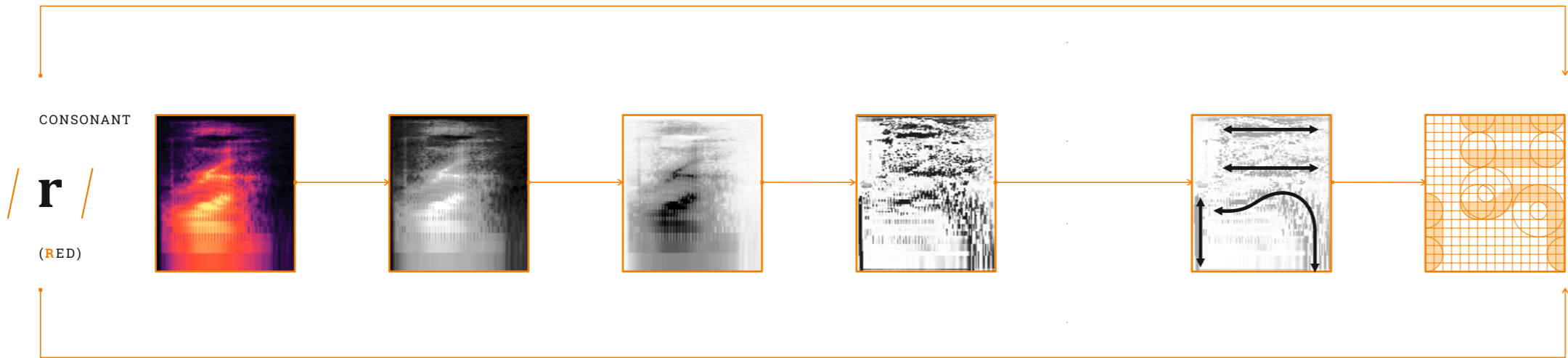
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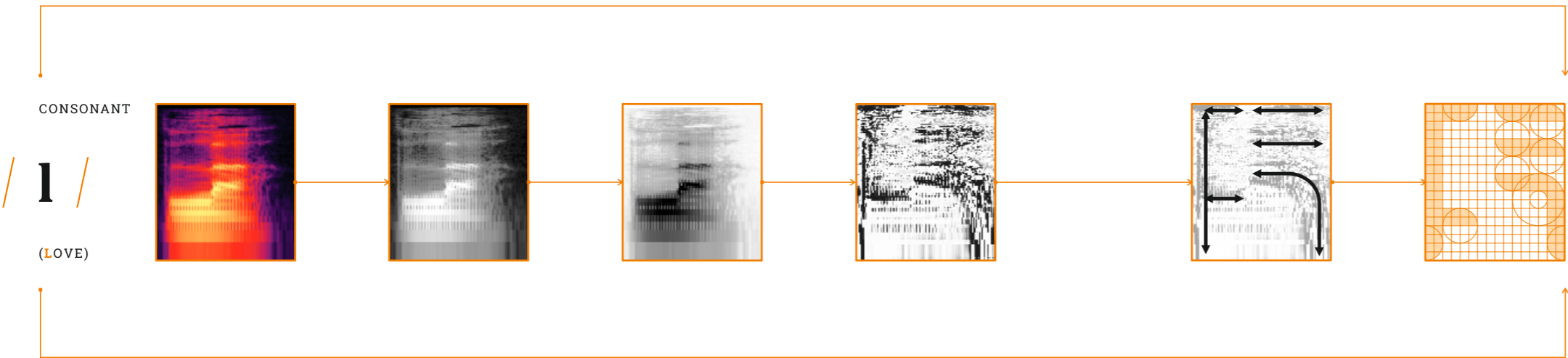
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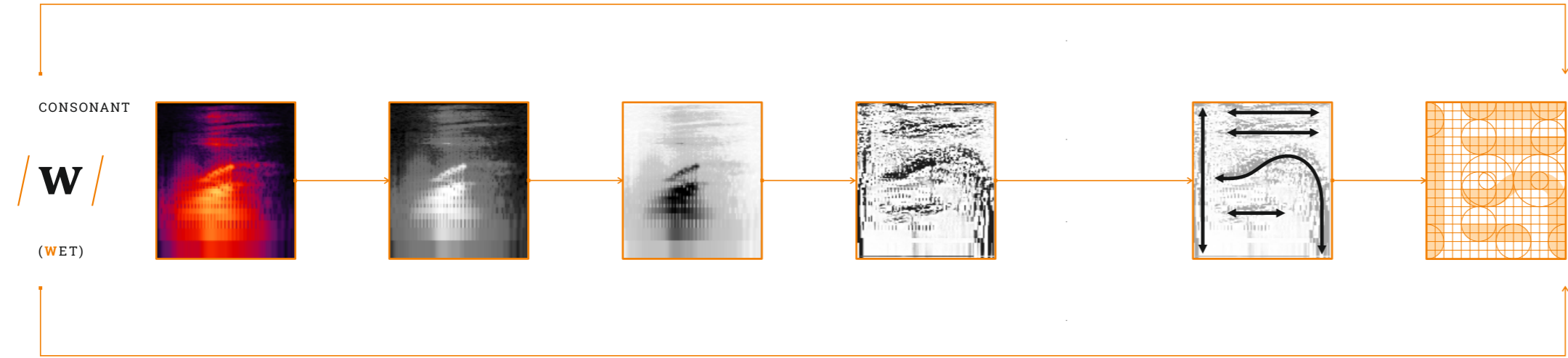
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