Programming Basics for Digital Accordions

(and Keyboards too!)

Understanding the Language of Sound Design

Class Objectives

- Learn the core language of sound design
- Understand how to combine voices creatively
- Build confidence to program and experiment on your own

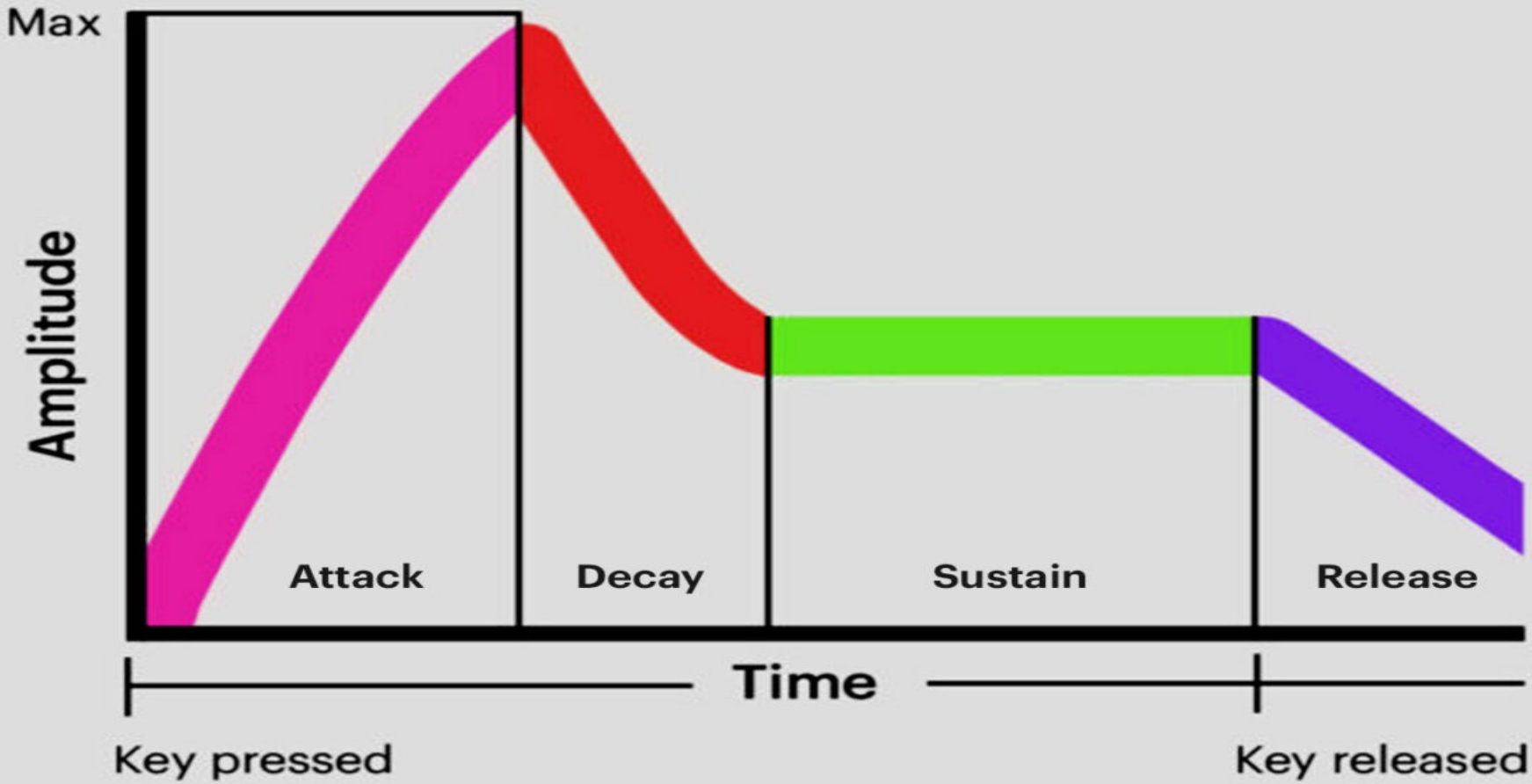
Before We Begin: Encouragement & Fun

- You can't really break anything — most instruments have a 'reset to factory settings' option.
- Everyone feels a little intimidated at first — it's like trying a new recipe, but it gets easier.
- Just take small steps — change one sound or setting and see what happens.
- Programming is about shaping your sound — your ears already know what you like.
- This is your chance to make your instrument truly your own.
- Good news — you can't break anything here! The worst thing that can happen is you end up with a sound you don't like… and we can fix that in seconds.
- Think of this as musical cooking — we're just adding a pinch of reverb, a dash of chorus, and tasting as we go.
- If you can change the station on your radio, you can change a sound on your instrument. It's that easy!
- Today we're not becoming programmers — we're becoming sound designers for our own music.

Key Sound Design Concepts

- ADSR Envelope: Attack, Decay, Sustain, Release
- Filter & Resonance: Brightness and character
- Velocity & Expression: Dynamics and touch
- Pan & Stereo Spread: Clarity and space
- EQ & Effects: Reverb, chorus, delay, and EQ shaping

ADSR Envelope



SETTING

SETTING		
Parameter	**Setting**	**Explanation**
Tone	*Tones list available for the selected section.*	Select the tone you want to assign to the current register. See "Tone List" (p. 102).
Volume	0 ~ 127	This parameter allows you to adjust the volume of the selected register.
Panpot	-64 ~ 0 ~ 63	This parameter allows you to set the stereo placement of the selected tone. "0" means no change, negative value shifts the instrument towards the left, and positive value shifts it towards the right.
Octave	+4 ~ 0 ~ -4	Choose whether to transpose the notes played when this register is selected.
Lowest Note	C ~ C2	This parameter allows you to specify the lowest note this register can play for the Chord and Bass/F. Bass L section. **NOTE** This parameter is only available in the registers of the "Chord" and "Bass/F. Bass L" sections.

SOUND EDIT

This page allows you to change the tone to your liking, arriving to create new sounds.

Take note that the parameters of the sound you want modify are of the part. This means that the same sound modified for the Treble part will sound different if selected from the Chord part.

In the example above, the "String Tape Rev" was selected.

SOUND EDIT		
Parameter	**Setting**	**Explanation**
Tone	*List of available Tones.*	Select the tone you want to edit. See "Tone List" (p. 102).
Attack	-64 ~ 0 ~ 63	This parameter allows you to change the attack envelope of the selected tone.
Release	-64 ~ 0 ~ 63	This parameter allows you to change the release envelope of the selected tone.
Cutoff	-64 ~ 0 ~ 63	This parameter determines the frequency at which the filter works (Cutoff) and how much it "boosts" the frequencies around the cutoff frequency.
Resonance		

SOUND EDIT		
Parameter	**Setting**	**Explanation**
MEMO The parameters in this list are not applicable to all tones. The display will show only the parameters applicable to the selected tone.		
Hammer-Noises	-64 ~ 0 ~ 63	This parameter adjusts the amount of noise caused by the hammer strike on the strings, amplified and sustained by the resonance of the piano body. *(Applicable to: Ac. Piano, Wurly, Harpsichord, Clavinet tones).*
Key Off Noise	-64 ~ 0 ~ 63	This parameter adjusts the amount of noise caused by the release of the keys, which causes mechanical noises proportional to the speed of the release itself. *(Applicable to: Ac. Piano, Wurly).*
Cabinet Reso	-64 ~ 0 ~ 63	Thanks to this parameter, you can increase or decrease the cabinet resonance. *(Applicable to: E. Piano, Wurly, Ac. Guitar, Mandolin, Harp)*
Bell	-64 ~ 0 ~ 63	The "bell sound" is characteristic of some electric pianos that became popular throughout the 1970s. You can adjust the quantity of this typical sound. *(Applicable to: E. Piano)*
Off Noise	-64 ~ 0 ~ 63	You can adjust the quantity of the noise effect that some instrument produces when the key is released. *(Applicable to: Clavinet, Harpsi, E. Piano, Elec. Bass)*
Percussion	-64 ~ 0 ~ 63	This parameter increase or decreases the volume of percussive sound. *(Applicable to: Double Bass&Ride)*
Amp Noise	-64 ~ 0 ~ 63	This parameter simulates the noise of the bass amplifier. *(Applicable to: 5 String Bass)*
String Noise	-64 ~ 0 ~ 63	This parameter simulates the resonance of the bass strings. *(Applicable to: Smooth Bass)*
Key Noise	-64 ~ 0 ~ 63	This parameter simulates the noise of Saxophone Key. *(Applicable to: Sax)*
Polyphonic	Low, High, Last, Poly	This parameter becomes useful when you use some solo instruments like flute, violin, saxophone, trumpet. **"Low"**: The part becomes monophonic and play the leftmost note you played. **"High"**: The part becomes monophonic and play the rightmost note you played. **"Last"**: The part plays monophonic. **"Poly"**: The part plays polyphonic. *(Applicable to: Soloist, Synth)*
Blow	-64 ~ 0 ~ 63	Blowing is possibly the most important part of any woodwind instrument. This parameter adjusts the amount of blowing in a flute sound. *(Applicable to: Flute)*
Growl	-64 ~ 0 ~ 63	This is a typical distortion of the sound during the phase attack that gives a "growling" effect. Thanks to this parameter, you can increase or decrease the effect. *(Applicable to: Clarinet)*
Pluck	-64 ~ 0 ~ 63	This parameter is used to emphasize the sounds of Pedal Bass. It works to emphasize the attack phase of the sound. *(Applicable to: Pedal Bass)*

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Resonance		

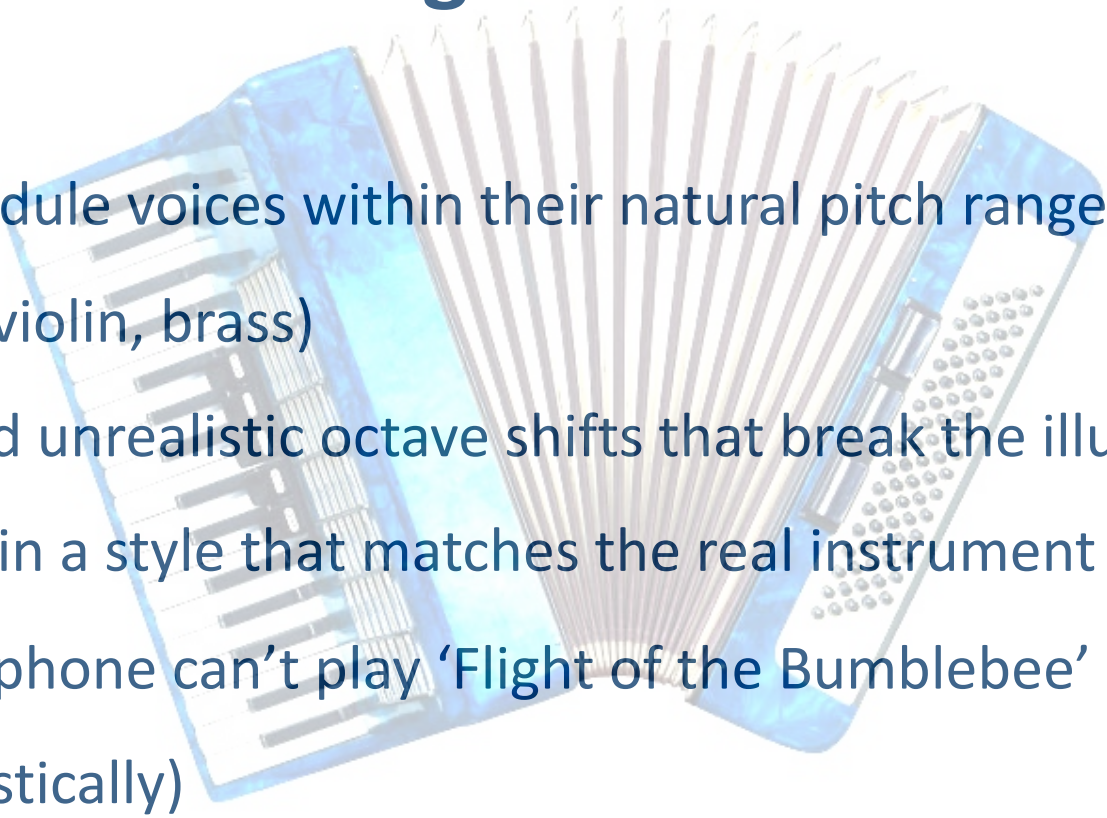
Building a Layer

- 1. Choose a primary voice (accordion, clarinet, strings)
- 2. Add a secondary voice for depth or texture
- 3. Balance volume and pan for clarity
- 4. Adjust attack and release for natural phrasing
- 5. Test while playing and tweak as needed

Programming for Playability

- Keep layers simple to avoid muddiness
- Set up smooth register changes
- Match expression curves to your playing style
- Balance left-hand bass/chords with right-hand voices

Instrument Ranges & Realism

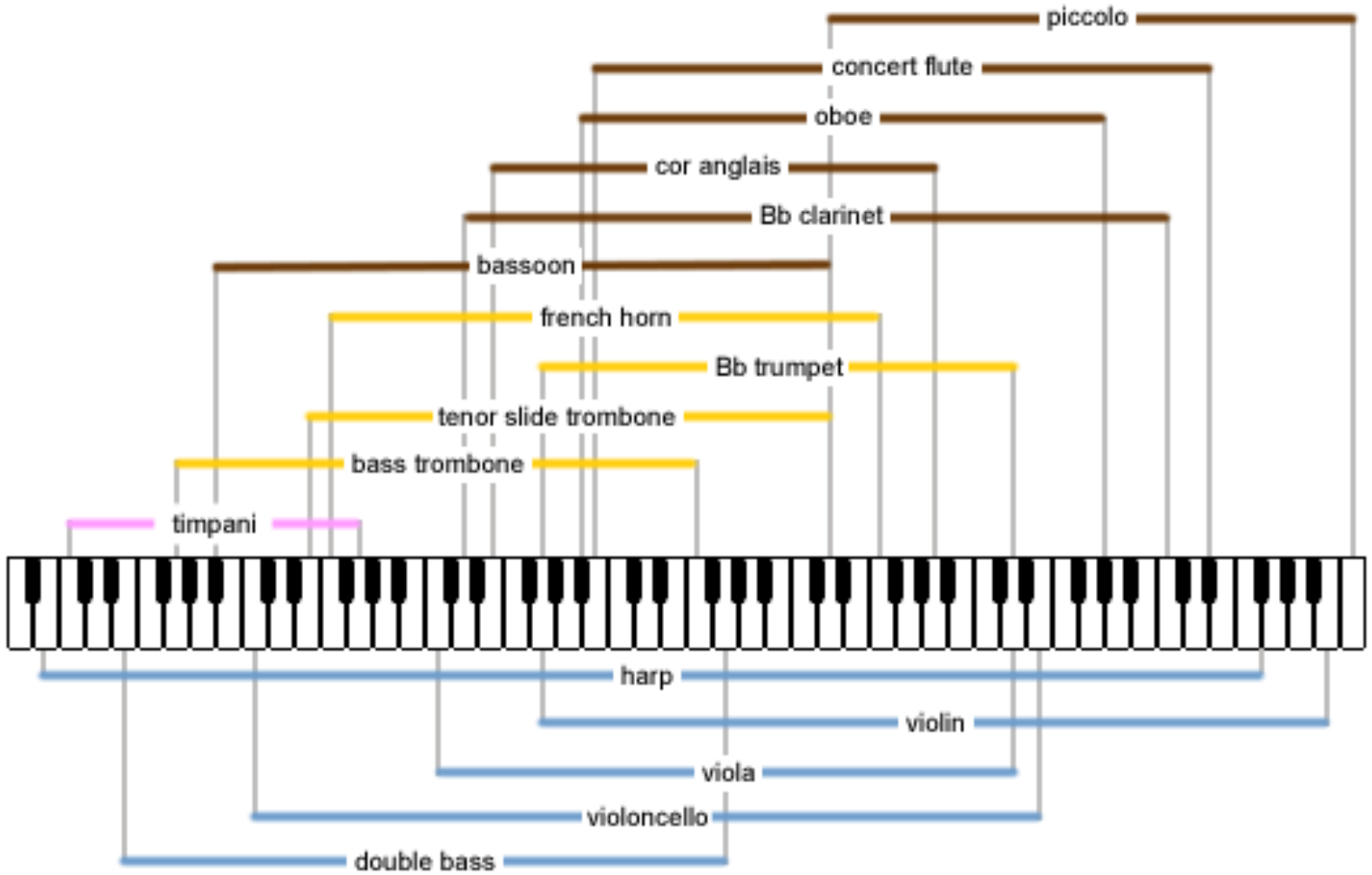


- Schedule voices within their natural pitch range (e.g.,
- sax, violin, brass)
- Avoid unrealistic octave shifts that break the illusion
- Play in a style that matches the real instrument (e.g.,
- saxophone can’t play ‘Flight of the Bumblebee’
- realistically)
- Use articulation and phrasing appropriate to the
- instrument you are emulating

Instrument Ranges on the Keyboard

- Keep voices in their natural pitch ranges
- Layer instruments realistically for ensemble sound
- Avoid octave shifts that break realism
- Play with phrasing that matches real instruments

Instrument Ranges (Diagram)



Checklist & Wrap-Up

- Set voice volumes & pan logically
- Adjust ADSR to match musical style
- Apply effects sparingly
- Save and name registrations
- Test transitions while playing
- Don’t consider this permanent – over time your ear will tell you to tweak it, and each time you do so the result improves.