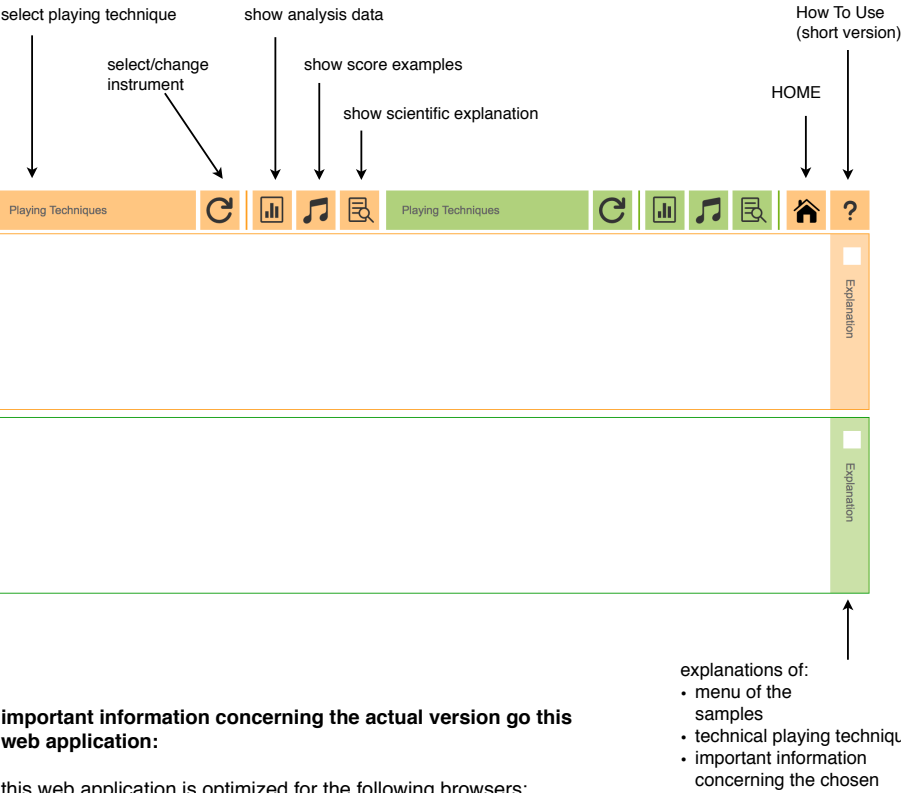


1. features

player instance 1: orange
player instance 2: green
they work independently from each other



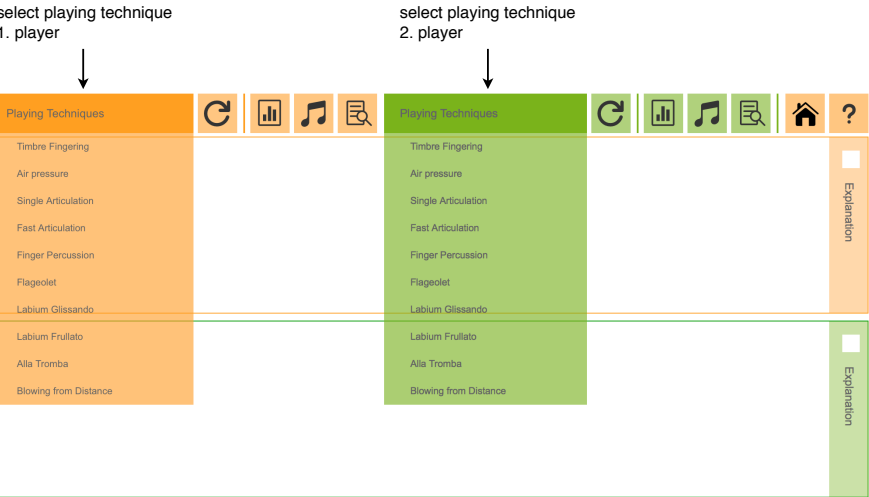
important information concerning the actual version go this web application:

this web application is optimized for the following browsers:
Safari : 8.08
Chrome : 45.0.2454.85
FireFox : 35.0.1 (not completely stable)

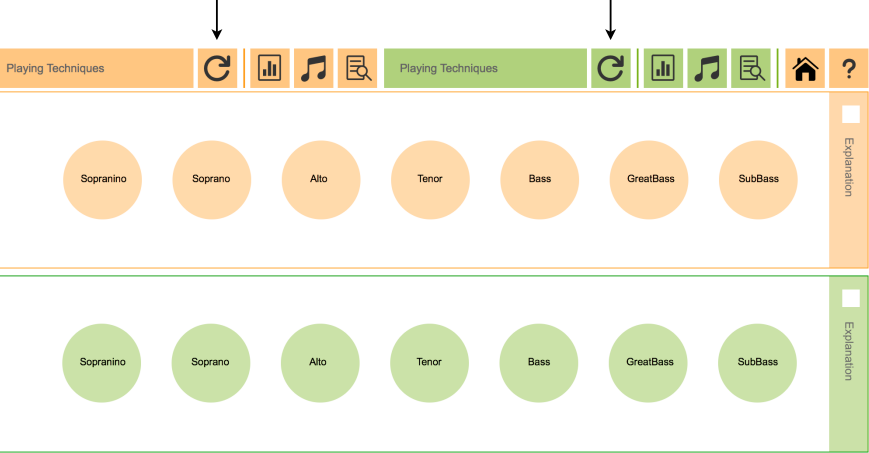
the following features are not installed yet (September 2015):

- analysis data
- score examples
- scientific explanation

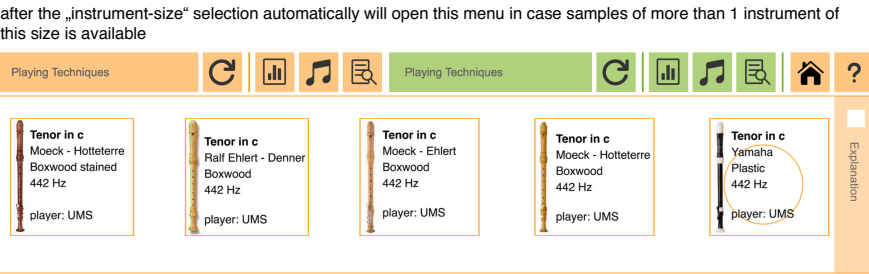
2.1 select playing technique



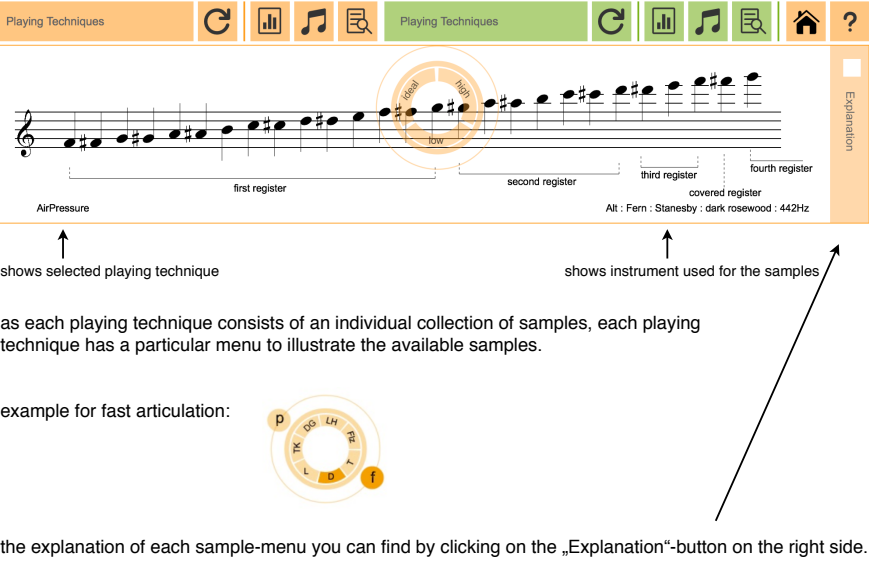
2.2.1 select instrument size



2.2.2 select instrument type - not yet available



2.3 play the samples - click on a note to open the



CONTENTS:

It is important to be aware that the quality of each single sound is influenced by a combination of different components. First it is important to understand the behavior of each single component on its own, before focussing on their relations and dependences and their behavior and result in the sound production.

in our research project, we focus on the following 4 main components with their subcomponents:

- a) **model** (size and type (inner bore)) and material of the instrument
 - tuning pitch base - (A4 = 440 or 415 or 396) - tuning system (equal temperament, historical temperaments)
 - voicing (form of the wind channel, window size, form of the labium and chamfer)
- b) **air**
 - airspeed
 - blowing pressure
 - direction of the airstream
- c) **mouth/articulation**
 - different positions of the tip of the tongue in the mouth
 - speed/movement of the tongue
 - vowel-shape of the mouth (combination of a general lip and tongue position)
- d) **fingers**
 - keys/holes
 - completely/partly open/closed holes
 - movement of the finger
 - timbre/alternative fingerings

In order to understand the role of each single component, the 4 first playing techniques of the web application focus on the behavior of the single components:

- **timbre fingerings**
 - fixed tuning pitch to equal temperament A4=442
 - indicated fingerings
 - blowing pressure adapted to achieve the exact pitch
 - articulation adapted to get the fingering sounding at the used blowing pressure
- **airpressure**
 - using standard fingerings
 - 3 levels of blowing pressure:
 1. low: the lowest possible blowing pressure for the used fingering to produce a sound in the intended register
 2. ideal: the blowing pressure with which the used fingering resonates best on the instrument
 3. high: the highest possible blowing pressure possible on the used fingering
 - articulation adapted to get the fingering sounding at the used blowing pressure
- **single Articulation**
 - using standard fingerings
 - 2 levels of blowing pressure:
 1. medium low = „piano playing“
 2. medium high = „forte playing“
 - 6 different levels of tonguing/lip position:
 1. diaphragm attack
 2. soft articulation (tongue position: L)
 3. medium articulation (tongue position: D)
 4. strong articulation (tongue position: T)
 5. open articulation (tongue position: T and lips do not cover the wind way completely)
 6. sputato (tongue position: T with a big movement of the tongue, lips is the position for „E“)
- **fast articulation**
 - using standard fingerings
 - 2 levels of blowing pressure:
 1. medium low = „piano playing“
 2. medium high = „forte playing“
 - 7 different levels of tonguing/lip position:
 1. soft articulation (tongue position: L), is fast repetition (tongue vibrato)
 2. medium articulation (tongue position: D) in fast repetition
 3. strong articulation (tongue position: T) in fast repetition
 4. soft double tonguing (tongue position: L-H) in fast repetition
 5. medium double tonguing (tongue position: D-G) in fast repetition
 6. strong double tonguing (tongue position: T-K) in fast repetition
 7. flutter tonguing (tip of the tongue)

(samples of different replica of baroque models adapted to a *pitch basis* of A4 = 442 Hz):

The following extended playing techniques, which are influenced by additional features, that are not covered by the main components:

- finger percussion (2 levels: lowest finger and most resonant finger)
- flageolet (under blowing)
- labium manipulation
- blowing from distance
- alla tromba
- air glissando (could be integrated in „air pressure“)