

Raphaël Belfiore

Abstractive Extensive Studies / 2024

written for JACK Quartet

Abstractive Extensive Studies is a set of four diagrammatic scores for four string instruments. They are variations on a single gesture consisting of the simultaneous covering of the strings' and bow's full lengths. The first study involves multiple occurrences of this gesture. The three subsequent studies are transformations of it in order to approximate a specific point on either the strings or the bow, and eventually both.

The writing of this piece follows from considerations on the epistemological foundations of music and their originary connection to string instruments. Ancient western musical theory, particularly in its Pythagorean form, drew from the divided string not only the principles for musical harmony, but also the proportional laws of the cosmos itself. The string instrument was therefore both a sound generator and an instrument for knowledge production.

The present studies try to prolong this double role of the musical instrument. They are based specifically on the thinking of mathematician-philosopher Alfred North Whitehead. Whitehead's theory of nature, aiming to be compatible with the state of relativistic physics at the end of the XXth century, contains a spatiotemporal theory in which both space and time are considered abstractions of our lived experience and not absolute and inflexible forms in which nature takes place. Instead of a space composed of points and a time composed of instants, both of the notions of point and instant appear as ideal limits of processes of abstraction that originate in the perception of movement. They involve the progressive diminution of temporal or spatial extensions of movements in order to approximate ideal limits within them. The «method of extensive abstraction» is Whitehead's appellation for this process.

The title of these studies is thus a direct reference to this mental gesture. They present an external model of it and its auditive implications. They are thus an attempt to understand what it means to think through and with instruments. More generally, these studies are embedded in meditations on types rationality going across the arts and other fields of abstract and concrete knowledge.

Performance notes:

- The exact duration of the studies (and therefore the number of steps of approximation) are determined during rehearsals.
- All instruments should be held like violoncellos and the bow should be moved with both hands. The instruments and the performers' actions should be as visible as possible. (For example: music stand blocking the audience's sight should be avoided.)
- The endings of each study are decided on the moment of their performance, when all interpreters signal that they are finished with the process.
- The specific points to be approximated can be determined in advance or on the spot. Markings on the bow or on the fingerboard are welcome.
- The incrementally small steps of approximation must not be determined with measuring tools. Rather, they should be empirically carried out in the moment.

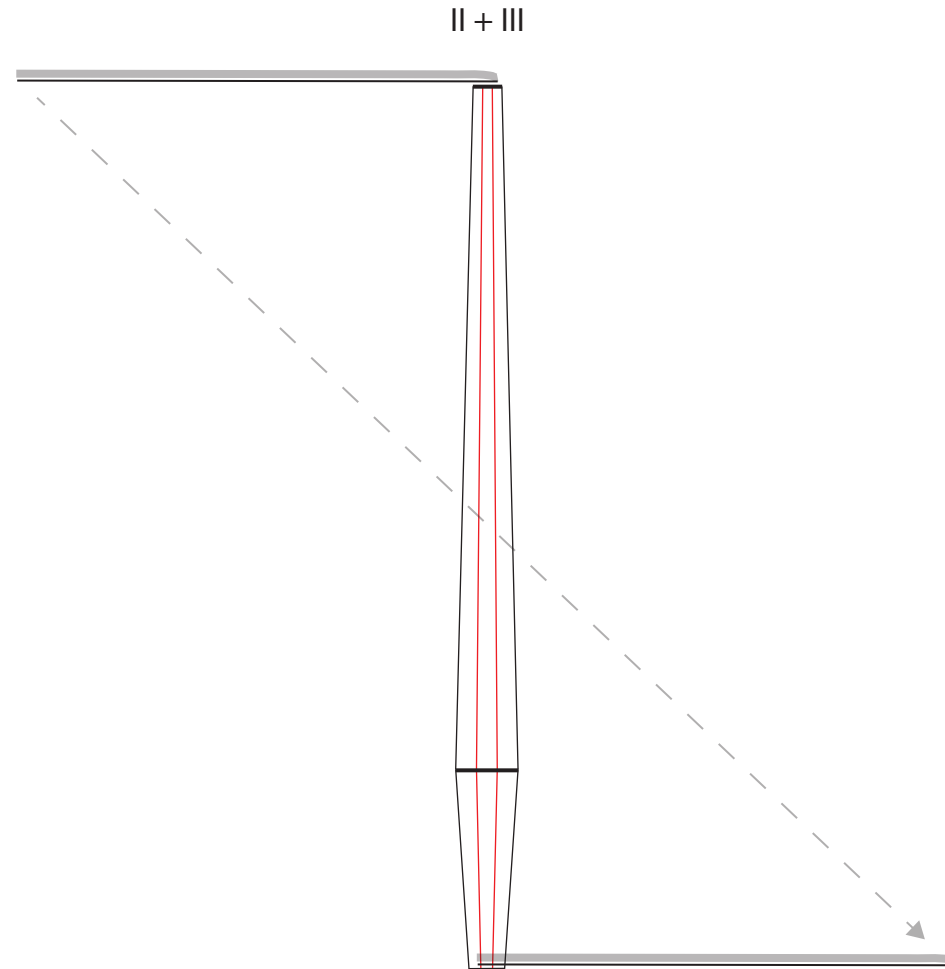
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A – Initial Gesture

Vn^1 , Vn^2 , Vla, Vc

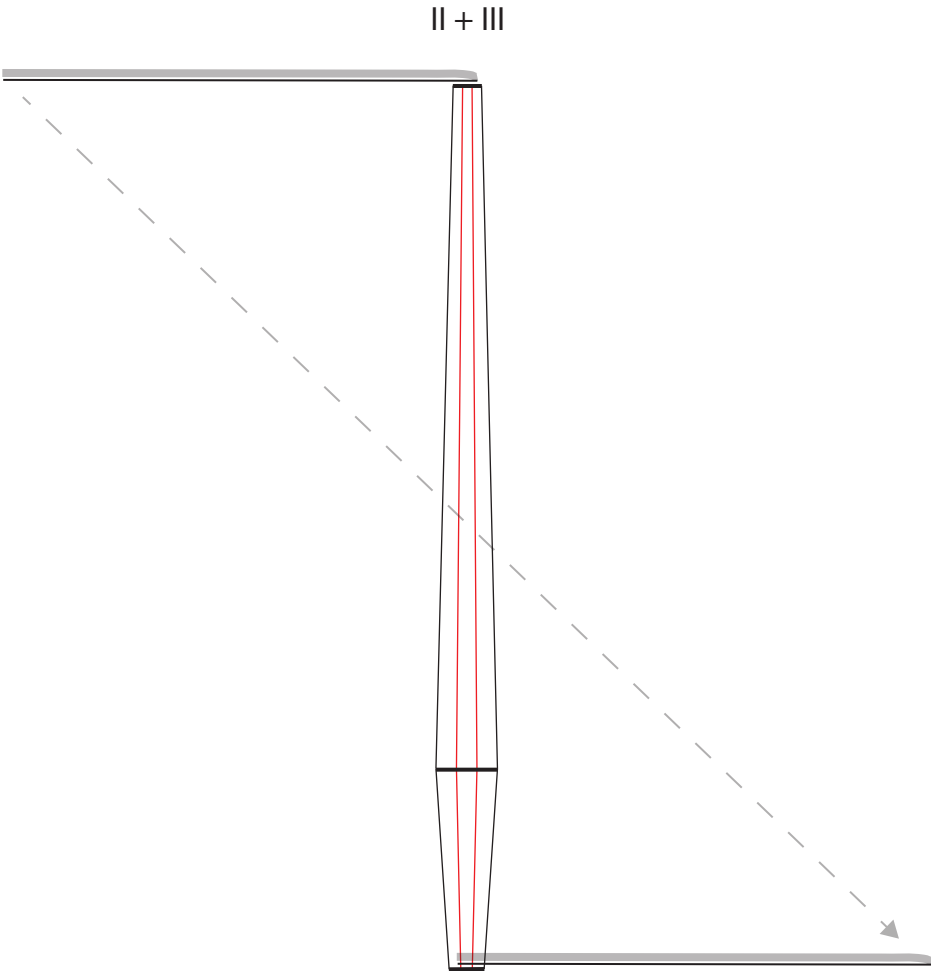
The sound production consists in the moving of the bow from its tip to its frog while covering the whole accessible length of the second and third strings of the instrument. Bow and string should be as perpendicular as possible. The gesture should be performed in an uniform way.

Each performer carries out the gesture a number of times independently at their own (rather slow) speed. Pauses between repetitions are free.



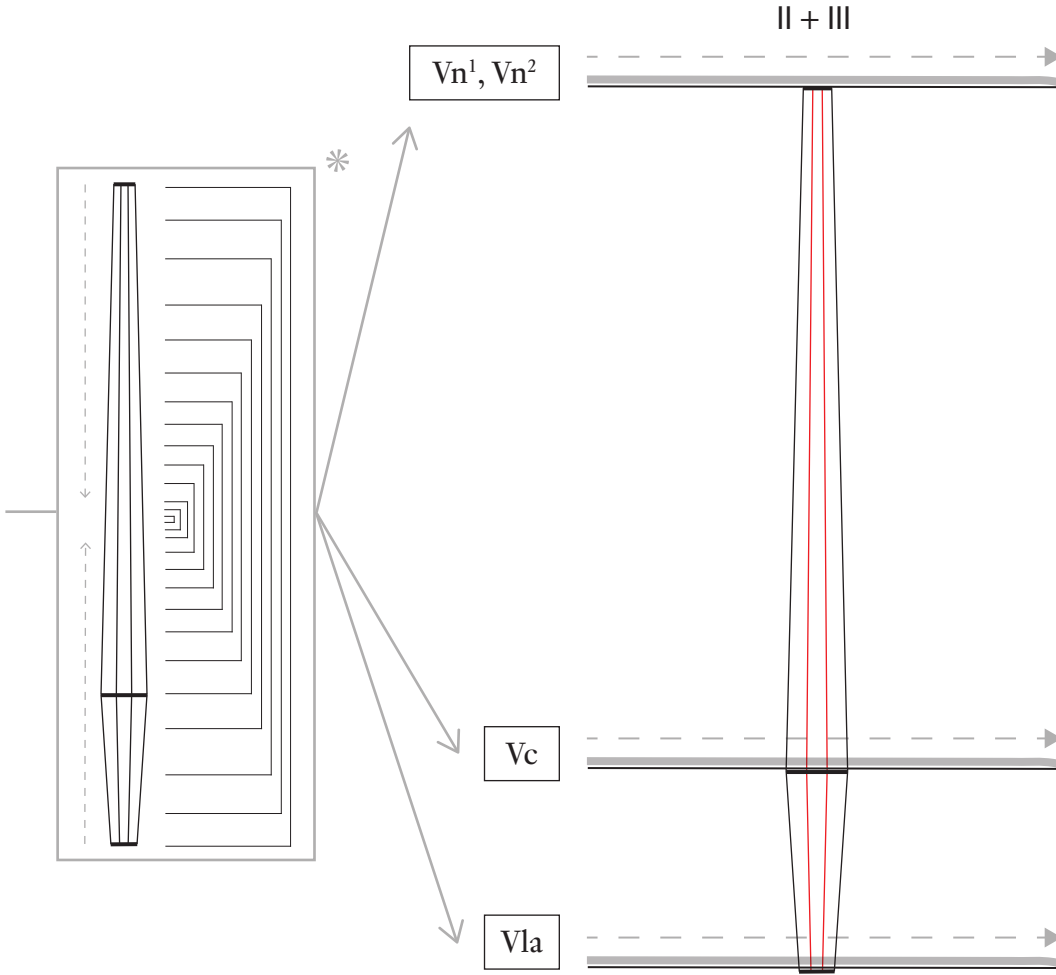
B – First Approximation

Vn¹, Vn² & Vla & Vc



From the initial repeated gesture, the instrumentalists approximate progressively through repetition a specific point on the full accessible length of the string. Each gesture covers a smaller distance on the string while still covering the full length of the bow.

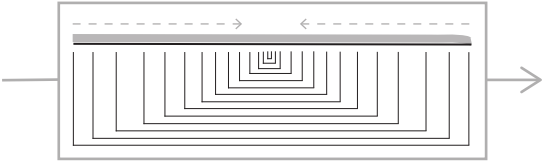
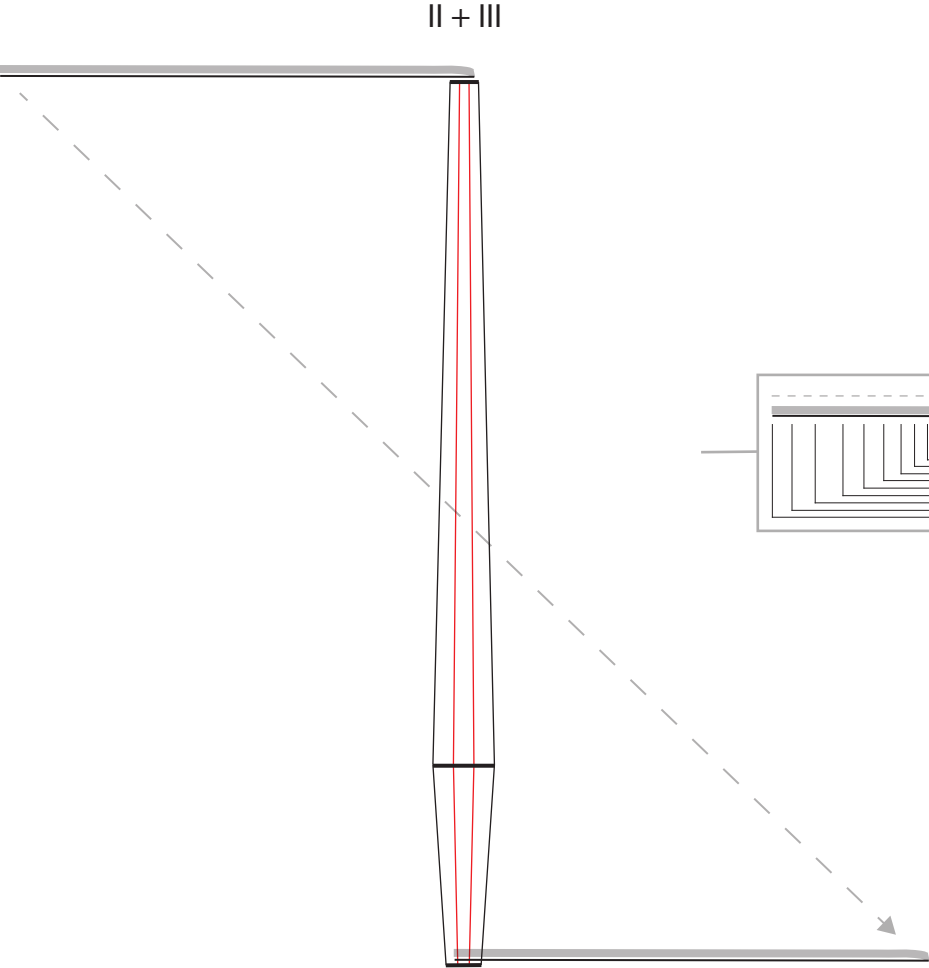
Vn¹, Vn²: as close as possible from the beginning of the open string.
Vla: as close as possible from the end of the open string (including twine)
Vc: as precisely on the bridge as possible.



* This diagram corresponds to the general idea of progressively narrowing down the length of one dimension of the gesture. The middle points of the string/bow are here depicted to give a clear visual intuition of the process.

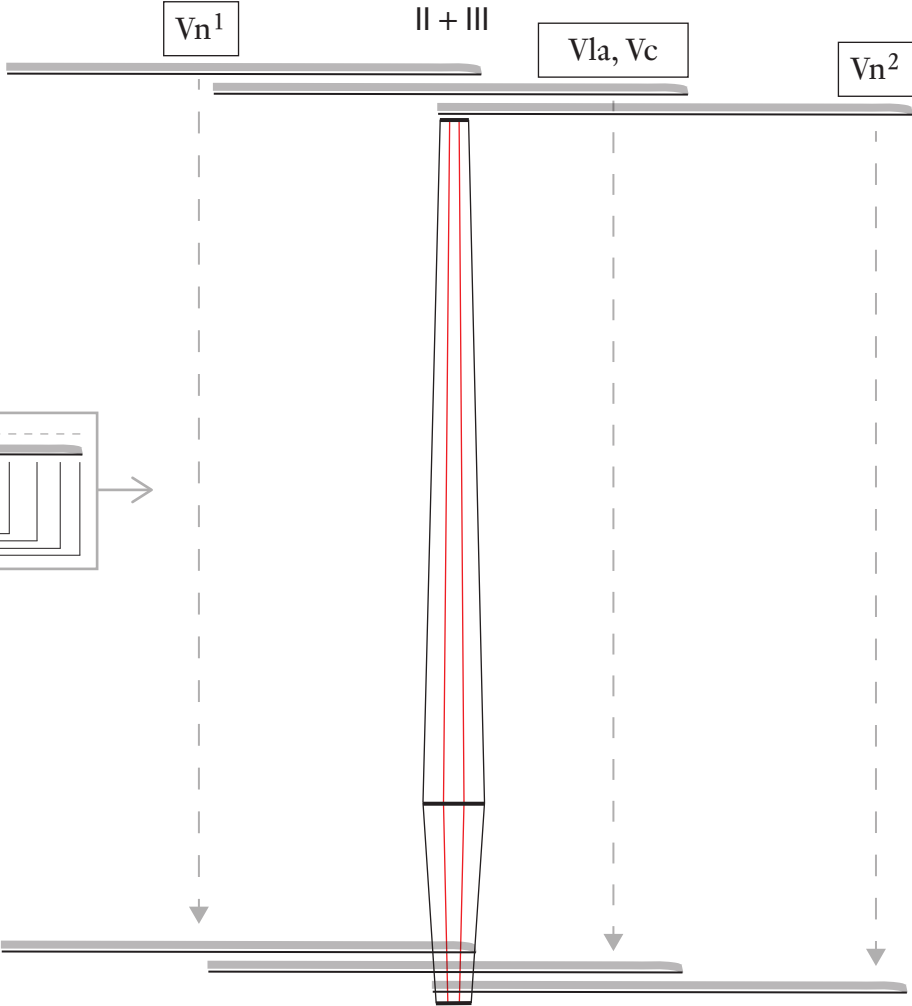
C – Second Approximation

Vla, Vc & Vn¹ & Vn²



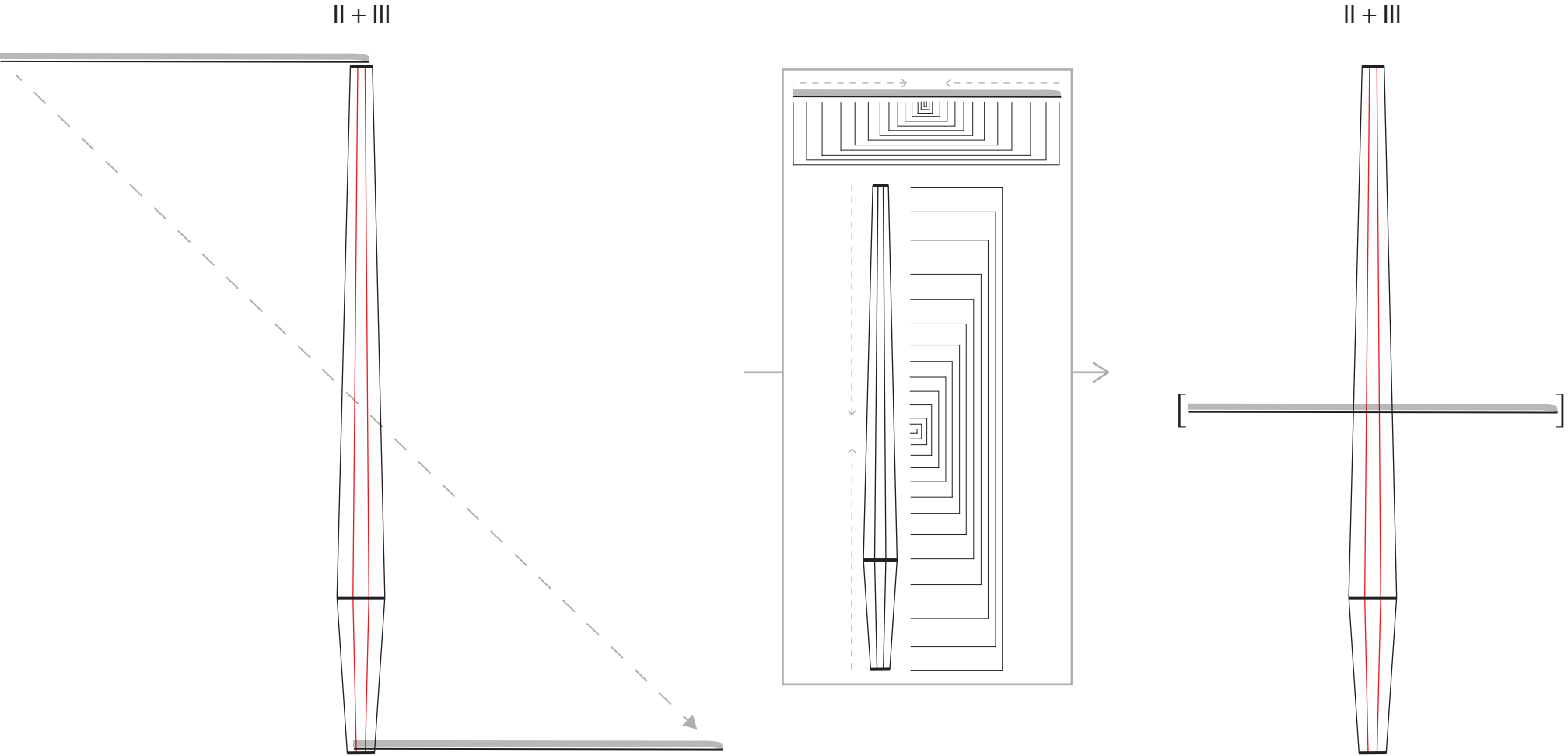
From the initial repeated gesture, the instrumentalists approximate progressively through repetition a specific point on the full accessible length of the bow. Each gesture covers a smaller distance on the bow while still covering the full length of the strings.

Vla, Vc: middle of the bow
Vn¹: tip of the bow
Vn²: frog of the bow



D – Third Approximation

Vn¹, Vn², Vla, Vc



From the initial repeated gesture, the instrumentalists approximate progressively through repetition a specific point on the full accessible length of the bow and the string. The process goes on until making a sound isn't possible anymore. The precise coordinates on the bow and strings are up to each instrumentalist.

Addendum: Detailed process for B

