THE CHOP NOTATION PROJECT

Casey Driessen
with
Oriol Saña

AUTHORIZED USE

The goal of *The Chop Notation Project* is to establish a standardized notation system for the bowed string technique known as "The Chop." The hope is that a system such as this will enable composers, players, and teachers a method by which they can share and communicate their musical ideas more easily across the globe.

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Moreover, as music is a living, breathing, and evolving language, so is the percussive bowing technique of chopping. As new developments and discoveries are made, the intention is to update *The Chop Notation Project*, either by the authors here, or by other contributors.

The Chop Notation Project

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TABLE OF CONTENTS

FOREWORD

Of all of the amazing new timbres and string techniques that have emerged since the music of Bela Bartok, chopping stands as one of the most universal and potentially transformative developments. No other extended technique has been so broadly incorporated into as many genres, or has become such an increasingly necessary part of our pedagogy and professional vocabulary.

Chopping pervades bluegrass and new acoustic music. Even traditional Celtic music has incorporated the chop, thanks to innovative artists like Hanneke Cassel Block, Natalie Haas, and Jeremy Kittel. Chopping factors prominently in the solo, chamber, and orchestral works of contemporary composers such as Kenji Bunch, Jessica Meyer, Mimi Rabson, and Daniel Bernard Roumain. The seminal *Turtle Island Quartet* continues to generate its rhythmic backbone with the chop, as does virtually every chamber jazz ensemble that follows in their footsteps.

Even in progressive rock, fusion, and funk-inspired bands with drummers, the chop provides a strong rhythmic groove, while offering vast potential for soloing and accompanying. Have a listen to Joe Deninzon of *Stratospheerius*, Tracy Silverman of *Eclectica*, Rushad Eggleston of *Tornado Rider*, or Zach Brock of *Snarky Puppy*, and listen to how it all started with Richard Greene and *Seatrain.* If your string quartet is hired to play a "rocktail hour" or a wedding reception featuring pop, R & B, or top 40 hits, you had better know how to chop!

Live looping artists have incorporated the chop for decades. New developments in MIDI are bringing the chop into the realm of the EDM artist and DJ. Thanks to pioneers in live electronic manipulation like Valerie Vigoda, Razz Palumbi, and Nick Hyde, we now have the capability to trigger orchestral hits, electronic drums, and more with just one chop or scrape.

Naturally, pedagogy follows practice. Chopping has already entered our essential and beginning string pedagogy. Joy Adams, Darol Anger, Mike Block, Mark O'Connor, Eugene Friesen, Edgar Gabriel, Christian Howes, Alice Kanack, Julie Lyonn Lieberman, Bob Phillips, Andy Reiner, Daryl Silberman, and Tracy Silverman, are but a few of the musicians have incorporated the chop into their published compositions, etudes, books, methods, or workshops designed for students.

Because chopping techniques have evolved considerably from their 1960s origins, we now need a consistent, unified system of notation. Notation fosters documentation, preservation, creation, and further innovation. Just as common spoken language benefits from alphabets and written symbols, so does musical language.

With *The Chop Notation Project,* I believe that Casey Driessen and Oriol Saña have created a detailed, specific, and efficient method for capturing our chopping performance practice across all of our diverse genres. Moreover, composers daring to create richly percussive

works like Casey Driessen's "Tanuki Attack" now have a clear means of documenting, transmitting, and executing the requisite rhythms, sounds, and technical approaches.

Learn the history. Study, internalize, and practice the concepts. Then go forth, realize your potential, and help us to define the future of string playing.

David Wallace, D.M.A.
Chair, String Department, Berklee College of Music

ABOUT THE AUTHORS

Photo by Laura Ruiz

Oriol Saña (Spain) has an extensive career as a player and educator. He received his Bachelor's in Performance from Berklee College of Music, followed by his Master's in Music Education & Musicology and his PhD in Musicology from Universitat Autònoma of Barcelona. He is on the faculty at ESMUC (Escola Superior de Música de Catalunya), Conservatori Superior de Música del Liceu, and EMMCA (Escola Municipal de Música Centre de les Arts). He is the Artistic Director of Fundació Grupo Sifu and started the Barcelona Fiddle Congress—bringing together thousands of young musicians over the years to explore contemporary string playing. He plays with The Django Orchestra, the Albert Bello & Oriol Saña Quartet, and in a duo with jazz pianist Marco Mezquida. His new book, *The Bluegrass Violin*, the first ever Spanish bluegrass fiddle instructional book, will be released by Mel Bay. Oriol's instrument of choice is a 5-string violin.

Casey Driessen (USA) has recorded on over forty albums as a collaborator and on five as a leader. A GRAMMY nominated artist, Casey has toured internationally with artists such as Béla Fleck, Steve Earle, Darrell Scott and Tim O'Brien, in addition to his solo looping project *The Singularity*. He released the first chop instructional DVD *Chops & Grooves* with Darol Anger and Rushad Eggleston on Homespun, started a rhythm based project with drummers entitled *Fiddle/Sticks,* released his own online instructional chop video series *Techniques & Skills: The Chop,* and continues to teach workshops and camps across the globe. He is a graduate of Berklee College of Music (Boston, MA) with a degree in Music Production & Engineering and recently served as Program Director for Berklee's Contemporary Performance (Production Concentration) Master's degree at the college's first international campus in Valencia, Spain. Casey wears red shoes and plays a 5-string fiddle.

ACKNOWLEDGEMENTS

This project could not have been fulfilled without the continued support, encouragement, contribution, or inspiration of the many wonderful and talented people below.

Richard Greene, Darol Anger, Oriol Saña, Turtle Island String Quartet, David Balakrishnan, Mark Summer, Jonathan Feist, David Wallace, Matt Glaser, Mimi Rabson, Melissa Howe, Hanneke Cassel, Mike Block, Eugene Friesen, Natalie Haas, Rushad Eggleston, Tracy Silverman, Bharath Ranganathan, Maša Pelc, Laura Risk, Berklee College of Music, Walter Thompson, Brad Henderson, John Silakowski, Molly Driessen, Emmette Driessen, Laura Ruíz, Carla Saña, Tsun-Ju Lin

I'd like to give a very special mention to my friend and project partner Oriol Saña. We spent many hours sharing sketches on scraps of paper, brainstorming ideas, and questioning potential shortcomings to arrive at our decisions. He greatly motivated me to not only begin, but to see this project through. I'm thrilled that this project is the result of a cross-Atlantic collaboration.

Another heartfelt thanks goes out to one of my biggest fiddle heroes, Darol Anger. He played on the first record I ever remember hearing, David Grisman's *Quintet '80,* and his contribution to the realms of fiddling can not be overstated, with chopping being just one facet. In all honesty, Darol should have written this paper since he played a central role in getting the first widely accepted notations off the ground. I did my best to build upon what he began, and he was a significant sounding board for Oriol and me at different stages of development. It's an honor to have consulted with him on this project and to have his blessing.

And before we dive in, the final shout out goes to the one who paved the way for us all, pioneering fiddler Richard Greene who very generously gave his time and his stories in support of my efforts.

Special thanks to you all!

INTRODUCTION

At the time of publishing *The Chop Notation Project*, chopping is over fifty years in the making. Although previous notation systems have been developed by Richard Greene (chop's inventor) and Darol Anger (through his work with Turtle Island String Quartet), the technique has developed beyond what those systems can communicate. This project is an effort to bring the notation system up-to-date with current playing styles in order to facilitate communication of the technique between players, composers, and educators.

To that end, this work is not intended to be an exhaustive method book (that may come in time), but rather a collection of building blocks to get the reader started.

It begins by setting a brief historical context to the invention and transmission of the technique—from innovator Richard Greene, to "patient one" Darol Anger, to my own adaptation, which explains how I arrived at this project. I've even included a "chop family tree" developed by fiddler Laura Risk for her thesis *The Chop: The Diffusion of an Instrumental Technique across North Atlantic Fiddling Traditions.*

The main body of work is the Chop Notation Glossary which shows all the symbols we believe necessary to communicate the current state of percussive string playing. This is preceded by an essential guide of "tips" for chopping and detailed explanations of the notation symbols. A video detailing and demonstrating the Chop Notation Glossary is available at WorldOfChop.com

The glossary is followed by a set of ten Exercises & Grooves. These are 1 to 2-bar phrases, constructed in an additive manner—starting with the most basic ingredients and becoming progressively more complex with the incorporation of each right or left hand technique. Both the Glossary and Exercises & Grooves sections are formatted for printing.

Chopping is an exciting addition to the long history of bowing techniques in the bowed string instrument family. It greatly expands what is possible on these instruments in both a melodic and rhythmic sense. String players can now contribute and participate as rhythm section players in ways not before possible. While the essence of chopping is relatively simple (the percussive backbeat and down/up chop motion), to incorporate percussion, melody, and harmony requires many fine motor movements that can be foreign to even skilled bowing hands. Starting with the basic building blocks is essential, along with the regular use of a metronome. Small movements are recommended, and try to keep those joints flexible. Like any new technique on an instrument, it requires many many hours of practice to become fluid. Take your time, I think you'll be glad you did.

Happy chopping!

Casey Driessen
May 2018, Valencia, Spain

A BRIEF HISTORY OF THE CHOP

Part 1: Innovate

From Richard Greene, written by Casey Driessen (August 2018)

Photo by Dixon Smith

Bill Monroe & The Bluegrass Boys, 1966

Richard Greene: Fiddle, Lamar Grier: Banjo, Bill Monroe: Mandolin, Pete Rowan: Guitar, James Monroe: Bass

Author's note on Richard Greene's story:

Richard Greene and I first met backstage when I was teenager in the mid-1990's at the International Bluegrass Music Association's (IBMA) World of Bluegrass festival in Owensboro, KY. While remaining aware of his music from afar, it wasn't until this project that we reconnected as I sought to present the origin story of The Chop from its inventor. I contacted Richard via Facebook in 2017 to ask if he would be willing to write it in his own words; while he was happy to provide his story, he preferred instead to give an interview in order that I could put it to paper. On August 1, 2018, Richard and I connected via Skype while I was teaching at Crisol de Cuerda, a string camp in Arlanzón, Spain run by Scottish fiddler Alasdair Fraser. The following story of the inception of The Chop is the result of this interview. With Richard's approval, I have written his story in first person, and all information is either quoted directly from him or paraphrased as close to our conversation as possible.

When I first started playing music, all I wanted to do was innovate. Bill Monroe picked up on that and encouraged it.

You could count the number of bluegrass fiddle players on your hand back when I was starting out. An early hero of mine was Chubby Wise, who would create interweaving lines in a sort of miraculous melodic chamber music way. In the early 1960s, I came across a video of a fiddler named Mac Magaha who played with Porter Wagoner, and I consider him the first "rhythmic" fiddler. He would do this wonderful constant short and articulated bow work down near the frog, all over the bar, with triple stops in the left hand. I wouldn't quite call it "chopping" but it was highly rhythmic, and I was fascinated by him.

In 1965, I joined my first band, the Greenbriar Boys. It was with this band that I started to experiment with bow movements other than the more melodic "longbow "style used by most bluegrass fiddlers of the day. It's these movements that would evolve into "chopping," but at the time I didn't even know what it was I was doing.

Already at that phase in my life, my only goal was to play with Bill Monroe. From out of nowhere in 1966, not long into my time with the Greenbriar Boys, Ralph Rinzler, then Bill Monroe's manager, put out a call for a fiddler because Bill's current one couldn't make a gig in Canada. I flew out to Canada immediately, and when I arrived backstage, I saw a bunch of guys wearing hats. I didn't know which one was Monroe because I'd never seen him in person. So, I went up to the first one and asked, "Which one of you is Bill Monroe?" That ended up being Peter Rowan, and he pointed out Bill to me. I was lucky I already knew some of Bill's material because my first experience with him was on stage. That gig earned me an audition a few months later in Nashville, TN, and then I joined the band.

In those days, I was still very unformed and raw musically. I couldn't really pull time down and my biggest problem musically was not rushing. Monroe couldn't have his musicians rushing, so he told me to to play only rhythm and my solos—but no backup— for the whole show. I had no problem with this and wanted to do it, of course, because I was there to do whatever he said. My role in the band continued this way for four to five months.

The first rhythm I played was at the tip of bow, just a little backbeat—tap, tap, tap. Then, I would relax that a little bit and add a ricochet at the tip in between the taps. That motion required the bow arm extended and a lot of wrist control, so after 20 minutes, my wrist would get tired. I started moving the bow up towards the frog and made more of a downward "chunk" on the backbeat, but that made my arm and my back tired. So, out of sheer fatigue, I just left the bow resting on the string at the frog. When I lifted it up, I discovered it made another sound. This was the birth of the chop—the resting downward percussive stroke, followed by what I call "the pinch"—the scraping upward stroke of a tired arm that created a pitched note. Once discovered, I worked on that a lot.

I most likely started out chopping just on the bluegrass backbeat of beats two and four, but over time I started using more 16th note subdivisions within the whole bar—chops for

percussive sounds and pinches for the melody. Since the melodies sounded on the pinch/upstroke, this displaced them. I found this a very interesting way to play the melody and really tried to hone this. I've always thought of myself as a more melodic chopper who uses sheer noise as more of an effect interspersed with the melodies.

During my year with Bill Monroe, even though he was on the back beat, I experienced his playing to be very open, providing less of the common backbeat of today's bluegrass. He would play more tremolos during the vocals, and his most rhythmic moments in a tune were during the solos. During my solos, he would put his rhythm playing mandolin right up in my ear. It could be that this approach gave me more room to develop my percussive style. As the band got tighter, and when I was allowed to play fills, I would look for those moments when no one was playing rhythm, and I would assume that role. I was one of Bill Monroe's Bluegrass Boys for just one year, but the impact that it had on my fiddle playing was enormous. My reward for that time was chopping.

In retrospect, I realize I had dabbled a bit in this direction while in the Greenbriar Boys, but it was in Bill's band that I really focused on the details of the technique and developed it as an artistic endeavour. I called it the "Chunky Chop" because of the sound the repetitive down/up, down/up, down/up motion created. You can hear it in the word "chunky:" chunk-y, chunk-y, chunk-y. At some point, "chunky" was dropped from the lingo and "chop" has remained.

I continued to incorporate and refine my techniques in the years that followed with the different bands I was a member of, such as the band I formed with David Grisman called The Great American String Band and Old & In the Way with Jerry Garcia. Before those groups though, there was one band that stands out a bit more in this regard.

One year after leaving Monroe, I joined the American roots fusion band Seatrain—along with my former Bluegrass Boy bandmate Peter Rowan, who signed on at a later date. With Peter on vocals and electric rhythm guitar, I assumed the role of the lead guitarist—but on the fiddle. During those years, I worshiped Jimi Hendrix. I electrified my instrument and began incorporating effects pedals, namely the wah-wah. My chop moved from playing a supportive background role in a band to being featured at the beginnings of tunes and during extended solo sections. I tried to think like a guitarist—my bow as the pick, strumming and subdividing, always keeping the beat—while my left hand would clamp down in time to the music and squeeze the notes I wanted to hear.

While I was playing with Seatrain from roughly 1969 through 1973, I met an aspiring young fiddler, also from the west coast, named Darol Anger. We met a few times backstage and eventually he called me up, saying "I've got to learn that chop," so I invited him over to my house. Darol was the first person that I would teach it to. He in turn shared it with his influential group, the Turtle Island String Quartet, which introduced this technique to whole new sphere of the bowed string community.

From then on, I suppose the seed had been planted, and the chop family tree continued to grow new branches into the current day. The Chunky Chop, in the last half century or more, has really developed and exploded on the worldwide string scene in ways that I never imagined. I don't know where it will go from here, but my advice to all the aspiring choppers out there is to slow it *way* down and practice in a modular way, much like the method difficult classical violin passages are learned and mastered—break the chop movements into atoms, and then combine those atoms into molecules.

Part 2: Patient One

By Darol Anger (May 2017)

The "Chop" technique is a recently developed rhythmic bowing for stringed instruments enabling string players to participate at new levels of engagement in contemporary "groove"-based music. It has certainly captured my imagination, and has become a highly effective tool for generating musical joy and good grooves. It has taken the fiddle world by storm, and its meme has spilled over into musical styles from all over the globe.

Turtle Island String Quartet, 1990

Darol Anger: Violin, David Balakrishnan: Violin, Irene Sazer: Viola, Mark Summer: Cello

My first encounter with the Chop was in 1971 when I experienced the brilliant, iconoclastic fiddler Richard Greene, the technique's inventor. Richard was using the Chop as a dramatic musical solo device in his rock band, Seatrain, but had invented the technique in the mid-sixties while playing with bluegrass legend Bill Monroe. Richard drew inspiration from both the strong backbeat and cross-rhythms in bluegrass, and named the technique after Monroe's conceptually similar rhythm technique (also called chopping) on mandolin. The first time I was able to meet Richard, in 1974, I pressed him to teach me the Chop and was

able to learn it a few months later, in a private lesson at his home; I thus perhaps became "Patient One" for this technique.

I thereafter used it sporadically with the David Grisman Quintet and with my other groups. For me, the concept of the Chop begins with modeling the hi-hat and snare patterns of a drum set and extends to rhythm guitar patterns. I seldom played in any bands which had conventional percussion, so the Chop became a common "go-to" method for me to play backup rhythms and harmonies, especially within my smaller ensembles, such as the Duo I had with Mike Marshall, where I often played accompaniment to Mike's guitar and mandolin. While Richard had often employed the Chop as a bravura solo technique, I was far more interested in it as an ensemble tool, and I worked out quite a few ways to represent various rhythm styles, utilizing double/triple-stop notes folded into the basic moves, and adding a few of my own moves.

My version of the Chop really came into its own with the founding of my string quartet, Turtle Island, in 1984. By then, a few of my musical collaborators, especially David Balakrishnan, had learned the technique from me and were using it effectively in their compositions. David and I worked out a rudimentary notation system for the TISQ arrangements in 1984, which happened to correspond closely with Richard Greene's ideas in that department. In particular, the Quartet's cellist, Mark Summer, expanded the Chop into a phantasmagoric rhythm environment for cello, using ideas from the innovative musicians living in our area such as guitarist Michael Hedges and bassist Michael Manring. The Chop made it possible for an acoustic string quartet to convincingly communicate the feeling of an entire jazz or contemporary pop group, without having to limit itself to just a "chords, lines and solos" section. The TISQ was the first string quartet to really deliver the feeling of a full contemporary band with drums, guitar, bass, and improvising soloists, with a real live world-class groove.

Later, while teaching improvising and contemporary violin (often at jazz string symposiums with the TISQ, and later at high-level fiddle summer camps such as Mark O'Connor's Fiddle Camps of the 1990s), I taught the technique to enthusiastic young virtuosos-in-the-making. They included the phenomenal fiddlers Brittany and Natalie Haas, Alex Hargreaves, Billy Contreras, and especially Casey Driessen, who has developed the technique into a far more comprehensive and variegated style in and of itself. Casey and I, together with cellist Rushad Eggleston, recorded the first instructional video on the Chop in 1996 and that video has gone all over the world, as have we. Natalie Haas is mostly responsible for spreading the use of the Chop into the Celtic string music world, and has fostered a legion of Scottish, Irish, and Scandinavian choppers with their own techniques. An extremely detailed and somewhat Celtic fiddling-oriented oral history and "Chop Tree" was published by fiddler and ethnomusicology professor Laura Risk in the early 2000's. Her paper on this is available at < http://www.jstor.org/stable/10.5406/ethnomusicology.57.3.0428> or < http://www.laurarisk.com/research.html>. As with many new string techniques, as musicians discovered it, it became a bit overused, but now chopping seems to be settling into perspective as merely another useful ensemble technique for string players.

I'm excited to hear how folks like Casey, Oriol Saña, and a new generation of string musicians will develop it.

Part 3: Triple Chop

By Casey Driessen (May 2017)

Photo by Dick Littlefield

Minor Bluegrass, cir. 1993

Tim Dishman: Guitar, Casey Driessen: Fiddle, Noam Pikelny: Banjo, Jason Littlefield: Bass

At the age of 12, I formed a Chicago/Northern Indiana bluegrass band with three other "under age" kid pickers called Minor Bluegrass. We considered ourselves bluegrass but lacked one of the most essential instruments of the style, the mandolin with its rhythmic backbone "chop" on beats 2 & 4. There weren't any kid mandolinists in convenient driving distance for our parents, but we made do. I assumed the role of the mandolin on my fiddle, employing a technique I learned to call a "chunk."

Passed down to me by Indiana fiddler and mentor Ed Cosner, the fiddle "chunk" was a pitched double-stop in the fiddle's lower register sounded on beats 2 & 4. The motion consisted of the bow sweeping downward, quickly grabbing the strings for a short thick tone, and swooping back upward in small circular motion — retaking to grab the next off-beat. Chunks occurred in the lower region of the bow (near the frog) and were used when the mandolinist was taking a solo and thus unable to chop.

In my own development of percussive bowing, the "double shuffle" also receives a place of honor. This classic fiddle ostinato rocking pattern between adjacent sets of strings, while simultaneously moving melodic content in the left hand, became tangled with chunking while rehearsing and jamming with my Minor Bluegrass bandmates. This metamorphosis of double-shuffle-chunking became a "thing" for me and the band. I had not seen or heard anything like it before and naively thought I was inventing a new way of playing.

And then I was asked, "Have you checked out Darol Anger and Turtle Island String Quartet?" Darol's work with the David Grisman Quintet had already made him one of my favorite fiddlers, but I didn't know about TISQ. So, I listened, and I heard it. A new percussive bowing technique called "chopping" had already been invented, developed, and well documented in recording. There was only one thing left to do…find Darol.

I first met Darol around 1995 when he was an instructor at the String Fling, a 3-day event at Berklee College of Music organised by then String Department Chair, Matt Glaser. I remember standing with Darol after the first class and sharing our rhythmic bow approaches. From that moment on, the way I played rhythm was forever changed.

Chopping became central to the music I was playing. I hung around with R&B/funk bassists and drummers, applying their lines and grooves. Solo fiddle/vocal songs were arranged, first inspired by the solo playing/singing of Tim O'Brien but with chopping as my foundation. One day my bow "skipped" across the strings in a different way while chopping back and forth and the "Triple Chop" was born. Overdubbed fiddle-only arrangements of pop songs were recorded in order to replicate the parts of all the different instruments. A third "scraping" motion was developed to imitate the shaker rhythms of Madagascar percussionist Xavier "Mario" Martial François, lifting the Chop from its up & down / back & forth binary roots and opening the possibilities for odd-numbered groupings. I practiced reversing my chopping direction, inspired by fiddler Hanneke Cassel whose own patterns were opposite the currently accepted "standard." Chop-only rhythm melodies were written in the spirit of drum corps. Compositions and arrangements were built with percussive foundations while using live looping and effects pedals.

A basic notation system existed but it wasn't yet robust enough to document my expansion of the concepts. I began by audio recording my ideas, but audio alone couldn't always describe the full picture of what was happening because of the intricacy of the patterns. If I didn't perform a bow move correctly, the subsequent strokes could be thrown off, and I couldn't always replicate what was happening just through listening. Here began the development of my own shorthand for notating these ideas.

Then in 2015, while on tour in Spain, I reconnected with my old Berklee classmate and violinist Oriol Saña at his home in Barcelona. He too had been bitten by the same chop "bug," developing his own shorthand and even arriving at a similar "scrape" motion independently. Over jamón and red wine, we compared our developments and set in motion plans to reach a codification of notation. Chopping was nearly fifty years in the making and

many string communities seeking to expand their roles in contemporary music around the globe were adopting it aurally.

Our development of this system persisted at the rate our personal touring and teaching schedules allowed. After much back and forth, we were ready to invite our mentor Darol Anger to weigh in. The foundation of our bow strokes and notation would not have been possible without his work, and it was important for us to have his blessing as well as his input.

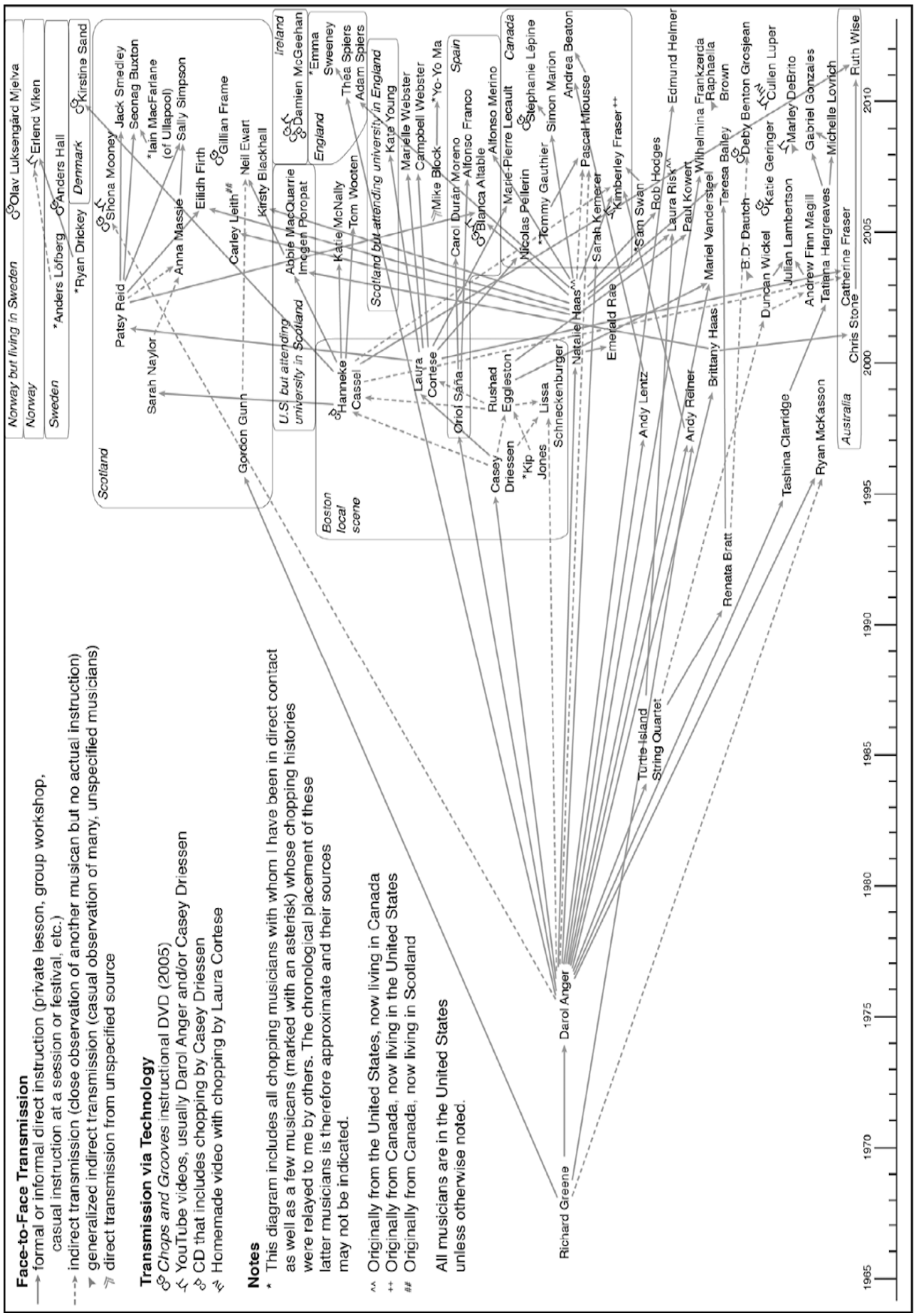
The final push for our publishing came unexpectedly from Jonathan Feist, editor in chief of Berklee Press. A number of string books were in the works which included some form of chopping notation — however, they were not in sync with each other. Jonathan sought out a group of Berklee's String Department faculty for a standard, at which point, the work by Darol, Oriol, and myself was shared. With the help of David Wallace, Matt Glaser, Mimi Rabson, Eugene Friesen, Mike Block, and Natalie Haas, discussions ensued, details were tweaked, and a consensus was reached — just in time for a Chop Symbols Glossary chart to be published in Jonathan's book, Berklee Contemporary Music Notation.

It's with great excitement that we present this "Chop Glossary" to you. We have taken great care to address many of the "what-ifs" in the chop world, as it is presently known by us — but I'm sure there are choppers out there with new moves I don't know about. After all, this is a living and evolving aural language. Just as Oriol and I are adding to the foundations established by originator Richard Greene and "Patient One" Darol Anger, we hope that our contributions serve as another limb on this family tree for which many others will add their own musical and notational touches. Will this become the "standard" for notation? That will depend on how well we did at visually transmitting what is sonically occurring…only time will tell. The one thing I am sure of is that I am thankful to be alive for this brief moment of development in the rich tradition of bowed string instruments.

[The following page includes a mesmerising "chop family tree" developed by Laura Risk for her article "The Chop: The Diffusion of an Instrumental Technique across North Atlantic Fiddling Traditions." Her research traces the diffusion of the chop through a number of North Atlantic fiddling traditions in the 1990s and 2000s. It also considers the circumstances and implications of musicians' decisions to adopt, adapt, or reject the chop. Drawing on both sociological research on the diffusion of innovations and genre theory, Laura's article demonstrates that the diffusion trajectory of a musical innovation depends on the innovation itself, on the sites of transmission, and on the interplay of the lived and imagined musical worlds within which musicians play, work, and study. I invite you to extrapolate this "tree" to other styles of music.]

THE DIFFUSION OF THE CHOP, 1966-2013

by Laura Risk



Risk, Laura. 2013. "The Chop: The Diffusion of an Instrumental Technique Across North Atlantic Fiddling Traditions." *Ethnomusicology* 57/3: 428–454

HOW TO USE THE CHOP NOTATION GLOSSARY

Tips Before You Begin

Bow Hold

The bow can be held both the "classical" way (thumb between the hair and stick on the front of the frog) and with the thumb under the frog. All chopping strokes are possible with the thumb in either position. Whichever bow hold you use, continue to use it. It's not recommended to switch bow holds between chopping and "traditional" melodic playing. Use of the 4th (pinky) finger on wood or the screw is essential for balance and control.

Fig. 1. "Classical" Bow Hold

Fig. 2. Under Frog Bow Hold

Angle of Bow

This refers to the "straightness" of the bow in relation to the bridge and fingerboard. When chopping, the bow can be perpendicular to the strings (as in normal playing) or slightly angled with the bow tip towards the player and the frog slightly away. Both "straight" and "angled" bows are acceptable for percussive-only chops and produce different tones. It's important to understand that if pitched notes are desired, the bow must be straight (as in normal playing) to achieve the full tone of the pitch.

Fig. 3. Straight Bow

Fig. 4. Angled Bow

Bow Hair on String

Fig. 5. Bow Hair Angled Away

The bow hair should be flat on the strings or even angled slightly away from the player. Violinists/fiddlers usually have the bow stick tilted slightly away from the body, pointing the hair slightly towards themselves. In order to "correct" this for chopping, simply use the thumb to roll/rotate the bow slightly so that the hair is flat on the strings or towards the fingerboard. This will provide more stability and control while chopping. *Note: Cellists usually don't need to worry about this as the hair tends to already be angled away (towards the bridge).

Location on Bow Hair for Chop

Fig. 6. Location on Hair for Chopping

Chopping should only occur from the frog to the end of the winding on the bow stick. Chopping any farther from the end of the winding approaches the balance point of the bow, making it difficult to control, adversely affecting the accuracy and sound of the chop.

Rosin

The bow hair must be rosined where chopping takes place. The player's preferred rosin will work fine, no special rosin required.

Bow Hair Quality

No special bow hair is required. And, contrary to some myths, chopping does not hurt the bow hair.

Definitions of Chop Notation Glossary Symbols

(Please note: A companion video demonstrating the glossary is available at WorldOfChop.com)

1 - Note Heads

The following types of note heads are used in chop notation to indicate the quality or timbre of sound produced while chopping, as well as what action may be occurring in the left hand. Certain note heads may also suggest what type of bow stroke is used.

1a) Standard Pitch

A normal note head is used to indicate a deliberate and intentionally sounded pitch. As with traditional notation, the note head will move on the staff to indicate desired pitch. When chopping, the bow often starts on the string for a clearly articulated initial sound, but can also begin off the string, catching the string mid-air. This can be played with Bow Placements 2a, 2b, and 2c below.

1b) Hard Chop

A "slash" note head is used to indicate the vertical motion of the bow when chopping, as opposed to more traditional détaché technique. The large slash represents a stronger dynamic or accented percussive-only chop. A chop "rests" on the strings and does not bounce up, but is instead lifted in time to the music in a rhythm that corresponds to the appropriate subdivision of the groove. Chops are often made on an adjacent pair of strings. If desired, the "slash" can be placed low, mid, or high on the staff to indicate which register of strings is recommended for a specific tone. In the case of this Chop Notation Glossary, the Hard Chop will only be placed mid-staff, but the player can experiment with different registers. It should be noted that the Hard Chop is only executed with a down-bow and can be played with Bow Placements 2a, 2b, 2c, and 2d below.

1c) Soft Chop

As with the Hard Chop (1a) a "slash" note head is used to indicate the vertical motion of the bow when chopping, as opposed to more traditional détaché technique. The small slash note head is shown to indicate no discernible pitch being played in the left hand, like the Hard Chop, but at a lower dynamic than the Hard Chop. The absence of pitch is accomplished by either lightly gripping the neck and strings with the whole hand, lightly placing the 3rd & 4th fingers across the strings, or releasing the pressure of the pitched fingers on the strings just enough to stop the strings from vibrating. The tone of this "pitch" is purely percussive.

1d) Ghost Notes

An "x" note head is shown to indicate pitches fingered in the left hand, used in conjunction with soft chopping (see #4 below). As with normal notation, the "x" note head will move on the staff to indicate fingered pitch. These pitches sound more subtly, lightly, or perhaps not at all, but represent a musical phrase being outlined

while executing vertical bowing techniques. (Pitches shown: G, D, F, G)

1e) Scrapes

A “headless” stem is used to indicate movement of the bow in a direction parallel to the string length (peg box to tail piece). The intention is to visually differentiate this movement from the the traditional horizontal détaché style and the more recent vertical "chop" style. The headless stem is used in conjunction with other markings for notating Parallel and Circular Scrapes (5). The sound of this movement has a bit of a "scratchy" quality and little to no pitch.

2 - Bow Placements (Sounding Point)

While executing chop bowing patterns, the bow is commonly placed at three, and sometimes four, different locations in relation to the bridge and fingerboard. Compound down/up bow markings have been developed with the "• , x , +" symbols to indicate the location of bow placement. Moving between these different sounding points is done using vertical bow techniques in a parallel movement along the length of the string.

2a) Middle

Traditional down/up bow markings are used to indicate bow placement at the midpoint between the bridge and fingerboard.

2b) Towards Body

Using the "•" symbol within the traditional down/up bow marking indicates the bow is placed towards the player’s body. *Note: In the case of the violinist/fiddler/violist, this is near the bridge; in the case of the cellist, this is near the fingerboard.

2c) Away from Body

Using the "x" symbol within the traditional down/up bow marking indicates the bow is placed away from the player’s body. *Note: In the case of the violinist/fiddler/violist, this is near the fingerboard; in the case of the cellist, this is near the bridge.

2d) Beyond the Bridge

Using the "+" symbol within the traditional down/up bow marking indicates the bow is placed on the strings between the bridge and tailpiece.

CHOPS

"Chops" refer to an up and down vertical bow stroke movement that is an alternative to the common understanding of a "standard" horizontal bow stroke. "Up" and "down" in the case of chops means perpendicular to the plane of the ground, as opposed to "across" the strings as is the common understanding. It is important to note that a chop "down/up" is not quite perpendicular to the instrument — if this is done, nothing will sound.

3 - Hard Chops

Hard chops are the backbone, or more accurately the backbeat, of chopping. They are stronger in attack and are achieved by putting more wrist momentum behind a down-bow chop. Similarly, another way to make a hard chop seem stronger is to make the surrounding strokes more soft or lighter.

- Hard chops are always executed with a down-bow stroke.
- Chops are often made on an adjacent pair of strings. The "slash" can be placed low, mid, or high on the staff to indicate which register of strings is recommended for a specific tone.

3a) Hard Chop, Midpoint

The traditional down-bow marking indicates the bow is placed at the midpoint between the bridge and fingerboard.

3b) Hard Chop, Towards Body

The compound down-bow marking and "•" symbol indicates the bow is placed towards the player's body. *Note: In the case of the violinist/fiddler/violist, this is towards the bridge; in the case of the cellist, this is towards the fingerboard.

3c) Hard Chop, Away from Body

The compound down-bow marking and "x" symbol indicates the bow is placed away from the player's body. *Note: In the case of the violinist/fiddler/violist, this is towards the fingerboard; in the case of the cellist, this is towards the bridge.

3d) Hard Chop, Beyond Bridge

The compound down-bow and "+" symbol indicates the bow is placed beyond the bridge and before the tailpiece.

4 - Soft Chops

Soft Chops are built upon the same down/up chop vertical bow stroke technique as Hard Chops, but are executed without additional momentum and sound much more lightly in comparison to the surrounding Hard Chops. They can often be thought of as the rhythmic subdivision placeholder or timekeeper within a chop bowing pattern and usually involve alternating bow placements on the strings to achieve fluidity.

- Soft chops can be executed with up & down-bow strokes.
- Soft chopping is often suggested by Ghost Notes (1d above).

4a) Soft Chops, Midpoint

The traditional down-bow marking indicates the bow is placed at the midpoint between the bridge and fingerboard. (Shown: Soft Chops, then Ghost Notes G & B)

4b) Soft Chops, Towards Body

The compound down-bow marking and "•" symbol indicates the bow is placed towards the player's body. *Note: In the case of the violinist/fiddler/violist, this is towards the bridge; in the case of the cellist, this is towards the fingerboard. (Shown: Soft Chops, then Ghost Notes G & B)

4c) Soft Chops, Away from Body

The compound down-bow marking and "x" symbol indicates the bow is placed away from the player's body. *Note: In the case of the violinist/fiddler/violist, this is towards the fingerboard; in the case of the cellist, this is towards the bridge. (Shown: Soft Chops, then Ghost Notes G & B)

4d) Soft Chops, Beyond Bridge

The compound down-bow and "+" symbol indicates the bow is placed beyond the bridge and before the tailpiece.

5 - Scrapes

Up until 10 years ago, chopping patterns remained binary, utilizing the down/up of Hard and Soft Chops (3 & 4 above). A "third" move emerged, providing access to odd numbered groupings and additional tones. Scrapes are executed by pulling or pushing the bow parallel to the strings, maintaining consistent contact, either from the bridge to the fingerboard or from the fingerboard to the bridge. A variation of the scrape involves a circular (rather than parallel) motion, still keeping constant contact with the string.

- The "point" of the scrape symbol is meant to show direction and is a "half" arrow, with the scrape beginning at the non-pointed end.
- The duration of a scrape is indicated by the stem. The stem remains headless because there is no pitch.

5a) Parallel Scrape: Inward

Bow is pulled inward or towards the player's body. *Note: In the case of the violinist/fiddler/violist, this from fingerboard to bridge; in the case of the cellist, this is from bridge to fingerboard.

5b) Parallel Scrape: Outward

Bow is pushed outward or away from the player's body. *Note: In the case of the violinist/fiddler/violist, this from bridge to fingerboard; in the case of the cellist, this is from fingerboard to bridge.

5c) Circular Scrape: Clockwise

Bow is pulled down and around in a clockwise manner, beginning away from and traveling towards the player, then back around to finish where it began, often with a slight downward pressure to both stop and accent the end of the action. *Note: In the case of the violinist/fiddler/violist, this is from fingerboard to bridge and back; in the case of the cellist, this is from bridge to fingerboard and back.

5d) Circular Scrape: Counter-Clockwise

Bow is pulled down and around in a counter-clockwise manner, beginning near and traveling away from the player, then back around to finish where it began, often with a slight downward pressure to both stop and accent the end of the action. *Note: In the case of the violinist/fiddler/violist, this is from bridge to fingerboard and back; in the case of the cellist, this is from fingerboard to bridge and back.

6 - Triple Chop

The Triple Chop is a variation of a Scrape (5a & b above), accomplished through a combination of slightly "throwing" the bow vertically to the strings while dragging it parallel to the strings, with a loose wrist and loose fingers. The "throw" begins the bounce, the parallel motion produces skips, and the looseness of the hand allows the skips to occur freely.

- The goal is 3 quick skips for a "triplet" but more skips are possible.
- The bow must move at a speed fast enough to not just scrape along the strings, otherwise this is a Parallel Scrape.
- The "point" of the triple chop symbol is meant to show direction and is a "half" arrow, with the with motion beginning at the non-pointed end.
- The duration of a triple chop is indicated by the stem. The stem could have a big slash or small slash to indicate a pitchless accent of the "throw" or could have x's for Ghost Note pitches in the left hand.

6a) Triple Chop, Inward

Bow is pulled inward or towards the player's body. *Note: In the case of the violinist/fiddler/violist, this from fingerboard to bridge; in the case of the cellist, this is from bridge to fingerboard.

6a) Triple Chop, Outward

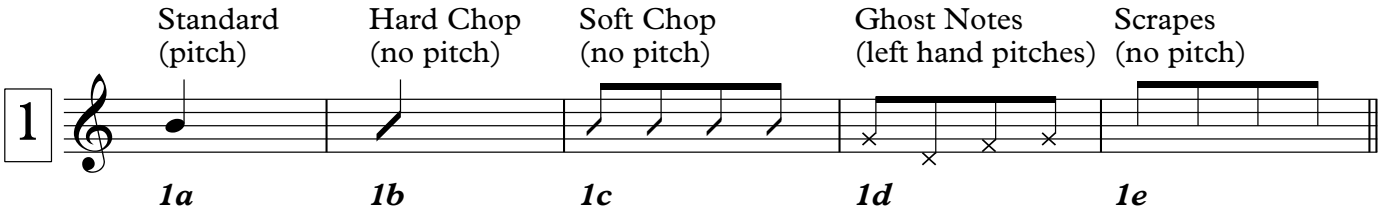
Bow is pushed outward or away from the player's body. *Note: In the case of the violinist/fiddler/violist, this from bridge to fingerboard; in the case of the cellist, this is from fingerboard to bridge.

Chop Notation Glossary

(See Definitions of Chop Notation Glossary Symbols for more information.)

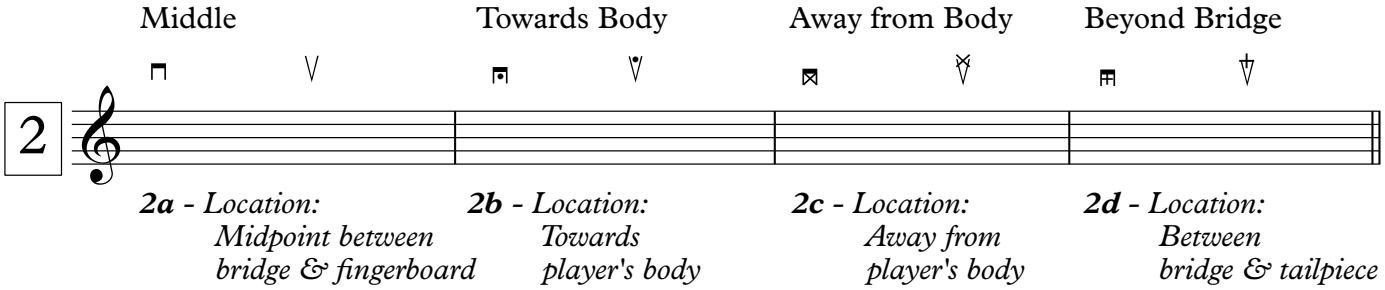
Casey Driessen with Oriol Saña

NOTE HEADS



BOW PLACEMENTS (Sounding Point)

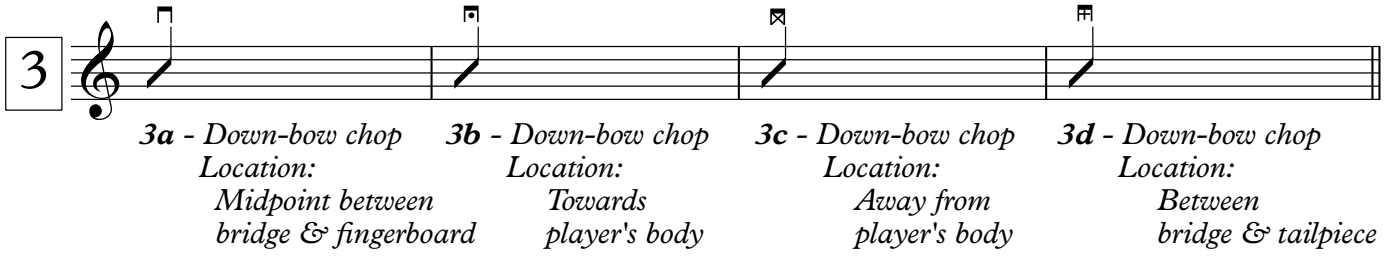
Bow placement in this context means the location between the bridge and fingerboard where the bow is placed.



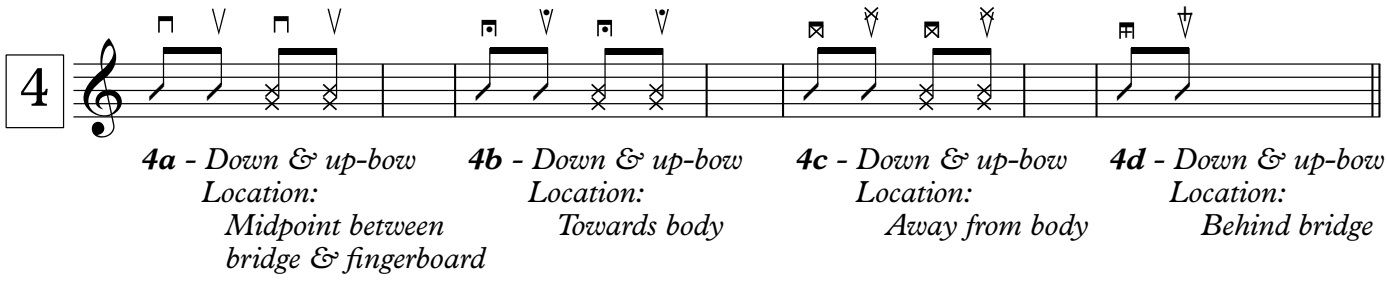
CHOPS (Vertical Bow Technique)

Vertical bow technique in this context means the perpendicular up & down-bow motion to achieve chop sounds.

Hard Chop



Soft Chop



SCRAPES

Parallel: Inward

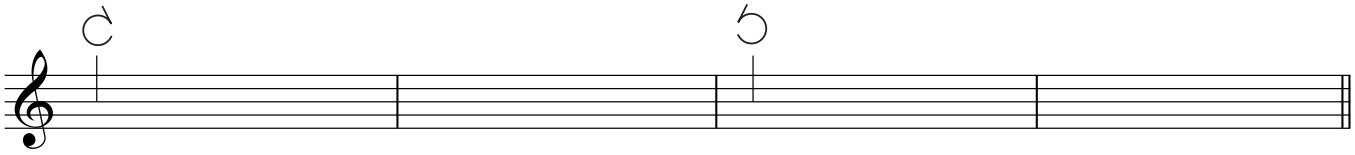
Parallel: Outward

5a *- Scrape bowhair parallel to strings*
Direction: Towards player's body
Duration: Length of stem/flag

5b *- Scrape bowhair parallel to strings*
Direction: Away from player's body
Duration: Length of stem/flag

Circular: Clockwise

Circular: Counter-Clockwise



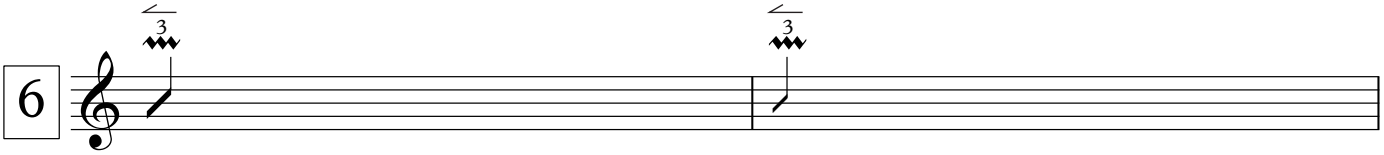
5c *- Scrape bowhair in circular motion*
Direction: Clockwise motion
Duration: Length of stem/flag

5d *- Scrape bowhair in circular motion*
Direction: Counter-clockwise motion
Duration: Length of stem/flag

TRIPLE CHOP

Inward (hard)

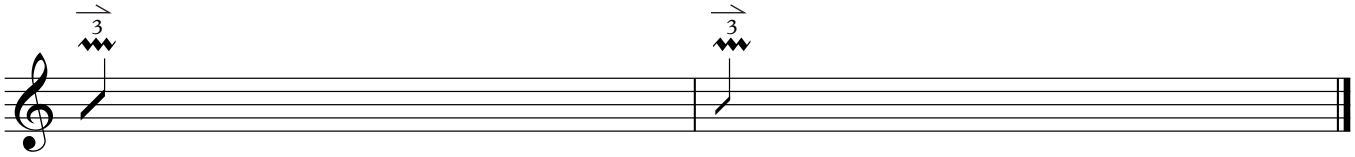
Inward (soft)



6a *- Direction: Towards player's body*
Duration: Length of stem/flag

Outward (hard)

Outward (soft)



6b *- Direction: Away from player's body*
Duration: Length of stem/flag

Exercises & Grooves

Companion to The Chop Notation Glossary

Casey Driessen

The following 10 exercises & grooves intend to systematically incorporate the symbols shown in The Chop Notation Glossary — from the essential foundations to the more complex articulations. These are the building blocks of grooves for the percussive string player.

Practice them slowly. Use a metronome. Focus on flexibility of right hand wrist and finger joints. Smaller movements will produce less fatigue, more control, and greater nuance.

When you master these, change the chords. Change the key. Change the swing of the subdivision. Mix and match the exercises. Explore every permutation you can think of.

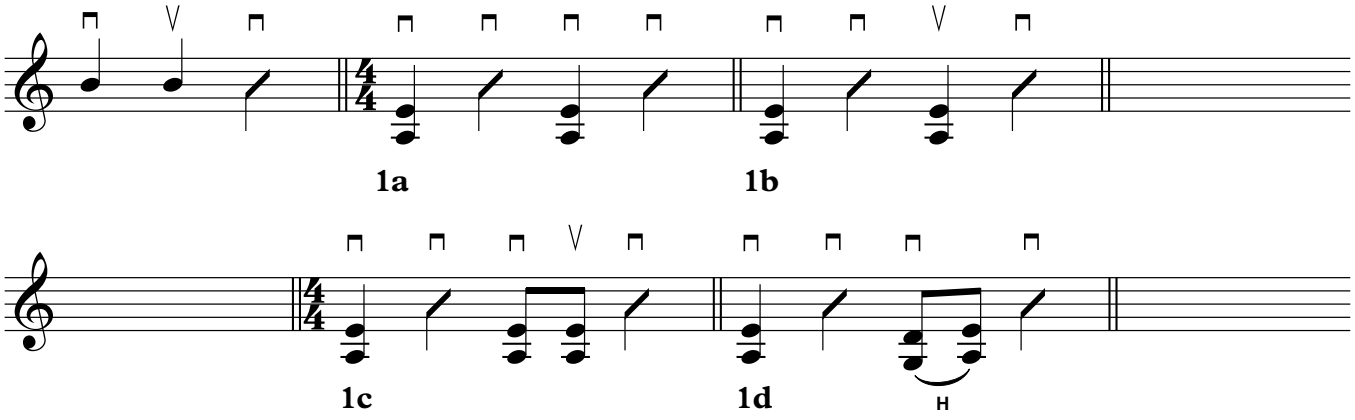
Join the supportive rhythmic fabric of music.

1 BASIC PITCH & HARD CHOP

The goal of this first exercise is to begin with the most essential ingredients of chopping — the percussive chop and the kick drum / bass notes. "Standard" pitches, whether up or down bow, are best executed with bow starting already on the strings for a clear articulation of the of the note. A big "slash" indicates vertical bow movement, perpendicular to the ground, as opposed to instrument.The bow remains resting on the strings after Hard Chops.

Traditional up/down bow markings indicate the strokes occurring equidistant between the bridge and fingerboard.

The "H" in (1d) denotes a "hammer-on" technique borrwed from guitarists. The first note is bowed, and while the string continues to ring, the following note is executed in the left hand by "hammering" on the string. The slur does not indicate a standard tie in which the bow stays on the strings, but rather it is off the strings during the "hammer."

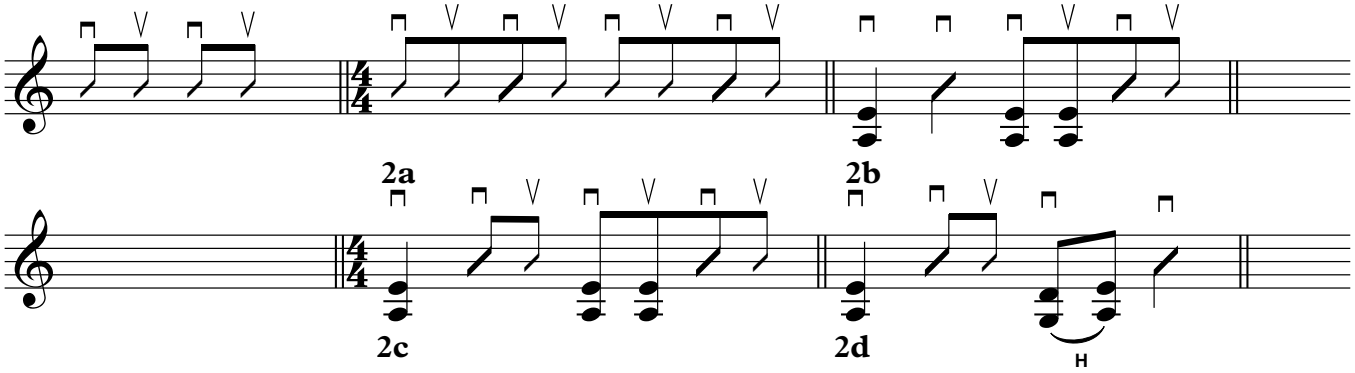


2 SOFT CHOP

This second exercise adds a chop (vertical bow movement) that is less dynamically stressed than the Hard Chop. In this respect it is still a "slash" but a small slash. Think of the Hard Chop as "accented" and the soft chop as "unaccented."Standard notated pitches are again best executed by beginning with the bow already on the strings.

Traditional up/down bow markings indicate the strokes occurring equadistant between the bridge and fingerboard.

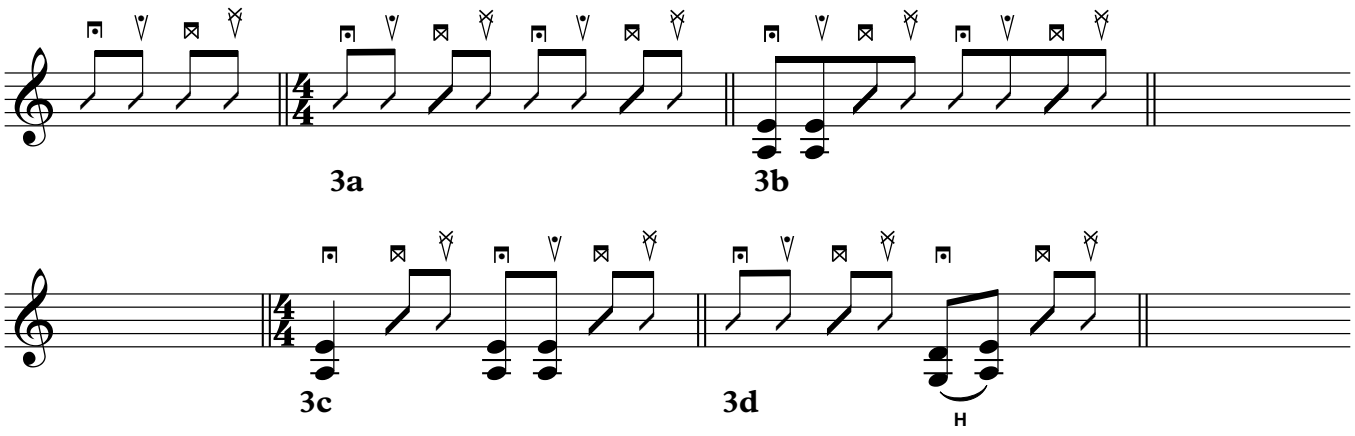
Again, the "H" in (2d) denotes a "hammer-on" technique borrwed from guitarists. The first note is bowed, and while the string continues to ring, the following note is executed in the left hand by "hammering" on the string. The slur does not indicate a standard tie in which the bow stays on the strings, but rather it is off the strings during the "hammer."



3 BOW PLACEMENT: Towards / Away from Body

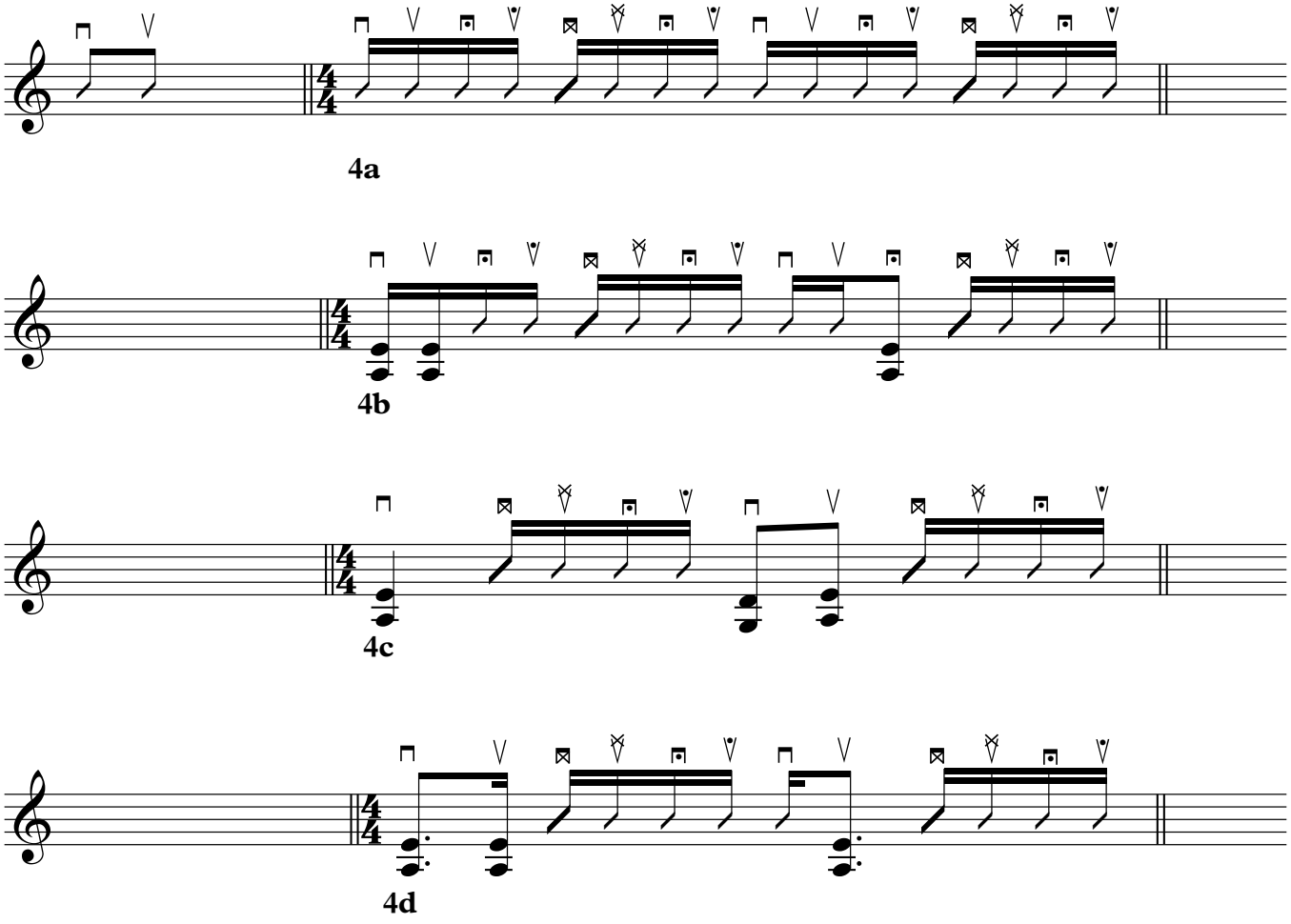
In this exercise, vertical bow movements change their location on the strings by moving in parallel to the length of the string. A "•" within the compound bow marking indicates towards the body of the string player and the "x" indicates away from the body. This parallel movement allows for greater speed in technical execution and a variation in tone.

Again, the "H" in (3d) denotes a "hammer-on" technique borrwed from guitarists. See above Ex. 1 or 2 for explanation.



4 BOW PLACEMENT: Middle

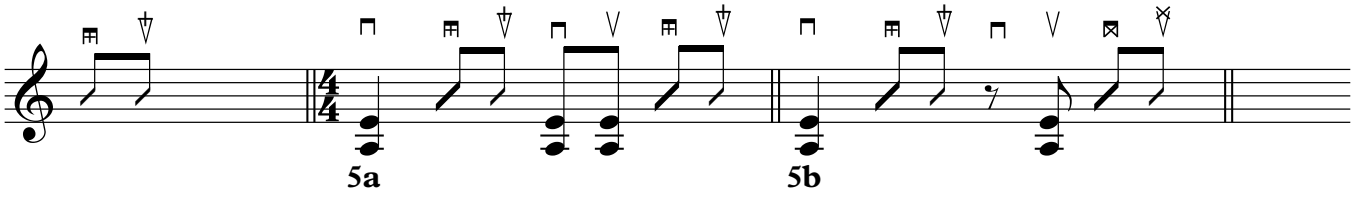
A third or "middle" placement of vertical bow placement is added between the "towards" and "away" locations. The traditional up/down-bow symbols are used since this is the traditional sounding point of the bow. Use of this placement is great for half-time grooves or 16th note subdivisions.

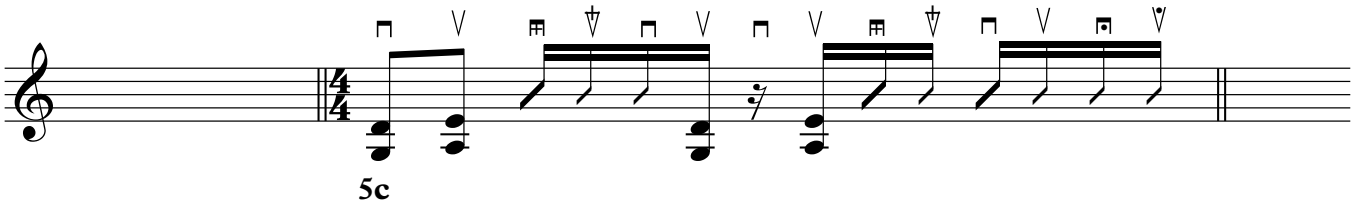


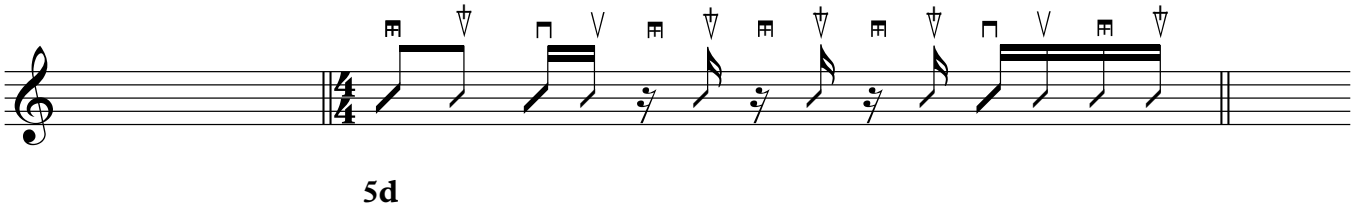
5 BOW PLACEMENT: Beyond the Bridge

The fifth exercise adds yet another location for vertical bow placement, located between the bridge and the tailpiece. A "+" is used in conjunction with the traditional up/down bow markings. This is combined with previously detailed notations on the "regular" side of the bridge. Since it is not possible to damp the strings "beyond the bridge," up strokes will produce the pitch corresponding to the length and tension of that string.

The examples below show a bow marking over a rest at times (5b, 5c, 5d). This is meant to show the movement (and location) of the bow at that particular subdivision in the bar in order to achieve the next notated sound. With care and finesse, it is possible to place the bow on the strings in a down bow fashion which produces little to no sound.



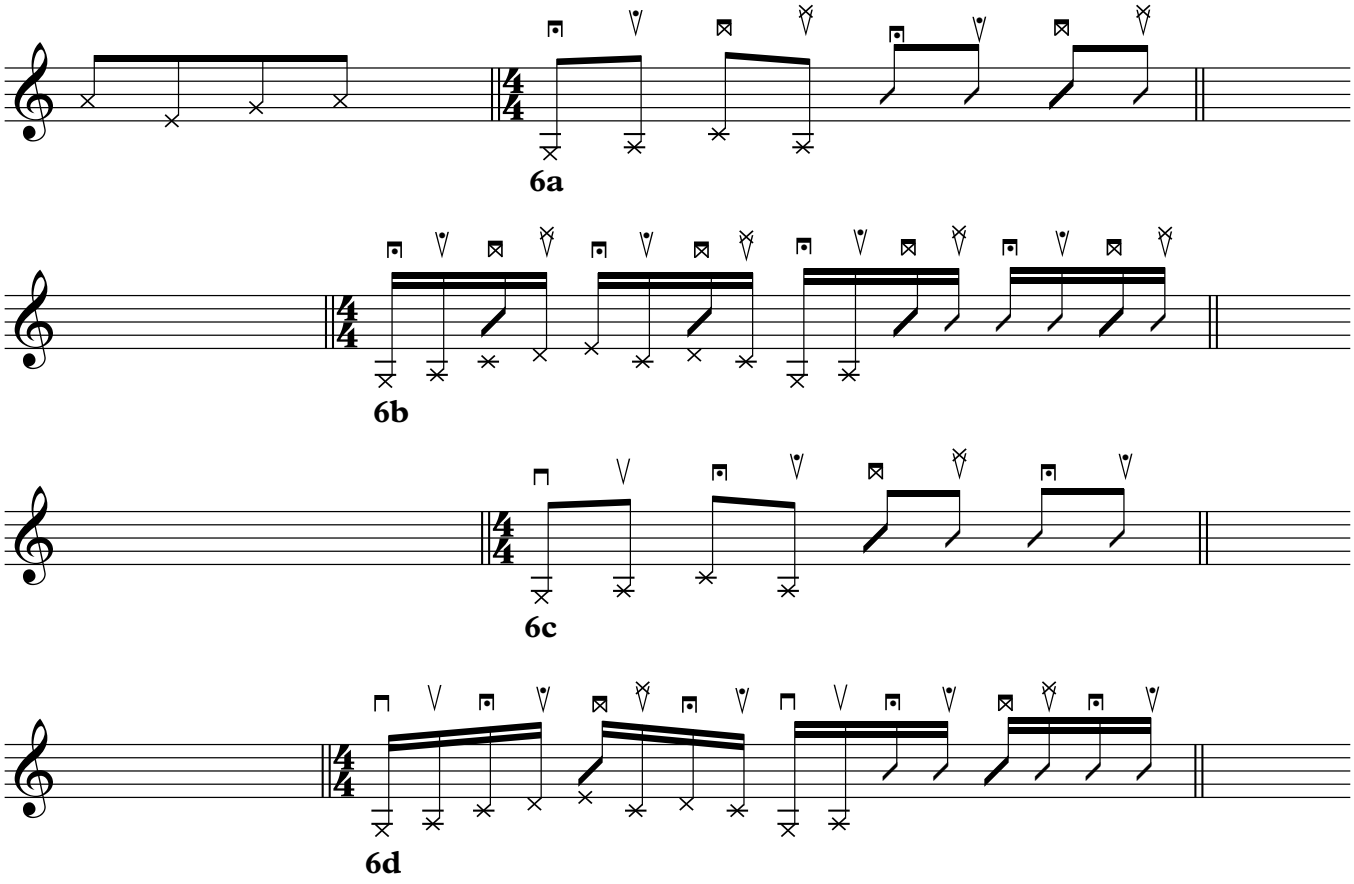




6 GHOST NOTES (left hand) with Vertical Bow

Ghost notes have different interpretations based on the instrument. Generally speaking, a ghost note implies a subtle pitch or rhythm. In the case of chopping, an "x" is used in place of the standard note head to indicate melodic content fingered in the left hand. These melodies are played simultaneously with a vertical bowing (chopping) pattern. The resulting pitchs are subtle but effective.

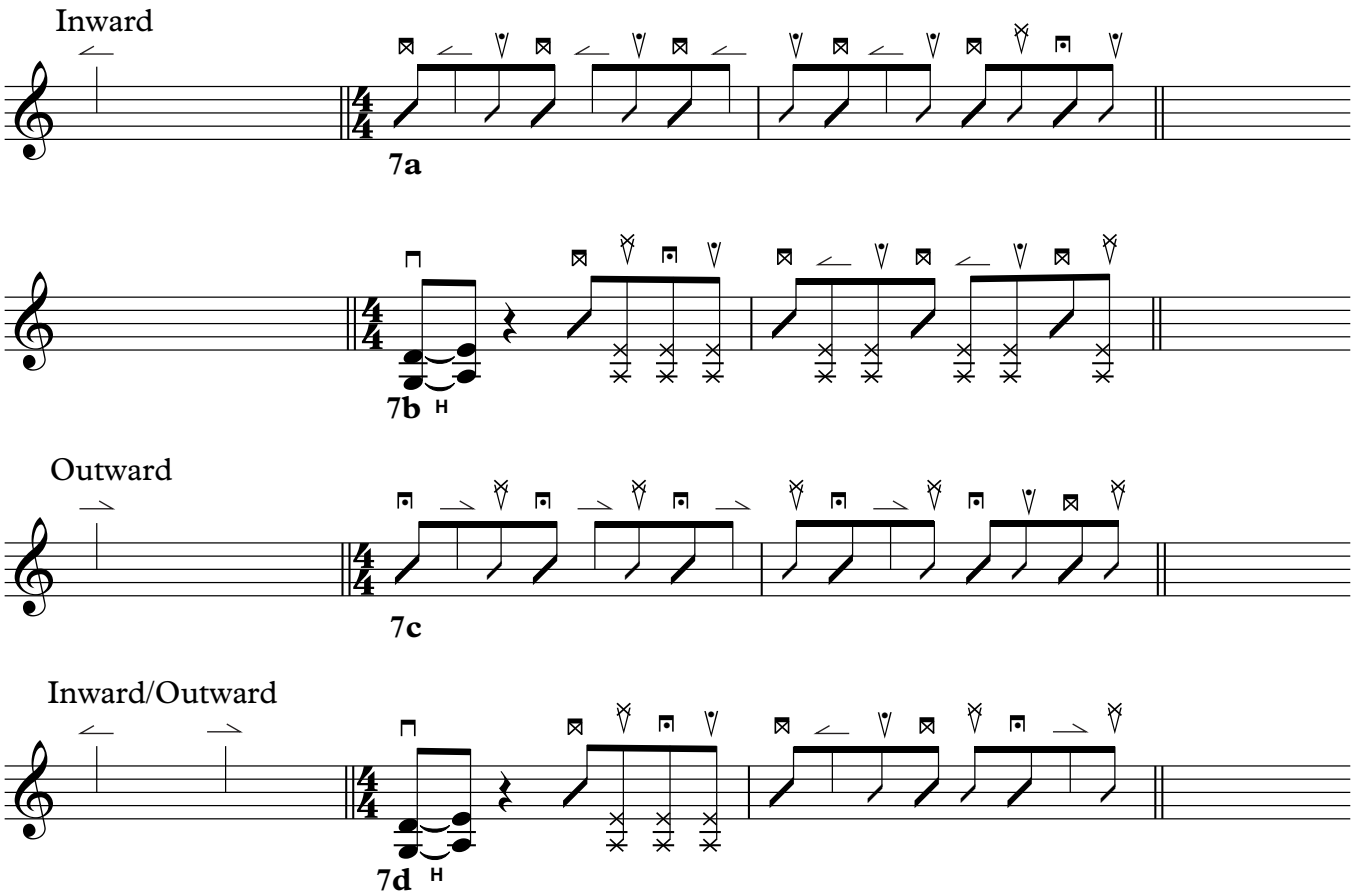
Examples 6b and 6d show "x's" notated underneath Hard Chops. These pitches are fingered by the left hand as part of a melodic line, however the hard chop prevents that pitch from sounding. I felt it important to indicate what's happening in the left hand for the continuity of the line.



7 SCRAPE: Parallel

The "scrape" is a third bow movement added to the binary up/down vertical chop technique which allows for groupings of odd numbers and an additional type of sound, in this case a pitchless "scratchy" sort. Basic scrapes move in parallel to the length of the string, ie. from the tailpiece to the peg box. Inward is "in" towards the body, outward is "out" or away from the body.

Two different note heads are used below — one is a headless stem to indicate the absence of discernable pitch in which the left hand mutes or damps the strings; the other incorporates Ghost Notes for which the fingers stay pressed in order to hear the pitches that follow (7b, 7d). Both examples 7b, 7d also include the "hammer-on" technique first used in 1d.



8 SCRAPE: Circular

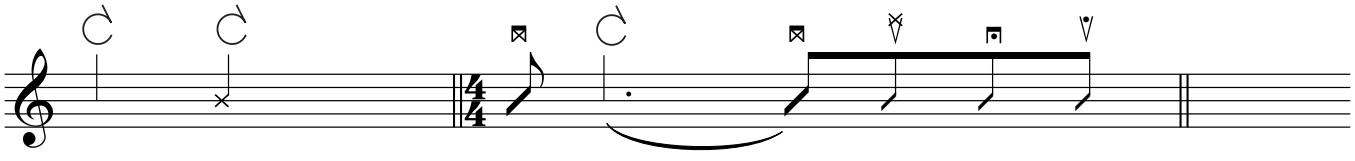
The Circular Scrape is a variation of the Parallel Scrape (7). While moving in parallel to the length of the string, the bow is dragged around in a circle in either a clockwise or counter-clockwise motion.

Below, the rotation originates at the note preceding the circular symbol—when the bow is placed on the strings in the manner indicated by the notehead and at the location on the string shown by the bow marking. Note, once the bow is placed on the strings at the preceding marking, it rests on the string for the duration indicated and stays on the strings for the duration of the rotation.

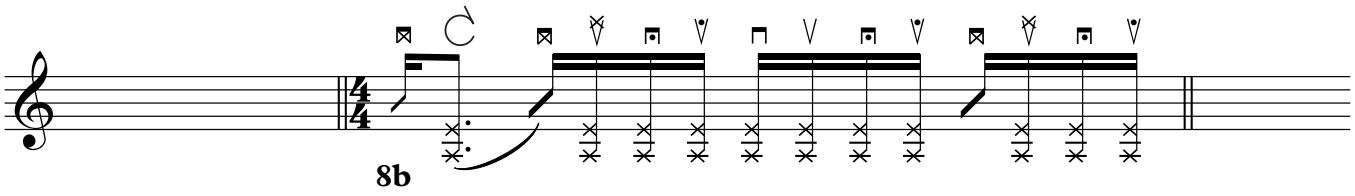
At the end of the rotation, slight pressure is applied, finishing with a clear accent/stop. This accent is notated with a slash notehead for the strength of the dynamic and includes a bow placement marking to indicate the location of the bow at the end of the rotation.

As in Parallel Scrapes (7) two different note heads are used below—one is a headless stem to indicate the absence of discernable pitch in which the left hand mutes or damps the strings; the other incorporates Ghost Notes for which the fingers stay pressed in order to hear the pitches that follow and allows subtle pitch to be heard during the rotation (8b, 8d).

Clockwise

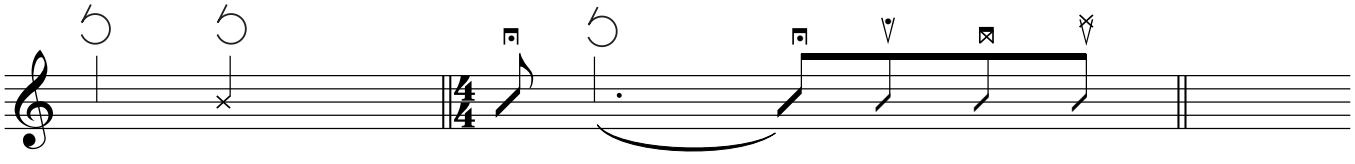


8a

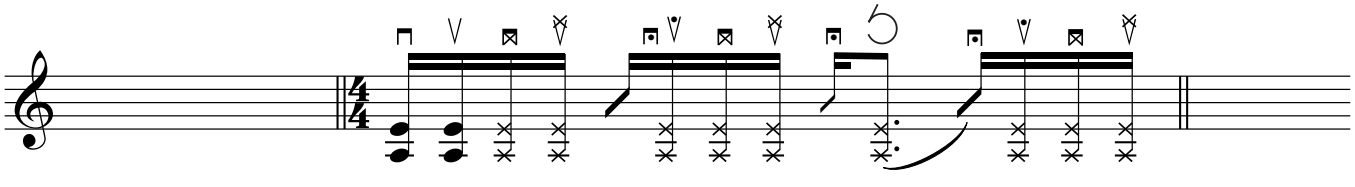


8b

Counter-Clockwise



8c



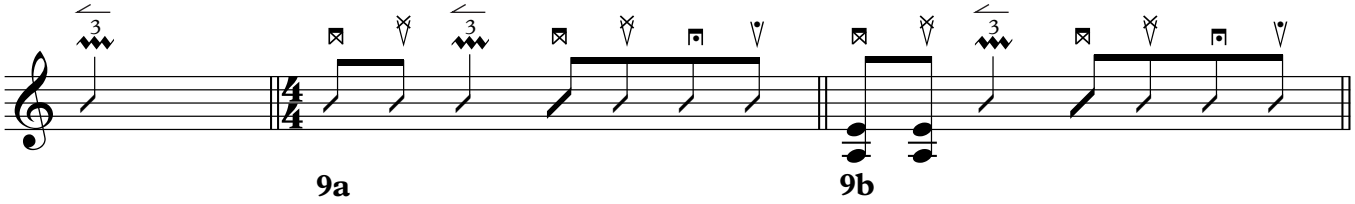
8d

9 TRIPLE CHOP

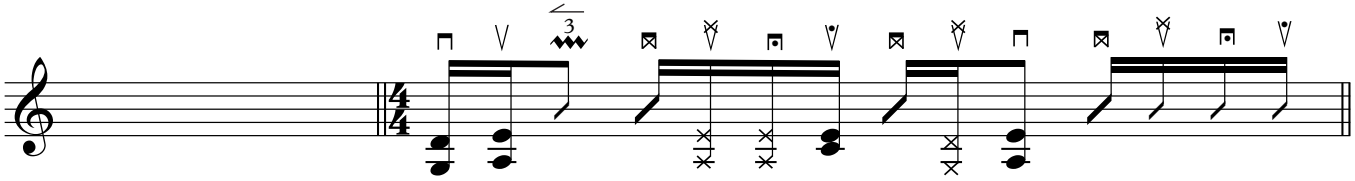
The Triple Chop combines both parallel and vertical bow movements. With a bit of a vertical "throw" to the strings, the bow is then dragged parallel to the string length. If done with enough speed to the drag and looseness of the bow hand wrist and fingers, the bow will skip along the length of the string as it travels. The chop afterwards (either Hard or Soft) is commonly opposite the location where the triplet ended. For example, if the triplet ended near the bridge, the next chop would be at the fingerboard (9a). The opposite can be seen in 9d.

The Triple Chop works great preceding a strong backbeat Hard Chop.

Inward

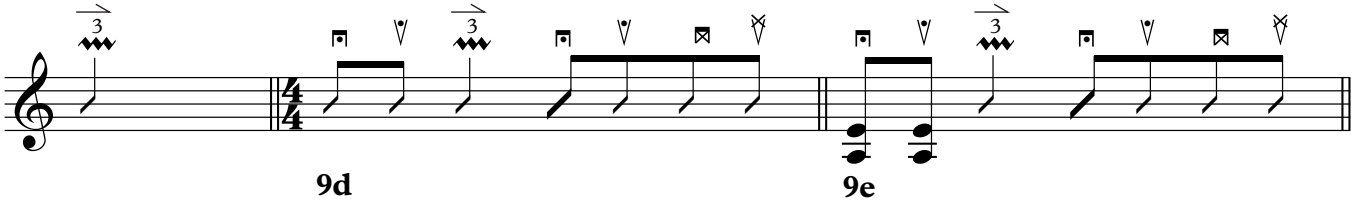


9a **9b**



9c

Outward



9d **9e**

10 ETUDE

The intent of this etude is to combine many of the preceding chop notations into musical groove-based form as an example of how they can be used together. The etude is 16 bars in total, composed of four 4-bar phrase variations which all begin in a similar manner. Each 4-bar phrase can be practiced on its own, played sequentially, or in an order of the player's choosing.

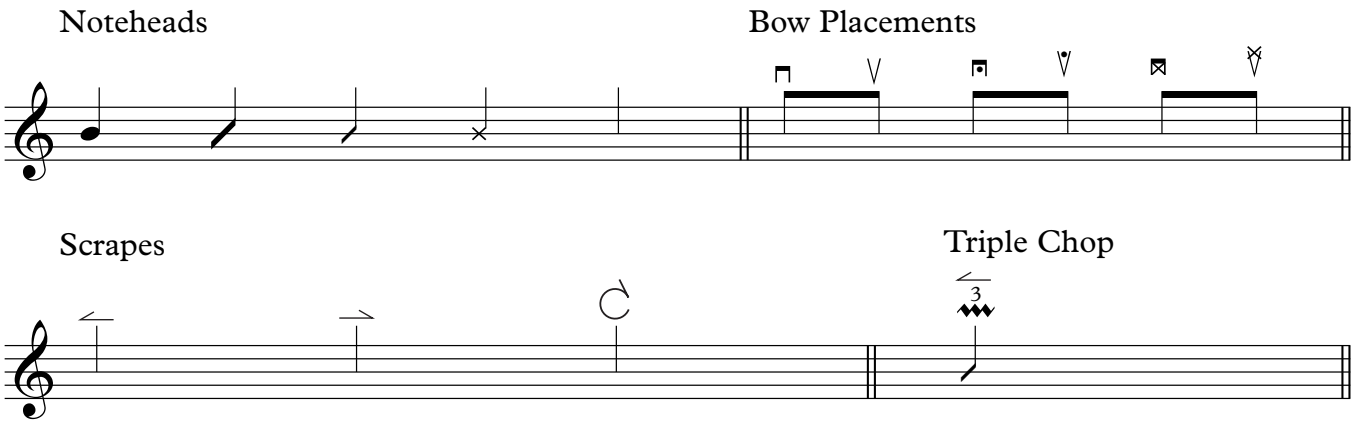
In Ex. 10a, note the rest in bar two—the bow stays on the strings after the Hard Chop (away from body), through the rest, and picks up for the next Soft Chop (still away from body). Bar four incorporates a hammer-on (see Ex. 1d).

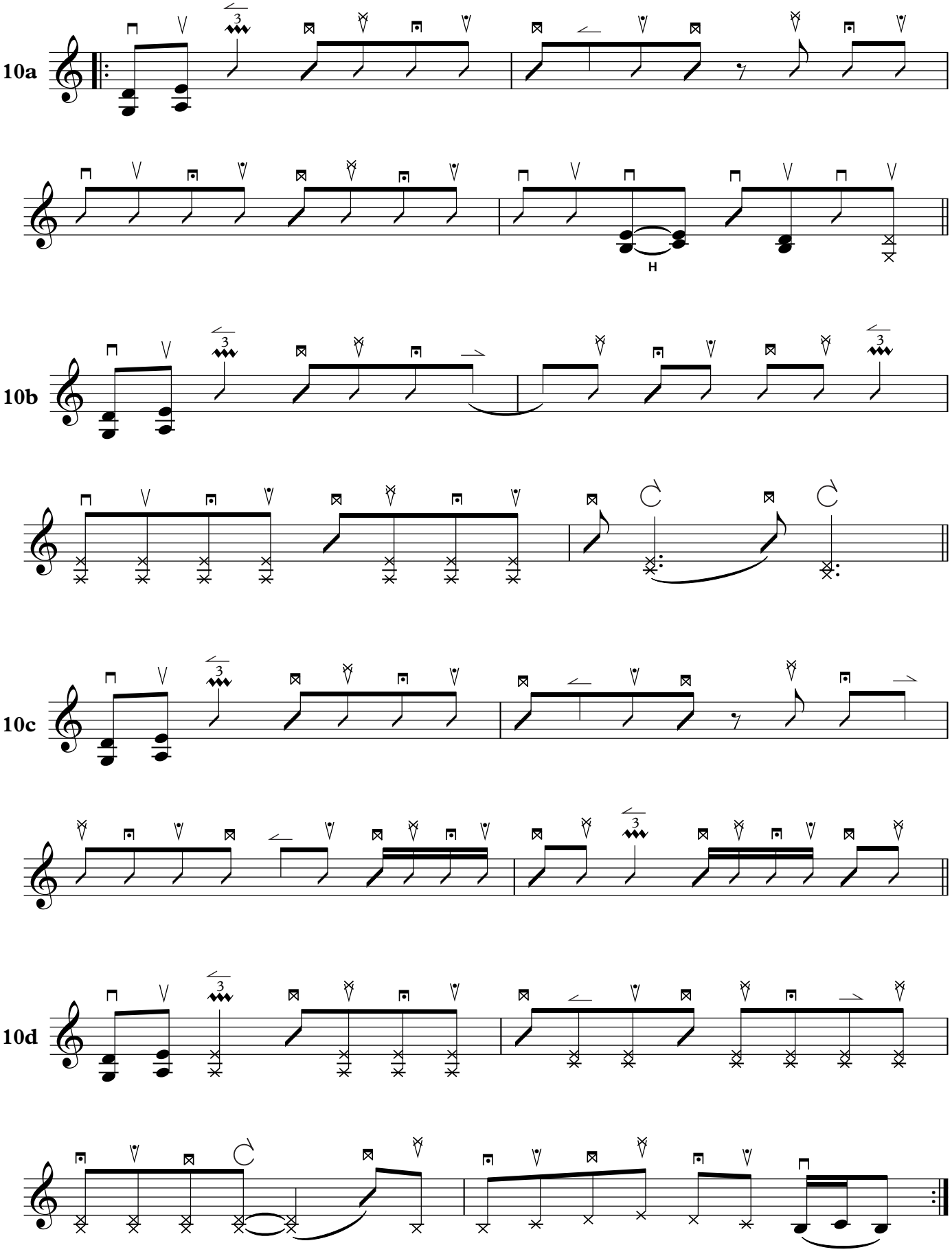
In Ex. 10b, note the Parallel Scrape tied at the end of bar one. The bow is already on the strings (towards the body) from the preceding Soft Chop, and scrapes away from the body. In bar four, a Hard Chop is on beat 1, followed by a Clockwise Scrape, tied to and stopping firmly on beat 3 as indicated by another Hard Chop, ready to grab the next Clockwise Scrape and finishing with a down bow starting on the strings for the first bar of 10c (or 10b if the phrase is repeated).

In Ex. 10c, bar two is almost identical to bar two of 10a, with the exception of a scrape for the final 8th note. Bars three and four incorporate 16th note chop patterns which are merely double-time versions utilizing "away" and "towards" vertical bow movements.

In Ex. 10d, more strings are left "open" for Ghost Notes and melodies to be heard, adding a more melodic ending to the etude. Bar two begins with two groupings of five 8th notes in a 3+2 pattern—this requires a parallel scrape in both directions (inward & outward) on the middle 8th notes in the groups of "3." Bar three has Clockwise Scrape tied to, and stopping on, beat four to catch the next up stroke. Bar four finishes with a hammer-on, bow in air, ready for the down bow and down beat of the next measure.

All Noteheads, Bow Placements, Scrapes, and Triple Chop notations used in the etude are listed below. Be sure to review the Glossary and preceding exercises if you have questions.





CHOP CREDITS

Development of the Bow Strokes

- (3, 4) Hard & Soft Chop — Richard Greene
- (2b & c) Bow Placements — Darol Anger
- (2a) Bow Placements — Casey Driessen
- (2d) Bow Placements — Oriol Saña
- (5a & b) Scrape — Casey Driessen & Oriol Saña
- (5c & d) Circular Scrape — Casey Driessen
- (6) Triple Chop — Casey Driessen

Development of the Symbols

- (1b) Hard Chop "Slash" — Darol Anger
- (1d) Ghosted Notes — Casey Driessen & Oriol Saña (*Note: An early version of 'x's was used by Turtle Island String Quartet to indicate soft chops but without indication of pitch)
- (1d) Soft Chop "Slash" — Casey Driessen, Oriol Saña, Tracy Silverman, David Wallace, Mimi Rabson
- (2a) Midpoint — Darol Anger
- (2b, c, d) Towards, Away, Beyond Bridge — Casey Driessen & Oriol Saña, with Darol Anger
- (5a & b) Scrape — Casey Driessen & Oriol Saña
- (5c & d) Circular Scrape — Casey Driessen
- (6) Triple Chop — Casey Driessen

CONCLUSION

David Wallace once remarked to me when I was showing him the notation in-progress, "This looks like it sounds, which is exactly the way notation should be."

Will others find it clear enough to make the connection between the visual, aural and physical? Can it facilitate further development and creative exploration? Oriol and I certainly hope so.

Although I've always read music, I never considered myself a reader. I used material in books as launching points for exercises and exploration, but I did not live by the written page. I wasn't paying attention to notation at the level of detail that trained classical musicians did, and while music "looking like it sounds" is probably no revelation to them, that concept was fresh for me. Oriol and I didn't make this a central goal in the original development—our intent was to clearly communicate the physical motions which produced the sounds. At first this connection was an unintended bonus, but as we continued refining our symbols, we took it into consideration.

Not only do we feel this notation can express what we know how to execute on the instrument, we believe it can also communicate the styles of Darol, Richard and others currently using the technique, including cellists. And as new sounds and motions are discovered and feedback on the glossary is received, we hope that this project will expand accordingly.

As a result of seeking feedback during the development process, parts of our Chop Notation Glossary have since been published in Tracy Silverman's *The Strum Bowing Method* (Silverman Musical Enterprises, LLC) and Jonathan Feist's *Berklee Contemporary Music Notation* (Berklee Press). While great resources, neither go to the level of detail within this paper as chopping was not the central focus of their works.

Regardless of *The Chop Notation Project*, I have no doubt that chopping will continue to grow and spread through string communities around the world. As it does, we hope that the chopping tips, deep explanations of the notation, and "building block" exercises and grooves will serve as a resource and tool for players, composers, and educators to take this exciting technique into the future.

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