String Techniques

Introduction to the String Quartet

The string quartet is one of my favourite classical ensembles. It is capable of intimate whispers and violent crescendi. The strings are theoretically tireless (unlike wind players who need to breathe), can perform acrobatic feats of virtuosic agility and yet change the emotion of a single sustained tone with empathetic subtlety. Professional string players are amongst the most phenomenal sight readers I have ever witnessed (an important skill for the UK musician).

It has been my privilege to host over thirty string quartet workshops, rehearsals and recitals for student composers since 2010, mostly working with professional musicians from the Royal Liverpool Philharmonic Orchestra during my time at University and they have always been one of the highlights of the year.

This document offers a reference to some of the available techniques when composing for strings. It is a referential document, so whilst a brief description is offered for most listed terminology, it is expected that the composer then 'follows the thread' to research correct notations and perhaps locate aural examples from instances in external scores (Berio's *Sequenza* are always a good place to start).

The document also includes some essential and recommended listening, introducing examples of the many stylistic options one can utilise when composing for string quartet (an informed reference of current and historic repertoire for the instruments you are using is always an important element for planning a new composition).

Whilst the majority of the techniques listed are still in common use today, the old adage of 'less is more' seems a suitable way to end this written introduction …

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Context:

All string instruments are referred to as chordophones[1]. The 'violin family' or orchestral string section reached its present state of technical perfection in construction by 1700. Including the double bass, the range of the string family can span seven octaves and produce a wide dynamic range from an almost inaudible pianissimo to a sonorous fortissimo.

Though one should always consider musical pacing and shape of phrase, the strings are tireless and can play practically any form of music without a rest, unlike the brass and winds, strings do not need to breathe.

Whilst the collective sound of the strings is homogenous and can be considered as an extension of the same instrument, they are most versatile in producing varying sound timbres through bowing, plucking and extended techniques.

Articulation:

Accent
Détaché: Play notes separately (non legato playing). Can be played with the tip of the bow for a lighter sound or at the 'frog' for a heavier stroke: a punta d'arco (at the point), al tallone (at the frog)
Down-bow
Grace notes: Acciaccatura and appoggiatura
Lauré (Portato +/or Piqué): Legato stroke, but with a slight separation of the notes
Legato: (Bind together) Smooth bowing and fluid phrasing using strings of the bow
Marcato (Martelé): Execute every note as if accented
Saltando: Bounce the bow (also used in staccato arpeggio)
Slur: A fluid movement between notes during the same bow stroke
Spiccato (spicc.): Separated – bounce the bow on the string (slurred spiccato)
Staccato: Detach or separate – Half the written note duration (slurred staccato)
Staccatissimo: Quarter of the notes written duration
Tenuto Staccato: Three quarters of the notes written duration
Tenuto: Hold for full duration (don't anticipate next note)
Up-bow

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[1] Term for musical instruments that produce sound by means of strings attached between fixed points

Dynamics:

PPPP – PPP – PP – P – mp – mf – f – ff – fff - ffff

fp: Loud then immediately soft
fz & **sfz**: Sudden loud accent
sfz sub P: Sudden loud attack and then immediately piano
sfz sub PP: Sudden loud attack and then immediately pianissimo

Bowing:

Arco: With bow: there is no need to specify this at the start of the score, arco is only used to indicate when the part returns to bowing after pizzicato or col legno sections
Arpeggiando: This is a kind of spiccato, related to jeté and may begin with a simple slurring of an arpeggio played over multiple strings at a moderate tempo. As the passage gets faster, the bow is allowed to jump off the string with the natural motion of the wrist thus creating the arpeggiando effect. The arpeggiando effect will start immediately if the passage of music is fast.
Col legno: Strings are struck with the wood of the bow creating a percussive sound
Col legno Battuta: Strings are beaten with the wood of the bow
Col legno Tratto: Bowed with the wooden side
Flautando (flute-like): Indicates a light rapid bowing over the fingerboard
Jeté (Ricochet): Bow is thrown against the strings so that it bounces up and down
Ordinario (ord.): Cancels specialised string techniques – return to normal bowing
Sopra una corda: Played on one string
Sul G (sul IV), sul D (sul III), sul A (sul II), sul E (sul I): Play on one string
Sul C (sul IV), sul G (sul III), sul D (sul II), sul A (sul I): Play on one string
Sul ponticello (sul pont.): The note is bowed (or sometimes plucked) on, or near the bridge, the sound produced emphasises the upper harmonics at the expense of the fundamental and the timbre is quite metallic
Sul tasto (sur la touché): Bowed (or plucked) on, or near the fingerboard to produce a warmer, more resonant sound with an effect similar to flautando

Double stops: Practicality of the note voicing must always be considered carefully.

Double stops: Bowing or plucking the notes of two strings:
This can be fluid when voiced on adjacent strings but tends to be played arpeggiated on wider intervals.
Triple stops: Bowing or plucking the notes of three strings: Depending upon the voicing, the musicians may arpeggiate the attack in some way when it is bowed. Triple stops on three adjacent strings is far more practical than asking the musician to skip a string, this should be considered when voicing three-note chords for strings.
Quadruple stops: Bowing or plucking the notes of four strings (must be played arpeggiated or 'broken' at all times).

Expression:

Leggiero: Lightly, delicately
Non-vibrato (non vib.): Produces a drier, less lyrical sound (expressionless)
Ordinario (ord.): Cancels specialised string techniques – return to normal bowing
Rubato: Rhythmic freedom or rhythmic flexibility (poco rubato, senza rubato)
Vibrato (vib.): Rolling the finger to produce a more resonant timbre enhancing the beauty of the tone.
Note: Vibrato is common practice amongst string players so there is no need to write this, but it is often seen in scores to cancel non-vib. It is more likely that you will ask for increased vibrato – molto vib.

Harmonics:

Harmonic glissando:

i.   Strike the open node and slide the finger along the string towards the bow
ii.   Strike the open node and slide the finger along the string whilst bowing the open harmonic nodes as you pass them
iii.   Strike open node and slide the palm of the hand along the strings towards bow

False harmonic glissando:

Played as an artificial harmonic at the fourth, but the node finger slides towards the stopped note, the closer the node finger gets to the stopped note, the higher the harmonic.

Artificial harmonics:

Played almost anywhere on the strings in one of two ways:

i.   Stop the note of the string with the left-hand index finger and then whilst keeping the note stopped, touch the string a fourth above to produce an artificial harmonic two octaves higher than the stopped note

Artificial Harmonics 1: Touch Fourth (most common)

Touch the upper-note a fourth above to create the artificial harmonic (diamond notehead):

Sounds the upper note two octaves above the stopped note (written in brackets):

Stop the lower note with 1st finger
(or with the thumb on the cello)

ii.   Stop the note of the string with the left-hand index finger and then whilst keeping the note stopped, touch the string a fifth above to produce an artificial harmonic an octave and a fifth higher than the stopped note.

Artificial Harmonics 2: Touch Fifth

Touch the upper-note a fifth above to create the artificial harmonic (diamond notehead):

Sounds an octave and a fifth above the stopped note (written in brackets):

Stop the lower note with 1st finger
(or with the thumb on the cello)

Natural or Open Harmonics: Produced through touching (not stopping) the string at certain node points along the string length and notated with a circle above the sounding pitch of the harmonic. It is common practice to state which string the harmonic is played on i.e. sul G

1/2 = Harmonic sounds an octave above the open string (1 node)
1/3 = Harmonic sounds an octave and a fifth above the open string (2 nodes)
1/4 = Harmonic sounds two octaves above the open string (2 nodes)
1/5 = Harmonic sounds two octaves and Major third above the open string (4 nodes)
1/6 = Harmonic sounds two octaves and a fifth above the open string

Natural/Open Harmonics:

I. Fundamental (open string)

Sub Harmonics or Undertones:

Sometimes called pedal tones – The string is bowed with excessive force at points on the strings marking harmonic nodes. The 'over-pressure' produces sub-harmonics (undertones) lower than the pitch of the open string.

i.   When bowed at the mid-point of the string, the over-pressure produces a pitch an octave lower than the open string.
ii.   When bowed at the 1/3 point of the string, the 'over-pressure' produces a note an octave and a fifth lower than the open string.

This 'over-pressure' technique can be applied to any point on the string marking an open harmonic node.

Mutes:

Con sordina (con sord.): Played with mute to make it quieter, but this also changes the tone quality quite dramatically.

Senza sordina (senza sord.): Played without mute (cancels con sord.)

Pizzicato:

NOTE: Fast pizzicato passages can fatigue the player and there is a limit to how quickly they can perform the plucking action.

Arco: With bow: used to indicate when the part returns to bowing after pizzicato or col legno sections

Arpeggiated pizzicato: Indicated with a wavy line alongside the notes of the chord. Adding an arrow either end will indicate which way to play (up or down), one can often see alternating directions within a row of arpeggiated pizzicato chords.

Bartók pizzicato (fingernail or snap pizzicato): Pull the string and let it snap back

Left hand pizzicato: Notes plucked with left hand indicated with a + above the note

Pizz. (pizzicato): Plucked string (not bowed)

Pizz a la chitarra: Hold and strum the instrument in the manner of the guitar

Slap pizzicato: Right hand slaps the string producing a percussive sound, most effective on the cello or contrabass

Quasi chitarra (a la chitarra): To strum the strings in one stroke (like the guitar) whilst holding in normal position

Common Techniques:

Glissando (gliss.): Continuous slide from one pitch to another

Ordinario (ord.): Cancels specialised string techniques – return to normal bowing

Portamento (port.): Technique of sliding into the pitch. In faster passages the effect is very similar to gliss. Note: Portamenti tend to be part of the musician's interpretation, whereas glissandi are written specifically within the score.

Scordatura: Using alternate tunings for the open strings

Strascinando: Heavily slurred

Strisciando: Played with a smooth slur

Tremolo (trem.): Rapid repetition of the same note or alternation between two or more notes. Often wide-interval trills (across strings) are played as tremolo. The amount of lines written on the stem indicates the speed of tremolo relative to tempo and the duration of the note. Tremolo can be bowed or slurred, measured or unmeasured. When the tremolo involves more than one string it is often referred to as an undulating tremolo, which may be performed slurred or detached.

Trills: rapid alternation between two or more notes. Trills wider than a minor third are usually played (and written) as tremolo. Along with the trill line above the note, it is common practice to include a bracketed note alongside the primary note to indicate the trill note (or notes).

Notation:

Divisi (div.): Divide the lines amongst the strings (within orchestral textures)
Ordinario (ord.): Cancels specialised string techniques – return to normal bowing
Unison (unis.): All play together (cancels div. solo or soli)

Repertoire Eighteenth Century:

Haydn, Franz-Joseph (1732-1809): 68 works for string quartet
Mozart, Wolfgang-Amadeus (1756-1791): 24 works for string quartet
Beethoven, Ludwig-van (1770-1827): 16 works for string quartet (inc. Grosse Fugue)

Repertoire Nineteenth Century:

Borodin, Alexander (1833-1887): String Quartet No.1 in A major (1877) (based on Finale
from Beethoven's Quartet No.13). String Quartet No.2 in D Major (1881)
Debussy, Claude (1862-1918) String Quartet No.1 Opus 10 1893
Dvořák, Antonin (1841-1904): 15 works for string Quartet (inc. Cypresses)
String Quartet No.12 Op.96 (American Quartet) (1893 premiered 1894)

Repertoire Twentieth Century:

Bartók Béla (1881-1945): Six String Quartets 1-6 (1909-1939)

Britten Benjamin (1913-1976): String Quartet in F Major (1928), Rhapsody (1929),
Quartettino (1930), String Quartet in D Major (1931 revised 1974), Alla Marcia (1933),
Three Divertimenti for String Quartet (1933 rev. 1936), String Quartet No.1 in D Major
(1941), String Quartet No.2 in C Major (1945), String Quartet No.3 in G Major (1975)

Lutosławski, Witold (1913-1994): String Quartet (1964)

Penderecki, Krzysztof (b.1931): String Quartet No.1 (1960), String Quartet No.2 (1968),
Der unterbrochene Gedanke (1988), String Quartet No.3 (2008)

Ravel, Maurice (1875-1937): String Quartet in F Major (1903)

Schnittke, Alfred (1934-1998): String Quartet No.1 (1966), Canon in Memory of Igor
Stravinsky (1971), String Quartet No.2 (1980), String Quartet No.3 (1983), Collected
Songs Where Every Verse is filled with Grief (1984-85), String Quartet No.4 (1989)

Note: Schnittke's 3rd string quartet uses quotations from Orlando Lassus' Stabat Mater, Beethoven's Quartet No.16 and the DSCH Shostakovich signature and combines the three soundworlds within forms of Polystylism.

Schoenberg, Arnold (1874-1951): Four String Quartets numbered 1-4 (1904-1936)

Shostakovich, Dmitri (1906-1975): 15 string quartets numbered 1-15 (1938-1974)

Stravinsky, Igor (1882-1971): Three Pieces for String Quartet (1914), Concertino for String Quartet (1920)

Tippett, Michael (1905-1998): Five string quartets numbered 1-5 (1934-1991)

Webern, Anton (1883-1945): Five Pieces for String Quartet (1909), Bagatelles for String Quartet (1911-13), String Quartet Op.28 (1938) (plus three earlier pieces)

Further Recommended Listening:

Adès, Thomas (b.1972): Arcadiana for String Quartet Op.12 (1994)

Andriessen Louis (b.1939): Quartet in 2 Movements (1957), Facing Death for amplified String Quartet (1990)

Berio, Luciano (1925-2003): Quartetto for String Quartet (1955), Sincronie for String Quartet (1964)

Birtwistle, Sir Harrison (b.1934): Nine Movements for String Quartet (1991-96), The Tree of Strings for String Quartet (2007)

Dutilleux, Henri (b. 1916): Ainsi la nuit (1976) (And So The Night) (Thus the Night)

Górecki, Henryck (1933-2010): String Quartet No.3 (1995-2005)

Harvey, Jonathan (1939-2012): Four String Quartets 1-4 (1977-2003)

Ligeti, György 1923-2006: String Quartet No.1 (1954), String Quartet No.2 (1968)

MacMillan, James (b.1959): Memento for String Quartet (1994), String Quartets No.3 (2007)