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CHANGE AND TRANSFORMATION:
THE HARP AS A SYMBOL OF LIMINALITY
IN TCHAIKOVSKY'S *THE NUTCRACKER* (1892)

A Thesis

Presented to

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of the Requirements for the Degree

Master of Music

by

Jeanna Kim

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CHANGE AND TRANSFORMATION:
THE HARP AS A SYMBOL OF LIMINALITY
IN TCHAIKOVSKY'S *THE NUTCRACKER* (1892)

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ABSTRACT

CHANGE AND TRANSFORMATION:
THE HARP AS A SYMBOL OF LIMINALITY
IN TCHAIKOVSKY'S *THE NUTCRACKER* (1892)

by Jeanna Kim

The harp is a musical instrument with a uniquely resonating timbre, and a highly specialized expressive niche within the orchestral repertoire. A deeper study of the harp's metaphorical use is conducted in this report by evaluating the historical context in which the harp emerged, analyzing the timbre of the modern double-action pedal harp, and reviewing the historically significant ensemble works to reveal why composers elected to feature the harp in the orchestra, in lieu of and in conjunction with other instruments. Each of these elements points squarely towards the use of the harp to represent liminal themes and the universal sentiments associated with experiencing change and transformation. To this end, the harp parts from the score of Pyotr Ilyich Tchaikovsky's *The Nutcracker* (1892) are analyzed, alongside the theatrical cues of the first edition ballet score, and E.T.A. Hoffman's original fairytale narrative that the ballet *libretto* was based on. The orchestration of two harp parts in the original score, featured at the points of the many transformational thresholds in the narrative make *The Nutcracker* ballet a particularly compelling piece to study, with striking examples of how the harp's timbre is used to effectively express liminality.

ACKNOWLEDGMENTS

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Liminal |ˈlimənl| *adjective*:
1. of or relating to a transitional or initial stage of a process.
2. occupying a position at, or on both sides of, a boundary or threshold.
　　　　　　　—*The New Oxford American Dictionary*

INTRODUCTION

Music is an integral part of social interaction, a powerful means of communication, and an indispensable part of the human experience. Since antiquity, every known society has participated in musical activities,[1] and over time, formal disciplines around music have emerged to examine its artistic ingenuity. Through these efforts, we have learned that our visceral comprehension of music is never accidental or coincidental, but rather a culmination of remarkably tangible, human-created factors that explain the responses people can have in reaction to music's aural cues and performance practices. If we broadly consider the study of music as observing what is happening when we hear music, and then explaining how it accomplishes its impact on the audience, then the purpose of this report is to compile historical, acoustical, and musical evidence demonstrating the harp's use as a musical symbol of liminality during moments of heightened uncertainty that come with transitions from one state to another.

In popular culture, most people associate the harp with concepts such as "angels," "heaven," "weddings," and "dreams." These associations exist because of how prominently the harp is featured in scenarios depicting these ideas. Liminality, however,

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[1] Thomas Schäfer et al., "The Psychological Functions of Music Listening," *Frontiers in Psychology* 4 (2013).

is a common thread that exists in each case, which means that the harp's presence could instead symbolize this fundamental attribute over the discrete situations in which the harp is commonly expected to appear. For example, rather than depicting "heaven" or "angels" the harp could be used to symbolize the soul's transition from earthly to heavenly realms when a character passes away, or a person's religious transcendence from an earthly state to a higher order of spiritual enlightenment through the acts of prayers and worship. Rather than symbolizing a "wedding," it may be more accurate to say that harp music fits wedding ceremonies because it effectually represents a societal rite of passage being celebrated by a community and the transition that newlyweds experience as they embark on a new life-stage together. And rather than symbolizing "dreams" themselves, the harp may actually represent the process of falling asleep or waking up, in which the dreamer's psychological perception of his or her existence shifts between the states of reality and imagination. As I analyze the harp's use in greater depth, it will become evident that the harp is indeed used to intuitively convey liminality, despite the absence of angels, weddings, dreams, or other stereotypical contexts in which it might be expected to appear.

Over the course of this report, we will examine the harp's characteristic ringing timbre, and how its uniquely distinctive acoustical quality can be heard as paralleling the circumstances and emotional concepts associated with liminality. Historical and musical evidence will further show that Western European composers preferentially utilized the harp, and versions of the harp's instrumental designs that best amplified this ringing timbre, orchestrating the harp for its most resonant effects during narratively driven

moments of liminality. Several compositions will also be explored to verify these

propositions, with Tchaikovsky's *The Nutcracker* examined as a case study in greatest

detail.

1. HOW THE HARP WORKS:
THE EVOLUTION OF MODERN HARP DESIGN

1.1 The Ancient Harp

Throughout history and different cultures, harps have had the same basic structural

elements, despite differences in size, range, and building material. Ancient harps had

anywhere from one to three parallel rows of strings that were connected from a

resonating cavity to a neck piece, where string tension was often adjusted. Lower

frequency pitches were achieved with longer, stiffer strings, and higher pitches with

shorter, more supple strings (fig.1).[2]
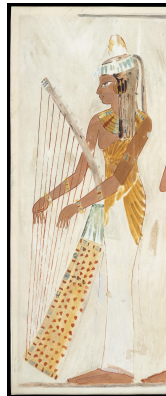
Figure 1. Ancient Egyptian harpist.
Photo Courtesy of The Metropolitan Museum of Art, New York.[3]

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[2] Don Michael. Randel, "Harp," in *The Harvard Dictionary of Music* (Cambridge, MA: Belknap Press of Harvard University Press, 2003), 382.

[3] Charles K. Wilkinson, "Female Musicians," digital image, Egyptian Wall Paintings: The Metropolitan Museum of Art's Collection of Facsimiles, accessed December 3, 2017, https://www.metmuseum.org/art/collection/search/557727.

Beyond this basic instrumental design, performance practices, playing techniques, and building materials varied considerably in different time periods and cultures, such as the *saung kauk* arched harp from Burma (fig. 2). Historical and archaeological records indicate that the harp was plucked or strummed regardless of hand techniques and player orientations, making plucking/strumming one of the intrinsic attributes of the harp's sound.[4]

Figure 2. *Saung Kauk* arched harp from Burma.
Photographed by author,
The Metropolitan Museum of Art, New York, December 2014.

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[4] Sue Carole DeVale et al., *Grove Music Online,* s.v. "Harp," 2001, http://www.oxfordmusiconline.com/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000045738.

Over time, the prevailing technique of classical Western European harpists positioned the players behind the resonating cavity, with higher pitched strings closer to the player, and lower-pitched strings played by reaching outward, away from the player (fig. 3). [5]

Figure 3. Rose Adélaïde Ducreux, Self-Portrait with Harp (Paris, 1791).
Photo Courtesy of The Metropolitan Museum of Art, New York.[6]

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[5] Don Michael. Randel, "Harp," in *The Harvard Dictionary of Music* (Cambridge, MA: Belknap Press of Harvard University Press, 2003), 382.

[6] Rose A. Ducreux, "Self-Portrait with a Harp; Rose Adélaïde Ducreux (French, Paris 1761–1802 Santo, Domingo)," digital image, The Metropolitan Museum of Art, accessed November 20, 2011, https://www.metmuseum.org/art/collection/search/436222.

Pre-nineteenth-century versions of the harp had two critical design limitations: first, the fixed length of the strings limited the number of pitches a harpist could play to the number of strings on a given instrument; second, the open-string construction of the instrument created an inherent restriction on the number of contrasting notes that could be played in succession, such that once any given string was plucked, the vibrations produced audible pitches that would continue to ring, steadily fading in volume unless deliberately dampened. Thus, a series of notes played within a short period of time could potentially accumulate into a clashing haze of overlapping harmonies and unintended dissonances. These two limitations led, at least in part, to the harp being tuned to a single set of related pitches (e.g.: a single diatonic key), with few, if any, options for chromatic accidental notes outside that key. Harmonically fast-paced compositional styles were essentially out of the realm of performable possibility for earlier harps, with other instruments available and better suited to achieve those compositional intentions.

Early historical records in seventeenth-century Europe also indicate that the harp was used both as a common folk instrument,[7] and as a contributor to a *basso continuo* to accompany singing alongside other plucked string instruments.[8] However, the historical harp lacks the same breadth of repertoire seen with other early vocal, string, and

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[7] DeVale et al., "Harp," 2001.

[8] Peter Williams and David Ledbetter, "Continuo," *Grove Music Online*, 2001, accessed March 7, 2018, http://www.oxfordmusiconline.com.libaccess.sjlibrary.org/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000006353.

wind music, and its tonally limiting construction is a probable explanation for this absence.

In response to these limitations, many instrument manufacturers attempted to address the harp's design problems. A great number of intermediary changes to the instrument between the seventeenth and nineteenth century could be discussed, but there were a few pivotal developments that reveal the qualities of the harp people valued most. These prevailing design adjustments led to the modern orchestral version of the instrument that harpists use today, which co-evolved with the music that composers crafted around the harp's musical strengths, and the symbolic association that listeners developed in response to the harp's use in music.

1.2 The *Arpa Doppia*

One strategy that instrument builders took to address the harp's pitch limitations was by adding additional ranks (i.e. rows) of strings to the instrument. A commonly cited historical design in Western Europe was the *arpa doppia* (It. 'double harp'), an instrument that was developed as early as the fourteenth century, but with increased historical and musical prominence in the seventeenth century. In some earlier *arpa doppia* instruments, there were two parallel rows of strings, where one row was completely diatonic, and the other was mostly diatonic, with pre-altered strings that could produce chromatic tones (fig. 4).[9]

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[9] Don Michael. Randel, "Harp," in *The Harvard Dictionary of Music* (Cambridge, MA: Belknap Press of Harvard University Press, 2003), 382-385; and Roslyn Rensch, *Harps and Harpists* (Bloomington: Indiana University Press, 2017), 132.

Figure 4. Modern reproduction of the *arpa doppia* with two ranks.
Photograph reprinted with permission from Rainer M. Thurau,
Studio for Applied Arts – Harps, Germany.[10]

In other variations of the *arpa doppia*, there were three parallel rows of strings

spanning the longitudinal axis of the instrument, where the outer two ranks of strings

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[10] Rainer M. Thurau, "Hue, Arpa De Dos Ordenes," digital image, Rainer M. Thurau - Studio for Applied Arts, accessed March 27, 2018, https://www.thurau-harps.com/harps/collection-of-early-harps/huete.html.

were tuned diatonically, and the inner rank of strings was tuned to fill in for chromatic

notes, similar to the arrangement of white and black keys on a piano (fig.5).[11]
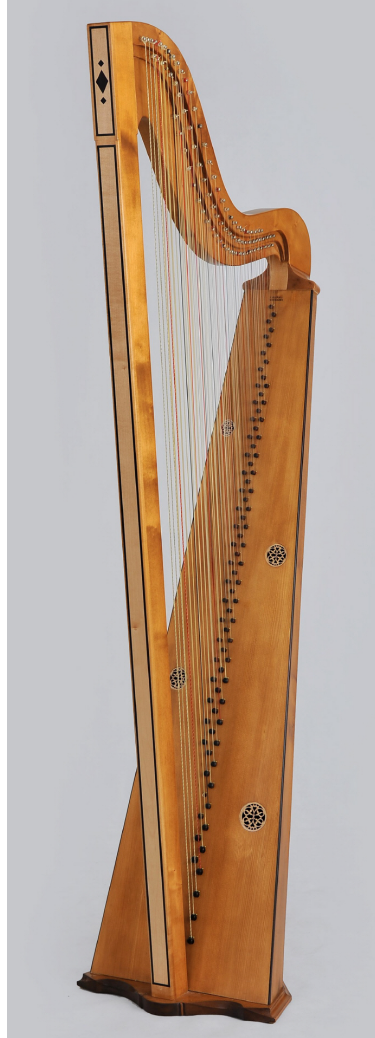
Figure 5. Modern reproduction of an *arpa doppia* with three ranks.
Photograph reprinted with permission from Rainer M. Thurau,
Studio for Applied Arts – Harps, Germany.[12]

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[11] DeVale et al., "Harp."

[12] Rainer M. Thurau, "Nuvolone, Arpa a Tre Ordini," digital image, Rainer M. Thurau - Studio for Applied Arts, accessed March 27, 2018, https://www.thurau-harps.com/harps/collection-of-early-harps/nuvolone.html.

The name "double harp" stemmed from having either two ranks of strings, or an extended octave range of strings compared to standard harps during that time.[13] Naturally, both of these approaches expanded the harp's ability to play accidentals, by increasing the number of strings available in each octave, while retaining the plucking/strumming quality that was central to the harp's characteristic sound.

1.3 Single-Action Harps

Hooks

In the late seventeenth century, a new type of mechanism began to emerge in Austria, that also addressed the pitch-range limitations of the harp in a different way. A system of J-shaped hooks, which were positioned along the neck of the instrument, could be manually turned to exert pressure on the string at a point slightly below the tuning peg. This would shorten the vibrating length of a single string and subsequently raise the produced pitch by a semitone (fig. 6).

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[13]See Marcel Tournier, *The Harp*, trans. Rita H. Pitt (Paris: Henry Lemoine, 1959), 33; Howard Mayer Brown, "Double (in Instrument Names)," *Grove Music Online*, 2014. accessed March 10, 2018, http://www.oxfordmusiconline.com.libaccess. sjlibrary.org/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-4002255555?rskey=iS5jPk&result=2; Michael Kennedy, "Arpa Doppia," *The Concise Oxford Dictionary of Music* (Oxford: Oxford University Press), 2007. Accessed January 12, 2018. http://www.oxfordreference.com/view/10.1093/oi/authority.20110803095425615.
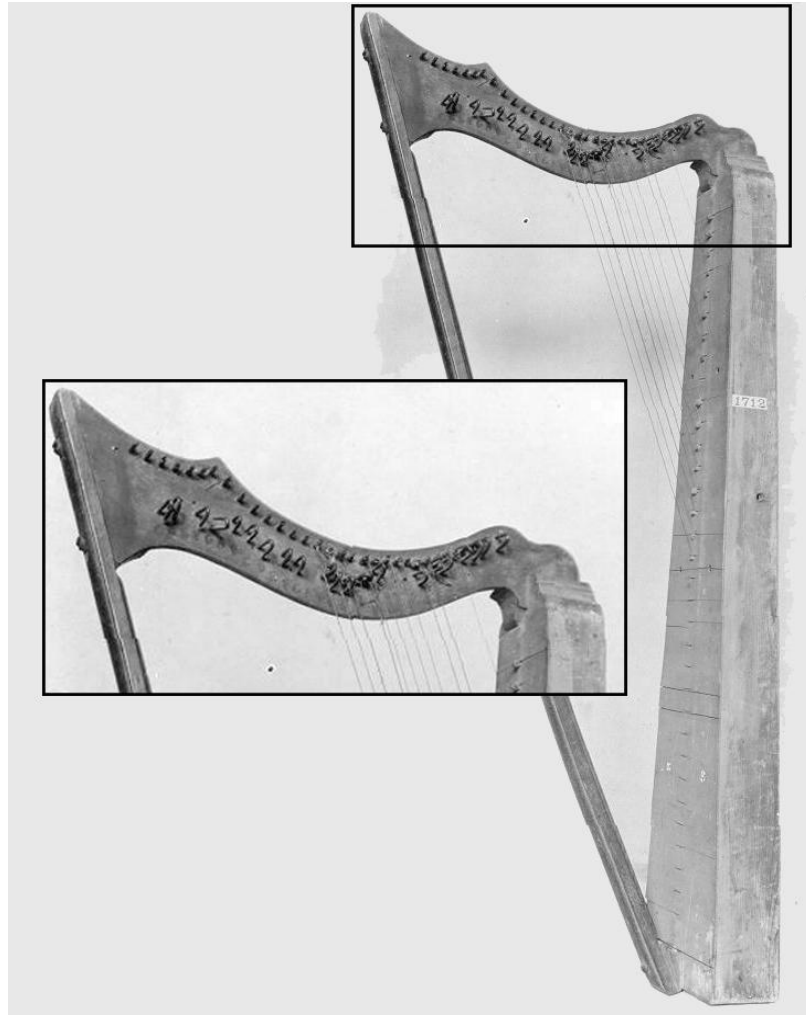
Figure 6. Eighteenth-century Hook Harp.
Origin: Tyrol, Austria.
Photo courtesy of The Metropolitan Museum of Art, New York.[14]

This hook mechanism gave the harp an additional range of related keys that could be performed using a single instrument, along with the possibility of playing a limited number of accidentals. Altering the length of harp strings also avoided the issues of multi-ranks harps, such as the confusing sight of visually overlapping strings, or the

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[14] "Hooked Harp," digital image, The Metropolitan Museum of Art, accessed February 15, 2018, https://www.metmuseum.org/art/collection/search/502275.

cumbersome task of playing accidentals by reaching between vibrating strings to access a different rank. The hooks at this early stage of harp development, however, were rudimentary, and would often bend in use. Repeated pressure on a single string could also pull it out of tune, and as a result, a precise pitch change was never guaranteed.[15] The action of the performer manually twisting a hook in the middle of a piece was also problematic, as it temporarily prevented one of the performer's hands from playing.[16] In addition, each hook could only change the pitch of a single string, preventing the entire instrument from changing key.

Hochbrucker, 1720

In the early 1700s, a new design addressed the harp's pitch limitations, by again, diverting away from the approach of adding ranks of strings to the instrument. In this design, the pillar at the front of the harp was enlarged and hollowed out, allowing a pedal mechanism at the base of the instrument to connect to the neck of the harp through the pillar. Each pedal corresponded to a single pitch category (e.g.: category C would include C♮ and either C# or C♭), and could activate the hooks on the neck to alter the

strings of a corresponding pitch in every octave. This revolutionary methodology was the first to free the performer's hands from altering the pitches of individual strings, while increasing the harp's flexibility to deviate harmonically and melodically from the base

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[15] DeVale et al., "Harp," and Lee-Fei Chen, *The Emergence of the Double-Action Harp as the Standard Instrument: Pleyel's Chromatic Harp and Erard's Double-Action Harp*, PhD diss., University of Miami, 2008 (Coral Gables, Florida: Open Access Dissertations, 2008), 11.

[16] DeVale et al., "Harp."

key it was initially tuned to. Jakob Hochbrucker of Donauwörth, Bavaria is frequently cited as the inventor of the first single-action pedal harp, along with several other instrument makers who also participated in the development of this pitch-altering mechanism.[17] The unfortunate issue with this design was the unstable tuning, again due to the repeated pressure exerted and released on the strings. A general noisiness caused by the pedal footwork was also distracting and thus unfavorable.[18]

Several other efforts were attempted to improve this important but imperfect system by stabilizing the initial hook mechanism. The *crochet* (Fr. 'hook') was a lever in the shape of a right-angle developed in France, and used in place of the J-shaped hooks that first emerged in Austria. Even though was used by many of the leading French harp makers of the 1700s, twisting a *crochet* against the string would cause the string to produce a duller sound compared to the sound of an unaltered, open-string. The *crochet* would also push the string away from its original position in the row of strings, causing an inconvenient visual misalignment for the player.

To avoid the visual misalignment of an altered string, the Cousineau family of harp markers (early nineteenth century), attempted an improved system known as *à béquilles* (Fr. 'crutches'), where each string had two crutch-ended levers on each side, with one vertically positioned above the other (fig. 7).

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[17] DeVale et al., "Harp."

[18] Chen, *The Double-Action Harp*, 13.

Figure 7: Pedal Harp, dated to the early 19th Century.
Maker: Cousineau Père et Fils. Origin: Paris, France.
Photo courtesy of The Metropolitan Museum of Art, New York.[19]

Pressing the pedal would turn each lever in opposing directions, tightening the string

to minimize vertical misalignment, while providing improved stability for the string to

reverberate with greater clarity.[20]

Érard Fork Mechanism Harp, 1794

The piano maker, Sébastian Érard, is widely regarded by historians as the most

pivotal contributor to improving the physical and tonal stability and technical mechanics

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[19]" Pedal Harp," digital image, The Metropolitan Museum of Art, accessed March 1,
2018, https://www.metmuseum.org/art/collection/search/505304.

[20] DeVale et al., "Harp."

of the pedal harp. There is little evidence however that he made many harps until after

1790, when he escaped from the French Revolution and resettled in London. As founder

of the London-based instrument manufacturing company, Érard et Cie, Érard shifted his

focus away from pianos to harps, and took out the first British patent for his instrument

design in 1794 (*Improvements in Pianofortes and Harps*, patent no.2016).[21] In a letter

Érard said, "the [previous] mechanism of this instrument is too complicated; I have

changed and much simplified it; this means it doesn't break strings like before. Once I

have obtained the right to show my discovery, I will bring out my harps."[22]

Érard made several changes to the construction of the single-action pedal harp to

reinforce the resonating cavity, soundboard, neck, and pedals. But the most notable

technical advance was the fork mechanism that was able to shorten the strings by a

semitone, without significantly altering the alignment of the strings or compromising the

quality of sound the string produced. The fork mechanism consisted of a disk and two

perpendicular prongs on opposite sides of the disk. Each string connected from a tuning

pin to a bridge pin, over the center of a disk between the two prongs, down to the

resonating soundboard. When the fork was open, the string would be unaltered, and

allowed to vibrate freely (fig. 8).

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[21] Ann Griffiths, "Érard," in *Grove Music Online* (Oxford University Press, 2007-2014), accessed November 10, 2011, http://www.oxfordmusiconline.com/.

[22] Ann Griffiths and Richard Macnutt, "Érard," *Grove Music Online*, 2001. Accessed March 11, 2018, http://www.oxfordmusiconline.com.libaccess.sjlibrary.org/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000042471?rskey=mRaodS&result=1; and Chen, *The Double-Action Harp*, 18-19.

Figure 8. Open Fork, on modern equivalent of double-action pedal harp.

When a pedal was pressed, the corresponding disks for that pitch would turn in all octaves pressing both prongs against the strings and shortening the vibrating lengths (fig. 9).
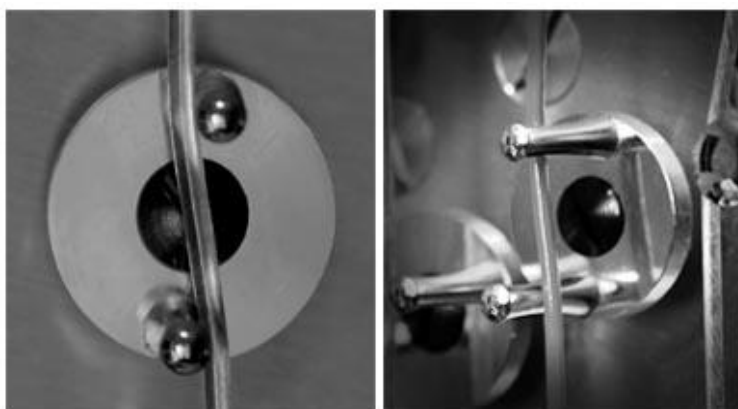
Figure 9. Closed Fork, on modern equivalent of double-action pedal harp.

This stabilizing fork mechanism balanced the pressure exerted on each string, minimizing the directional force that previously caused strings to stretch or be pulled out of the tuning pegs. An improved consistency with each string's visual position, in relation to neighboring strings, was also favorable to harpists.

1.4 Double-Action Harp: Érard, 1810

As Érard's company successfully sold his single-action harp, he continued optimizing

the pedal mechanism, and subsequently added a second row of forks. This allowed the

strings to be shortened by an additional half-step, giving each string the ability to play

three possible pitches, a semitone apart (e.g.: C♭, C♮, and C#). He patented this improved

double-action fork mechanism in 1810 (fig. 10).[23]

Figure 10. Original Érard Double-Action Pedal Harp. Date: ca. 1815–20.
Origin: London, England.
Photo courtesy of The Metropolitan Museum of Art, New York.[24]

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[23] Griffiths and Macnutt, "Érard."

[24] "Pedal Harp," digital image, The Metropolitan Museum of Art, accessed February 11, 2018, https://www.metmuseum.org/art/collection/search/504661.

The basic elements of Érard's newly developed double-action pedal harp mechanism began with the strings of the harp tuned to a C♭ Major scale. Seven pedals sat at the foot of the harp, each corresponding to a note in the diatonic scale: D, C, B on the left side, and E, F, G, A on the right side (fig. 11a).
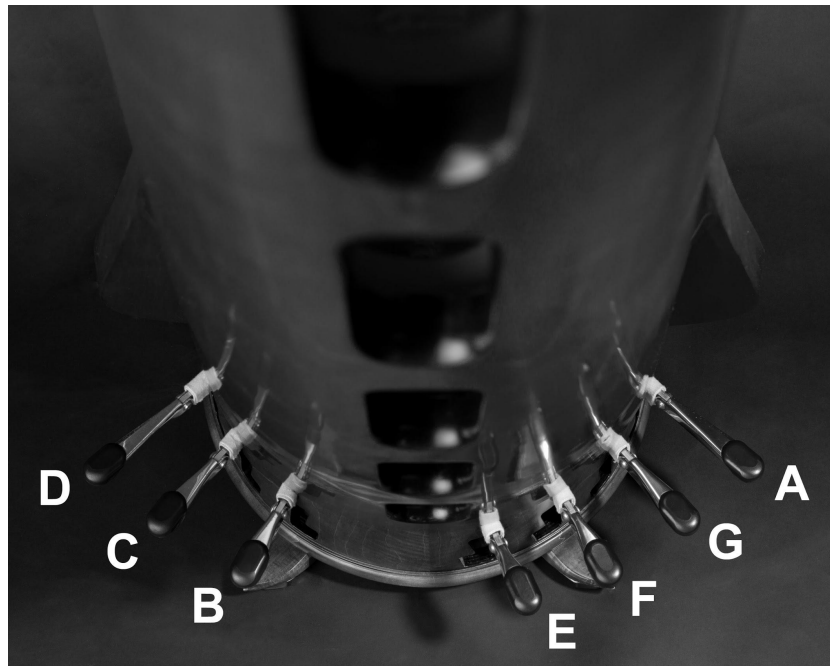
Figure 11a. The pedals of a modern equivalent of an early double-action pedal harp, from the player's perspective.

Each pedal had three vertically aligned slots, where the top slot left both forks for the corresponding pitch in each octave, open. The middle slot engaged the top row of forks for the corresponding pitches in every octave, shortening the strings so that the pitches increase by a semitone. When the same pedal is pushed further to the bottom slot, the

second row of forks were engaged, which shortened the strings in each corresponding

octave by another semitone (figs. 11b and 12).

Left Foot   **Right Foot**
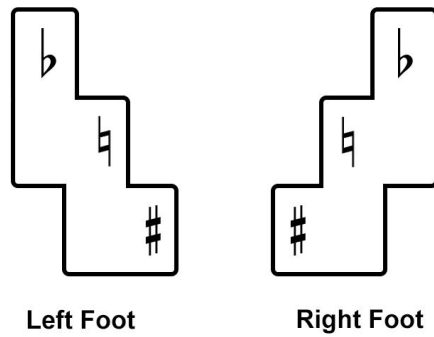
Figure 11b. Diagram of slots that each pedal is able to rest at, and the corresponding
change in pitch that results from pedals engaging in each slot.
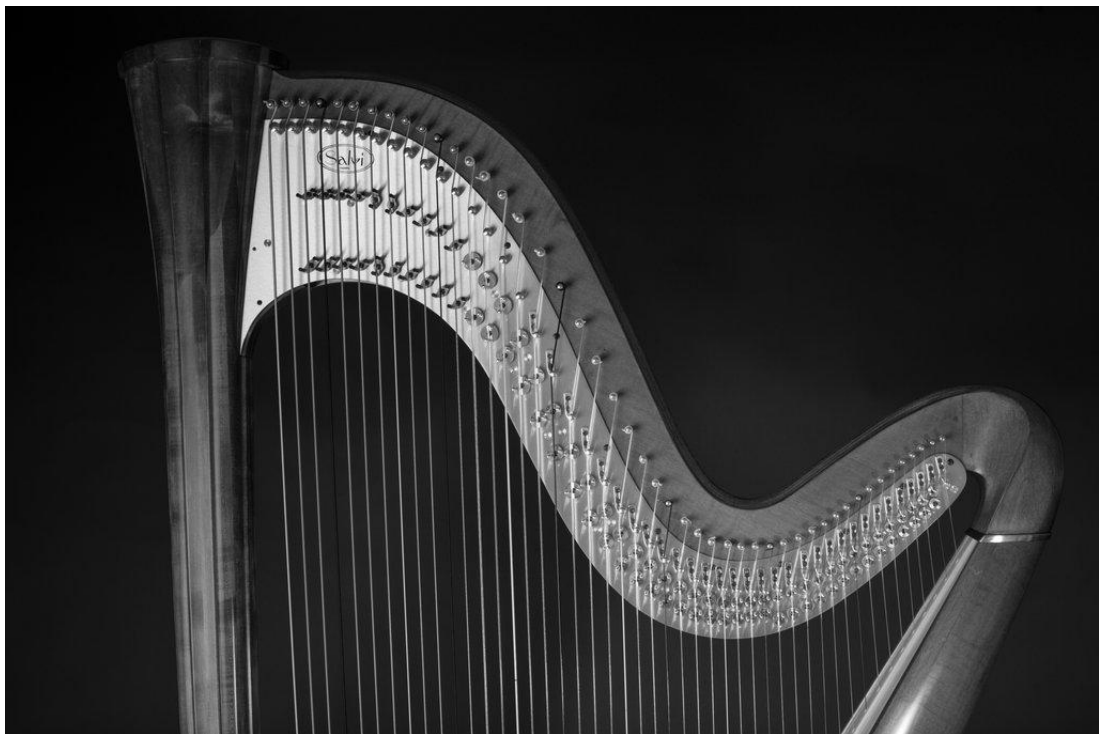
Figure 12. The harp's string-altering fork mechanism on a modern equivalent of an early
double-action pedal harp.

Figure 13 below provides an illustrative example, showing how the vibrating length of representative string, A1, changes as the corresponding A pedal is pressed.
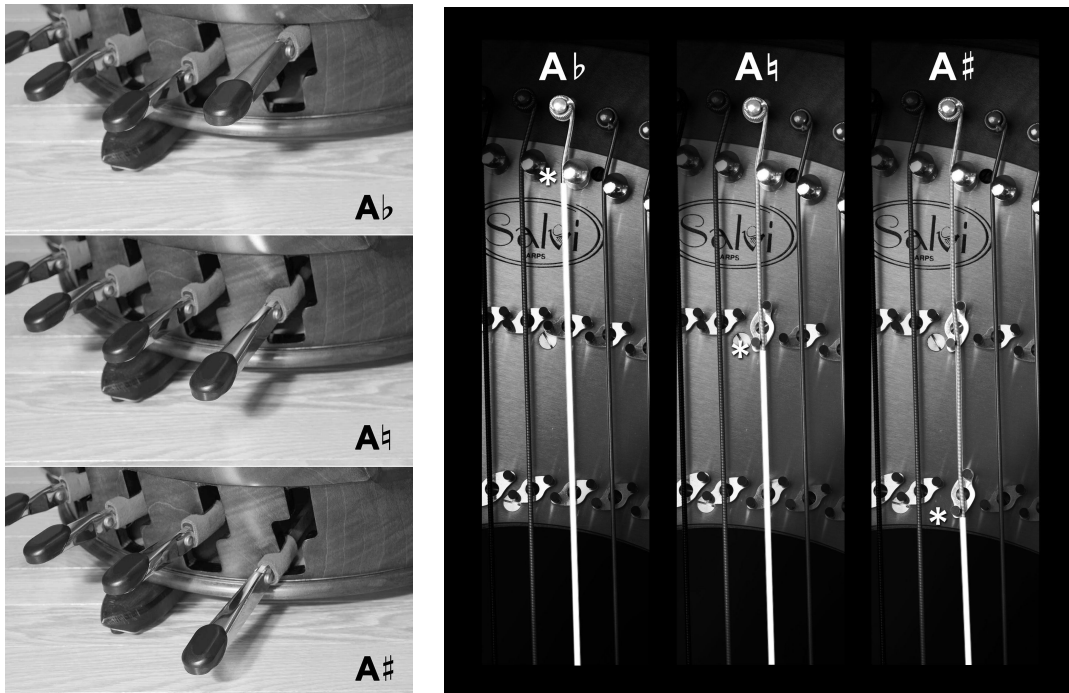
Figure 13. The double-action pedal harp's string shortening mechanism demonstrated with representative string, A1. The vibrating length of each string is indicated by an asterisk.

The pedal in the highest slot corresponds to the string labeled A♭. Both external disk mechanisms are open, allowing the string to vibrate at its full length, indicated by the asterisk at the bridge pin. When the A pedal is moved to the middle slot, the first row of disks for every A string turn, shortening the strings and thus, raising the pitch of the string by a semitone, indicated by the asterisk under the string labeled A♮. When the A pedal is moved to the bottom slot, the second row of disks for every A string turn, shortening the strings by another half step to achieve A#, again, indicated by the asterisk under A#.

The advent of this mechanism enabled harpists to modulate to a wide range of keys and play accidentals, without having to change instruments or disrupt their hands while performing. Although this version of the harp was not fully chromatic, the open-string configuration enabled the harp's strings to resonate in every diatonic key, both major and minor. Accidentals could also be achieved, but to a limited degree. Despite its limitations, the Double-Action Harp was wildly popular because these improvements retained the harp's harmonically resonating quality.[25] The double-action feature conclusively eliminated the developing mainstream harp from ever being truly chromatic, but even so, it greatly enhanced the harp's harmonic flexibility while maintaining its distinctive and resonating timbre.

1.5 The Chromatic Harp: Lyon, 1894

In contrast to the mechanical progress of Érard's harps, another instrument manufacturing company, Gustav Lyon of Pleyel, Wolff, & Cie in Paris began to build *harpe[s] chromatique sans pédales* (Fr. 'chromatic harps without pedals'), as a way to address the demand for increasingly chromatic repertoire. It was essentially a re-designed multi-rank harp, based on J.H. Pape's 1845 patent, that eliminated the pedals and simplified the harp's internal mechanism.[26] Its range spanned six and a half octaves with a row of thirty-two black strings intersecting with a second, distinct row of forty-six white strings. The white and black strings were the same order as the the black and white

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[25] Norman Del Mar, *Anatomy of the Orchestra* (Berkeley and Los Angeles: University of California Press, 1987), 448.

[26] DeVale et al., "Harp."

21

keys on a piano keyboard.[27] This created a cross-stringing effect that allowed hands on either side of the instrument to access each string. The design built by Greenway in the example below (fig. 14) is an exaggerated version of a cross-strung model built by the Pleyel & Wolff Company of Paris in the late nineteenth century. Lyon's version had a single neck, while the Greenway's design below has two necks, however, the basic cross-strung layout of the strings is the same.

Figure 14. Double Chromatic Harp, Constructed by Henry Greenway. Dated after 1895.
Photo courtesy of Metropolitan Museum of Art, New York.[28]

The chromatic harp's development allowed for an unprecedented level of musical chromaticism previously impossible on the harp, and gave late nineteenth-century composers the freedom to compose music with accidentals, tonicizations, and

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[27] "The Pleydel [sic] Chromatic Harp," *Musical Times Publications Ltd* 58 (no. 895): 421.

[28] "Double Chromatic Harp," digital image, The Metropolitan Museum of Art, accessed March 6, 2018, https://www.metmuseum.org/art/collection/search/501801.

modulations. The lack of pedals eliminated the need for harpists to split their mental

attention between hands and feet, while a relatively seamless transition between keys

could be achieved without the noisy movement of the pedal mechanism. The lack of

mechanism also helped maintain the harp's tuning, which gave each string a consistent

tension, and thus, a consistent, predictable sonority. Over time, Lyon was also able to

achieve stable tuning when using steel to reinforce the harp's body instead of wood.[29]

1.6 The Competition Between Double-Action and Chromatic

By the late nineteenth century, the harp's structural development had progressed from

a basic triangular frame and a simple row of strings to these two competing models: the

cross-strung chromatic harp manufactured by Pleyel, Wolff, & Cie, and the double-action

pedal harp manufactured by Érard et Cie. Each of these models attempted to solve

different aspects of the harp's design limitations, and as a result, an overt rivalry surfaced

between these companies to gain market dominance. Each company commissioned a

notable composer to create advanced repertoire for its instrument, with the intention of

showcasing its unique strengths, solidifying the use of their respective instruments in

conservatories, and securing the sales of their harps to the next generation of harpists.

In 1904 the Pleyel Company commissioned Claude Debussy (1862-1918) to show off

their chromatic harp's design.[30] Premiered later that year in Paris, Debussy's *Danses

sacrée et profane* for chromatic harp and strings featured the harp's ability to play a level

of chromaticism that was previously unachievable on the harp. The continuous harmonic

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[29] Chen, *The Double-Action* Harp, 3.
[30] Chen, *The Double-Action* Harp, 5.

changes of the *Danses,* coupled with the harp's plucking timbre would have been an astounding combination to hear performed by a single player.

One subtle, but important, detail to notice is that the harp part for Debussy's *Danses* is almost continuous from beginning to end, with the exception of one four-measure tacet startin in measure 62 of *Danse profane*. Many pedal harp ensemble pieces mandated intermittent pauses to give the player time to readjust pedals for an upcoming modulation or to set up for a passage with accidentals. No such pauses were necessary for the chromatic harp. Gustav Lyon wrote:

> ...chromatic sonority is as beautiful as diatonic...If the instrument allows the same freedom of interpretation and inspiration, the same tranquility of soul, then one can say that chromaticism is as natural to the harp as to the piano, organ or harpsichord and surpasses diatonicism by its novelty, variety, spice, color, and possibilities of expressing all human feelings states of mind.[31]

While Debussy was able to compose a highly memorable piece that demonstrated the chromatic harp's harmonic and melodic flexibility, the design of the chromatic harp was still highly problematic. Many ensemble harpists were women, making the issue of transporting an over one hundred and thirty-pound steel harp a deterrent for performers.[32] The cross-strung orientation of the strings was also difficult on the eyes, and mandated a new technique in order to play, and many harpists were not keen on abandoning the years of investment they had already made into playing a single, flat row of strings.

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[31] Elaine Christy Bejjani, *The Chromatic Harp of the Late Nineteenth Century*, PhD diss., The Manhattan School of Music, 1993 (New York, NY: Manhattan School of Music, 1993), 44.

[32] Chen, *The Double-Action Harp,* 3.

Additionally, the hallmark sound effects that had become characteristic of the competing double-action harp, such as *glissandi,* were not achievable on a chromatic harp, as it could only play scales in the key of C major or a pentatonic scale starting on C#. More often than not, *glissandi* on the chromatic harp were also uneven because of the uneven spacing created by the need to have intersecting strings. The chromatic harp was also unable to accomplish the degree of musical complexity of a keyboard instrument. Harpists only used eight out of ten fingers, given that the pinky finger is disproportionally weak. Alphonse Hasselmans, professor of the harp department in the Paris Conservatory from 1884-1912, insisted that the chromatic harp's innovation "completely denatured the character of the instrument and made it scarcely a reduction of the piano."[33]

In opposition to the Pleyel Company, Érard et Cie commissioned Maurice Ravel (1875-1937) in 1905, to compose his *Introduction et allegro*, a chamber work for harp, flute, clarinet and string quartet. This piece highlighted their double-action pedal harp's most popular effects by allotting time for the instrument to resonate on a cluster of notes from a single chord. The supporting ensemble took the lead in carrying the forward momentum of the harmonic structure, while the harp's construction allowed for sustained, virtuosic arpeggios and *glissandi*. This approach to harp composition optimally amplified the timbral effect of the harp's basic pluck or strum, and elicited a highly favorable reaction from audiences.

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[33] Chen, *The Double-Action Harp*, 71.

Thirteen distinct chord and scale *glissandi* are incorporated in Ravel's *Introduction et allegro*, such as in the example shown below (ex. 1):

EXAMPLE 1. Sample of g diminished 7 chord arpeggio from Ravel's *Introduction et allegro,* played by the double-action harp [34]

Chord *glissandi,* in particular were one of the novel sounds produced by the double-action pedal harp, in which a harpist could set the necessary pedals to play the pitches of a harmony, and then set the pedals of the remaining non-chord tones to spell the notes of the chord enharmonically. Thus, the pitches of a chord glissando would ring as a single chord, but with the sweeping percussive sound of a familiar scale glissando. The use of chord *glissandi* also amplified the volume of the chord being played because of the

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[34] Maurice Ravel (1926), *Introduction et allegro* (Paris: Durand & Fils, 1906), 25.

doubled pitches, while the resonance of the un-dampened strings gave the double-action

pedal harp a unique sound quality that could not be reproduced by other instruments,

including other forms of the harp.

While both instruments showed potential for success, it was Érard's double-action

pedal harp that eventually won favor among members of the music community. The

Pleyel chromatic harp's consistent accessibility to every note in the chromatic scale

achieved a historically unprecedented level of harmonic flexibility, but it did so at the

expense of diminishing the unique timbre that distinguished the harp from other

instruments. Many composers likened the chromatic harp to a stifled version of a piano,

whereas the Érard double-action pedal harp, retained the favorable resonant qualities of

the former single-action pedal harp, while gaining the ability to play in every diatonic

key. The mechanical improvements simply improved the instrument's stability while

expanding its tonal range.[35] Over time, the limitations of the cross-strung chromatic

design were further revealed, when Debussy's *Danses sacrée et profane* was proven

playable on the double-action pedal harp, while Ravel's *Introduction et allegro* was not

playable on the chromatic harp.

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[35] Del Mar, *Anatomy of the Orchestra*, 448.

1.7 The Modern Double-Action Pedal Harp

The modern concert-grand double-action pedal harp used today maintains the same fundamental structural components of Érard's original design (fig. 15).

Figure 15, A modern concert-grand double-action pedal harp,
standing alone (left) and with harpist (right).

It is engineered to optimize the necessary size and shape combinations to achieve a rich, resonant sound, while minimizing practical issues such as transport, cost, playability, and structural stability. Fourty-seven strings span between the neck and soundboard, and the front pillar still houses the mechanism that connects the pedals at the base of the harp to the turning forks along the neck. Higher frequency strings are typically nylon or gut, mid-range frequency strings are gut, and lower frequencies wire-wrapped steel with a nylon separator. Current models have been refined and

strengthened to withstand a collective string tension of up to 20 kilonewton (kN), over 4000 pounds.[36]

1.8 The Sound of the Harp

While the tone of an individual harp string is often indistinguishable from other plucked stringed instruments (eg: a guitar, lute), plucking multiple strings on the harp, combined with the construction and design of the instrument, creates a uniquely colorful, "heavenly" ring that no other instrument can replicate. When any given string is plucked, the temporal quality of the emitted sound spectrum includes the initial, percussive "snap," followed by a tone shift from an initial frequency, to a slightly lower frequency. The audible pitch decays in volume, and the length of time it takes the sound to decay becomes progressively longer with the longer string length of the lower pitched strings. The kinetic energy generated from the plucked string transfers to the soundboard, which then vibrates to both amplify the audible frequency of the plucked strings and subtly activate the related fundamentals and harmonics of other strings on and around the instrument.

The basic pedal harp soundboard is a trapezoidal shape, with a large aspect ratio compared to other instruments. This leads to a rich heterogeneity of the soundboard's modal shapes, adding to the unique and variable timbre that the modern double-action

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[36] Thomas D. Rossing, *Science of String Instruments* (New York: Springer Verlag, 2010), 146.

pedal harp produces.[37] The soundboard is optimized by manufacturers to oscillate at

different modes, each of which correlates with the fundamental of a plucked string and a

dominant antinode. The region of this principal antinode moves directionally up the

soundboard in a similar way the pitches of the attached strings move up in order. Proper

alignment of the strings (i.e. fundamental) and the soundboard antinodes is critical to

maximizing resonance (i.e., loud-sounding strings) and minimizing interference (i.e.,

dead-sounding strings).[38]

   In addition to this, the soundboard is mounted to a sound box with holes along the

back that face the player (fig. 16).

Figure 16. Photo of the rear of the modern double-action pedal harp,
showing openings in the sound box and pedals in the flat position.

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[37] Shira Daltrop, Andrzej Kotlicki, and Chris Waltham, "Vibro-acoustic Characteristics of
an Aoyama Amphion Concert Harp," *The Journal of the Acoustical Society of America*
128, no. 1 (July 2010): 466.

[38] Rossing, *Science of String Instruments*, 158.

These holes exist, in part, to allow harpists to access the string anchors under the soundboard, but their function is also acoustical. The interplay of the soundboard's vibrational modes with the air in the cavity of the sound box and its openings generates air movement in and out of the holes, acting as a series of Helmholtz resonators, to further amplify the effects already being produced by the harp.[39]

The aforementioned improvements in the pedal mechanism seamlessly allow the modern harp to resonate with only the pitches of interest. In particular, extended scales and chords played in the context of slower harmonic progressions, give the harp an opportunity ring withminimal interference. Ultimately, the modern double-action pedal harp is an optimal combination of structural stability and musical uniqueness, deliberately engineered to stabilize the strings while resonating as much as possible (fig. 17).

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[39] Rossing, *Science of String Instruments*, 160.
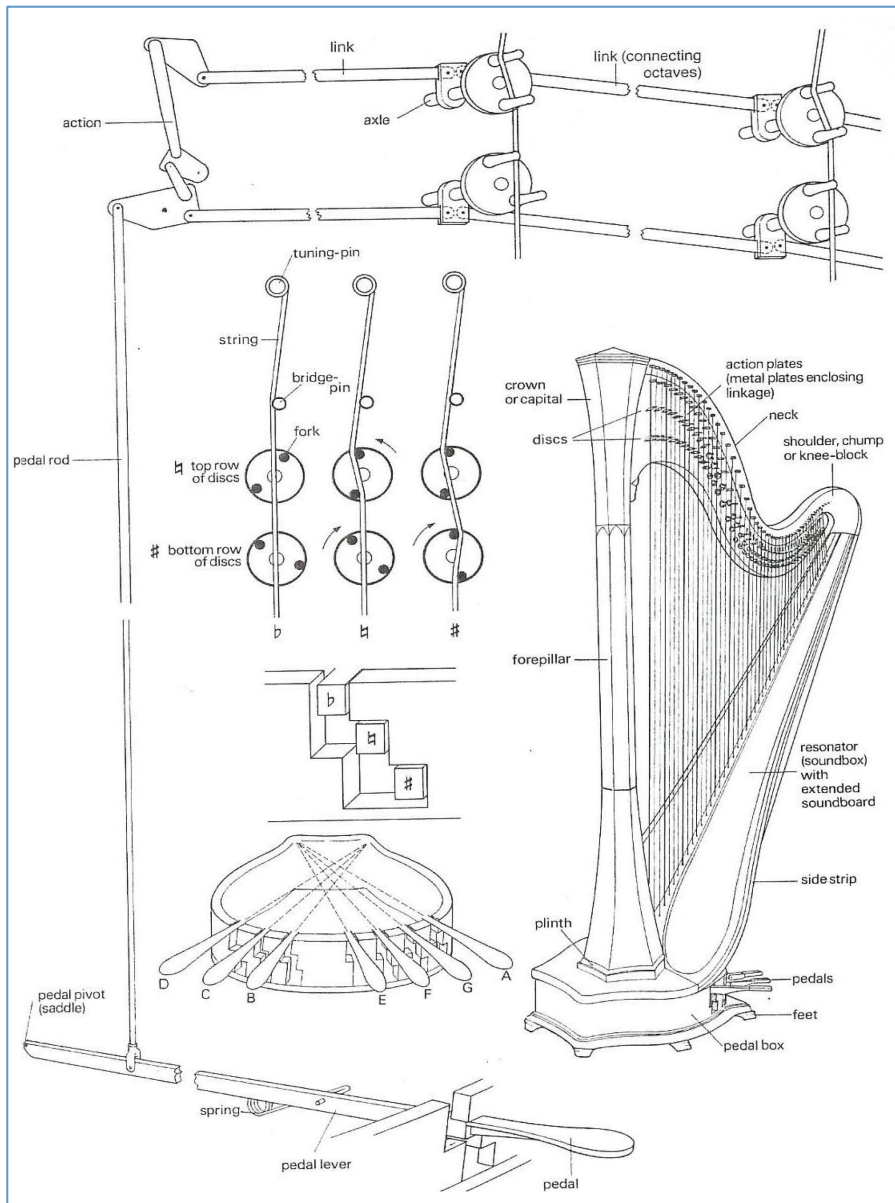
Figure 17. Summary of the double-action pedal harp's internal mechanism.
Reprinted with permission from the Oxford University Press.

Registers

Each tonal register of the double-action pedal harp contributes differently to the

instrument's timbre, due to differences in material, string length, and string tension.

Lower frequency strings (C1 to G2) are metal-wrapped with a nylon separator. They are the longest strings, with the widest girth, and made with the most durable material. Mid-range frequency strings (A2 to E5) are made of gut, and are played most frequently due to their occupancy around middle C. Higher frequency strings (F5 to G7) are typically nylon or gut, and are the shortest strings with the least structural reinforcement (fig. 18).

Low Register
(C1 to G2):
wire wrapped strings

Middle Register
(A2 to E5):
Gut Strings

High Register
(F5 to G7):
Nylon or gut strings
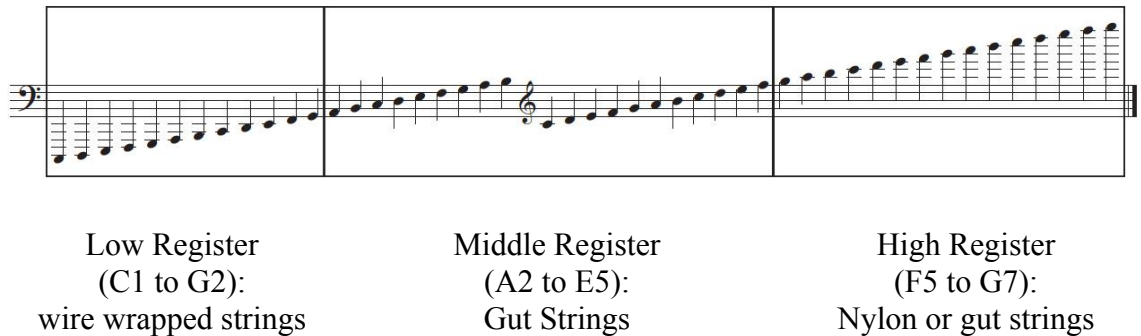
Figure 18: The three tonal ranges of the concert-grand, double-action pedal harp, separated based on string material.

Resonance

Table 1 on the next page charts out the amplitude and pitch spectrum of representative strings plucked in each of the three registers. The amplitude graphs in the left column show how the volume of a plucked string (vertical axis) changes as time elapses (horizontal axis). When the graph turns grey, this indicates that the microphone is no longer able to differentiate between the pitch emitted by the string and the ambient noise of the room. The rainbow spectrum analyses in the right column show the range and density of audible pitches (vertical axis) as time elapses (horizontal axis). In other words, the more horizontal lines seen on the rainbow spectrum graph, the greater the

number of pitches are being picked up by the microphone. The colors represent the

intensity of the pitches, with green being the most intense, and red being the least intense.

Table 1: Amplitude and Sounds spectrum analysis on representative strings plucked in each of the double-action pedal harp's three registers.

Amplitude of C♭2: Signal (black) decays to noise at 12 seconds, post-pluck.
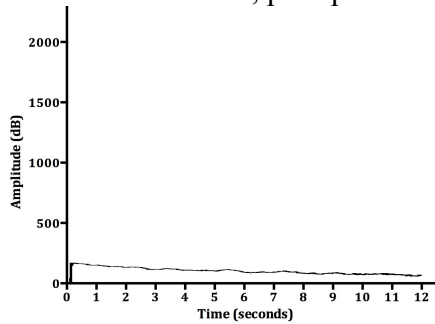
Rainbow Spectrum Analysis of C♭2
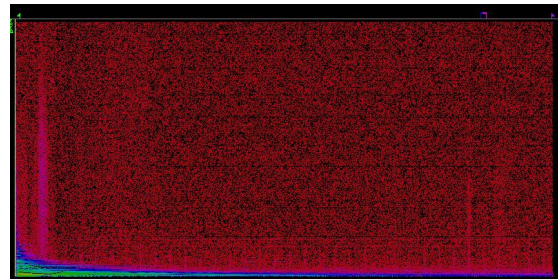
Amplitude of C♭4: Signal (black) decays to noise (grey) at 4 seconds, post-pluck.
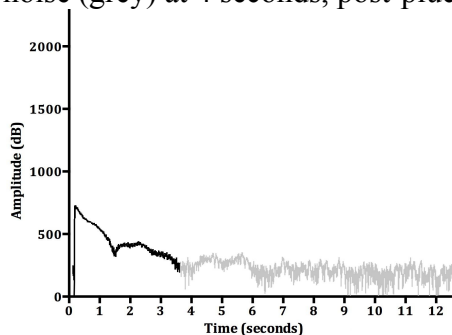
Rainbow Spectrum Analysis of C♭4
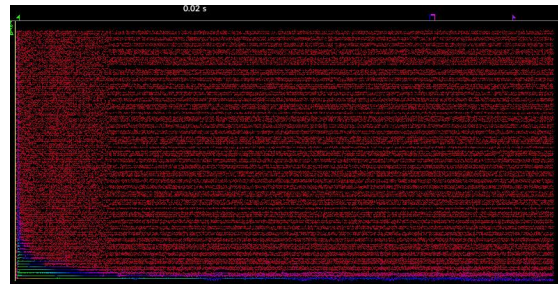
Amplitude of C♭6: Signal (black) decays to noise (grey) at 1 second, post-pluck.

Rainbow Spectrum Analysis of C♭6

34
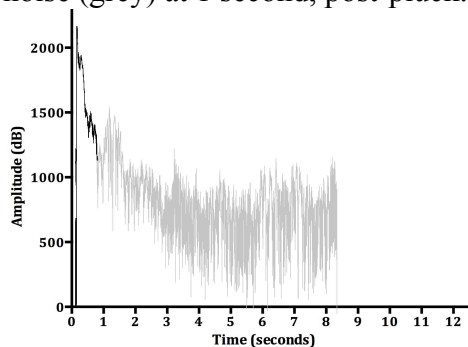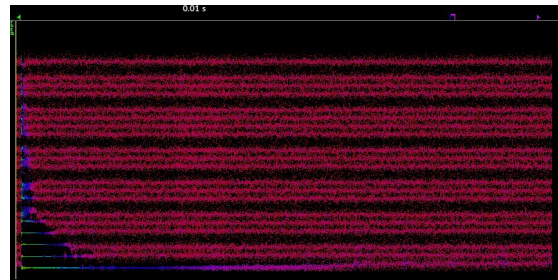
The general trend is clear: as the pitches move up in each register of the instrument, the initial percussive pluck becomes significantly louder and sharper, while the length of time that strings sustain audible vibrations becomes shorter, and the richness in the spectrum of pitches being emitted becomes less diverse. As the pitches move down the registers, the percussive attack from plucking the string sounds broader and less focused, while the the strings sustain vibrations for a longer period of time, and the spectrum of audible pitches becomes more assorted.

Ring

Table 2 on the next two pages charts out the frequencies being emitted by the harp in cycles per second (CPS, i.e. Hertz (Hz)), when the same representative strings are plucked in each of the three registers. The top graphs measure the behavior of the specific frequency that the string is tuned to, and show that the fundamental pitch is initially quite stable. The collective tone spectra and perceived pitch (formant) does include the fundamental, but also the sympathetic vibrations, and the activated harmonics related to the fundamental.[40] Thus, as the harp resonates, the central pitch heard by listeners shifts downward as different vibrating frequencies constructively and destructively interfere with each other. This is compounded in a musical setting when the fundamentals and harmonic overtones of several strings being plucked simultaneously collide into each other. While the pitch centers are initially audible, the loose nature with which the harp retains the perceived frequencies of a plucked harp string gives the harp its resonant yet wavering quality. As before, when the graphs are changed to a grey color

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[40] Harvey Elliott White and Donald H. White, "Formants," in *Physics and Music: The Science of Musical Sound* (Mineola: Dover, 2014), .

when the microphone is no longer able to reliably differentiate between the sound emitted

from the harp and the ambient room noise.

Table 2: A comparison in the frequencies versus formants of representative strings
plucked in each of the double-action pedal harp's three registers

Pitch (Scientific Notation):	Frequency and Formant Graphs (CPS):
C♭2	
C♭4	

Table 2 cont.

Pitch (Scientific Notation):	Frequency and Formant Graphs (CPS):
C♭ 6	

The acoustical differences between each register of the harp create a distinct

separation between the musical function of strings in the highest register, and strings in

the mid to low registers. When analyzing the harp's middle and lower registers, the

fundamental frequency is initially stable, despite the pitch-bend that many trained

musicians perceive. The perceived pitch-bending effect, must be from the harp's timbral

resonance and the wide range of harmonics that are activating and amplifying or

interfering with each other. This is indeed the case, when analyzing the harp's formants,

or broader tone spectra, and comparing the results to measuring its fundamental

frequencies alone.

The highest register is perhaps the most distinctive from the other two registers in

sound and musical functionality. Both its fundamental frequency and formants are

relatively steady, and the initial attack due to plucking the string is loudest, with an

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immediate decay in volume, and only minimal harmonic activations. This makes the strings in the higher register capable of playing faster tempos with greater tonal clarity relative to the lower registers. But similar to the strings in the middle and lower registers, the player still has no control over the maintenance of the decaying volume, the enharmonic and sympathetic resonance of other adjacent, high-register strings, and the ultimate end point of the sound heard. Even though the duration of the pitches is short and the spectral diversity is low, the resonance of sympathetic vibrations is particularly audible, which enhances the clarity of the fundamental pitch, while retaining an indeterminate endpoint.

There is, of course, a caveat to generalizing the aural quality of each string based on the ranges noted above. In reality, the shift in timbre and volume happens gradually as you move up the instrument, where the shorter strings in the highest of three registers tend to have the most piercing quality, while the longest strings in the lowest register tend to have the widest attack, with a richer frequency spectrum. Different harps, played by different harpists, will also vary in the nuances of the timbre produced. However, the resonant frequencies that ring persistently, are made possible by the open string construction of the harp's underlying design – the basic quality is shared amongst all harps.

1.9 The Characteristic Timbal Effects of the Modern Harp: *Glissandi* and Arpeggios

In a final description of the harp's timbre, a brief discussion of *glissandi* and arpeggiated chords needs to be addressed, given that each of these are the two most recognizable effects that composers write for the harp.

A glissando is when a player starts and on one end of the harp, and runs their finger up and/or down the strings (fig. 19).

Figure 19. Harpist playing an upward glissando on a double-action pedal harp.

This is different from playing a scale quickly, since for scales, the player is plucking each string individually with a marked emphasis on the fundamental pitch from each string. A glissando, on the other hand, is a faster series of plucks, similar to a strum, followed by the continued ringing of pitches from the instrument. As a result, the effect is less about the individual notes being heard, and more about the overall wash of rapid percussive "snaps" in a collective spectrum of colorful pitches – a hyper-accentuation of the harp's intrinsic timbre. But rather than allowing the harp to sympathetically activate the harmonics of adjacent open strings, the player deliberately plucks the strings so that these pitches are more pronounced.

Arpeggios are where the player selectively plucks the notes of a single chord in succession over several octaves. It is a similar effect as *glissandi* because the aim of using an arpeggio is often less about hearing each note being played, and more about the overall timbral and harmonic effect. The density of pitches in arpeggios are sparser than *glissandi*, but again, in the case of diatonic chord arpeggios, they accentuate the harp's timbre by activating pitches related to the plucked fundamental (i.e., the harmonic overtone series). Plucking strings at a fast rate deemphasizes the sound of each individual pluck, while drawing attention to the broader effect of hearing the chord sweeping across a resonating instrument.

Finally, in practice, harpists automatically arpeggiate chords and play them unbroken, only when noted. In other words, if a harpist were to perform a notated C Major chord in their music, they would not play a block C Major chord, like a standard keyboard instrument would. Instead, they would start from the bottom, and quickly play C-E-G, with the top note, G landing on the beat where the chord is rhythmically placed in the measure. While this is not as dramatic of an effect as a wide-range glissando or written out arpeggio, breaking a chord is essentially a tighter arpeggio, and thus, a short accentuation of the harp's resonating timbre. It broadens the time that the chord is heard, just like the "echo" heard from a single plucked string, while making its boundaries less defined.

2. HARP ICONOGRAPHY AND THE "ANGEL MYTH"

One of the most universally recognized associations made with the harp is with angels, a term derived from the word *angelos,* the equivalent to the Hebrew word *mal'akh* (Heb: 'messenger.') (figs. 20a, b, and c).

| a. Silver Statuette of an Angel Playing the Harp Date: ca. 1509, Germany.[41] | b. Angel with Harp Date: Based on lost original of about 1420, Netherlands.[42] | c. "Virgin and Child in an Apse" Date: ca. 1401–7, Italy[43] |

Figures 20a, b, and c. Historical images of angelic beings holding harps.
Images courtesy of The Metropolitan Museum of Art, New York.

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[41] Lucas Cranach, "A Silver Statuette of an Angel Playing the Harp, from the Large Series of Wittenberg Reliquaries," digital image, The Metropolitan Museum of Art, accessed October 9, 2018, https://www.metmuseum.org/art/collection/search/432301.

[42] Cristoforo Cortese, "Angel with Harp," digital image, The Metropolitan Museum of Art, accessed February 12, 2018, https://www.metmuseum.org/art/collection/search/462005.

[43] Robert Campin, "Virgin and Child in an Apse," digital image, The Metropolitan Museum of Art, accessed February 12, 2018, https://www.metmuseum.org/art/collection/search/435838.

These mediators between heaven and earth appear in many religious texts, but Western iconography gave identities to angels that extended beyond warranted religious doctrine.[44] The concept of angels, and their occupancy of a liminal space between natural and supernatural realms fits strongly with the harp's musical ability to symbolize liminality. There is little way of confirming if individual artists were directly influenced by harp music to produce art that coupled angels and harps, but the widespread geographic and historic presence of this iconographic association is evidence that this subconscious (or perhaps conscious) association existed outside of the musical sector. This "angel myth" continues to be well-recognized today.

2.1 The Harp in the Bible

Much of pre-Baroque, Western European music was historically preserved by the Christian clergy; thus, it is worth briefly exploring what their religious texts said about the harp. Despite the prevalent iconography of angels with harps, there are surprisingly no references to angels playing harps in the King James Version of the Bible.[45] Instead, there were three primary situations in which the harp appears: the therapeutic calming effect of David's harp playing on a distressed King Saul, the act of transcendence through worship or prophesy, and the description of God's voice making a decree (table 3).

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[44] Linwood Fredericksen, "Angel and Demon," *Encyclopædia Britannica*, 2014. Accessed March 3, 2018, https://www.britannica.com/topic/angel-religion.

[45] "Revelation," *King James Bible Online*. Accessed October 14, 2017, https://www.kingjamesbibleonline.org.

Table 3: Representative passages from the King James Version Bible, mentioning the harp.

Book, Chapter, and Verse:	Biblical Passage:
1 Samuel 16:23	"And it came to pass, when the evil spirit from God was upon [King] Saul, that David took a **harp**, and played with his hand: so Saul was refreshed, and was well, and the evil spirit departed from him."
Psalms 150:3	"Praise him with the sound of the trumpet: praise him with the psaltery [plucked instrument] and **harp**!"
1 Samuel 10:5	"Thou shalt meet a company of prophets coming down from the high place with a psaltery, and a tabret, and a pipe, and a **harp**, before them; and they shall prophesy."
Revelations 14:2	"And I heard a voice from heaven [God], as the voice of many waters, and as the voice of a great thunder: and I heard the voice of **harp**ers **harp**ing with their **harp**s."

While the distinction is subtle, I believe that these passages distinguish the harp from simply representing angels or heaven, and reinforce the idea that the harp symbolized the *limen* of the psychological transition from distress to calm, the spiritual crossing of a threshold from mortal realms to a spiritually enlightened state, and the imminent changes that were to come from listening to the voice of God making a decree. The harp specifically appears in each of these instances as the change, transition, or transformation is occurring.

The most common appearance of the harp in the Bible is related to the exchange between God and humans. But in the case of David placating Saul, the psychological shift from perceiving stress to sensing calm can also apply to non-religious situations, implying that the harp was relevant to secular *limen,* even in the Bible and even if the incident is Biblically described as an "evil spirit" leaving King Saul. The artistic re-

creation of David playing the harp and placating King Saul is commonly depicted

throughout the centuries, making it a key example to reference when understanding the

type of harp iconography that people gravitated towards (fig. 21).

Figure 21. David playing the harp before Saul (1531).[46]
Image Courtesy of The Metropolitan Museum of Art, New York.

2.2 Harp = Kithara or Lyre:
Monteverdi, *L'Orfeo* (1607) and Gluck, *Orfeo ed Euridice* (1762)

Early Western European orchestral compositions utilized the harp to a very limited

degree, because of the aforementioned mechanical and tonal limitations. But in the few

instances that the harp was utilized, unambiguous associations between harp-like

instruments and the concept of liminality were drawn. The two most prominent examples

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[46] Conrad Baur, "David Playing the Harp before Saul," digital image, The Metropolitan Museum of Art, accessed February 12, 2018, https://www.metmuseum.org/art/collection/search/393892.

of this were in opera scores, both composed around the Greek myth, Orpheus and

Eurydice: Claudio Monteverdi's *L'Orfeo* (1607) and Christoph Gluck's *Orfeo ed*

Euridice (1762). The prominent use of the harp in these famous operas likely represented

the prevailing, contemporaneous ideas of what the harp symbolized, which positively

reinforced the harp's associations with liminality for those who watched. Both operas

continue to be studied and performed today, showing that their musical expression is still

relevant and understood.

In the love story of Orpheus and Eurydice, Eurydice tragically dies from a lethal

snake bite shortly after their wedding. Orpheus sets out to retrieve Eurydice from the

underworld, and plays his kithara, to influence the gatekeeper into allowing him to pass

over (fig. 22).

Figure 22. Young man singing and playing the kithara.
Detail of terracotta amphora, c. 490 B.C.
Photo Courtesy of The Metropolitan Museum of Art, New York. [47]

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[47]"Terracotta Amphora (jar)," digital image, The Metropolitan Museum of Art, accessed
March 6, 2018,

Hades, the king of the underworld, is moved by Orpheus' grief (and music), and allows Orpheus to retrieve Eurydice from the land of death, on the condition that he does not look back as he is leading her to the world of light and life. Orpheus loses faith at the last moment, and turns around, only to see Eurydice disappear into the underworld forever.[48] In the Greek myth, and both versions of the opera, Orpheus played an ancient, open-stringed instrument known as the kithara. It would have been plucked or strummed to create a ringing effect, similar to the ringing effect of other ancient harp designs.

The selection of this instrument for this liminal part of the story suggests that a historical association of ringing, open-string-instruments existed when representing transitions between life and death. The River Styx, and its flowing, changing waters, simultaneously served as a visual threshold that Orpheus needed to cross to retrieve Eurydice from the Underworld, while foreshadowing the grave transitions that Orpheus was about to experience as a result of his decisions. This liminal threshold between what is known (the world where humans are alive), and what is unknown, (the underworld, where the spirit of humans reside after dying), and the transition that Orpheus embarked on was metaphorically symbolized by the ill defined qualities of both the river water and the kithara's ringing timbre. Both Monteverdi and Gluck chose the harp to musically represent the kithara at this pivotal part of the narrative.

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https://www.metmuseum.org/art/collection/search/254896?sortBy=Relevance&ft=Terracotta+amphora+(jar)+kithara&offset=0&rpp=20&pos=1.

[48] "Orpheus," *Encyclopædia Britannica*. 2018. Accessed February 11, 2018. https://www.britannica.com/topic/Orpheus-Greek-mythology.

As the singers playing the part of Orpheus mimed playing the kithara in this scene, the orchestral score of Monteverdi's *L'Orfeo* called for the simultaneous use of the *Arpa Doppia*, while Gluck's orchestral score called for the use of an *Arpa*. In both cases, the composers orchestrated the harp to be exposed and featured compared to the rest of the orchestra, playing effects that emphasized the harp's ringing, timbre. The harp is also noticeably absent in the rest of either opera score.

In example 2 on the next two pages, the excerpt from Monteverdi, *L'Orfeo* (1607), the *arpa doppia* passage was written and performed like a *cadenza,* which the actor playing Orpheus likely mimed along with. Notice that the scales, arpeggios, and trills are very ornate, with the melody embedded within in the embellishments. The effects that allow the instrument to ring out are featured over a concrete melody that a listener might normally gravitate towards. The right and left hands echo each other on many occasions, which is remnant of the previous *obbligato ritornelli* performed by pairs of instruments in this act, but also of the *arpa doppia's* self-contained resonance as an open-string instrument (ex. 2a and 2b).

EXAMPLE 2a. Beginning of Act III harp *cadenza* in Claudio Monteverdi's, *L'Orfeo* (1607)

EXAMPLE 2b: Act III harp *cadenza* in Claudio Monteverdi's *L'Orfeo* (1607), in modern notation.

Example 3 depicts as similar situation in Gluck's *Orfeo ed Euridice*.

EXAMPLE 3. Excerpt from score in Act II of Christoph Gluck's *Orfeo ed Euridice* (1762).

In Gluck's version, Orpheus's harp plays an exposed accompaniment, with a continuous and repetitive series of three-note arpeggios that seem to emulate the flowing water of the River Styx. The visual symbolism of the river and the aural symbolism of the harp work in tandem to convey the liminality of Orpheus crossing over into the Underworld. The repetitive chord arpeggios essentially broaden the resonance of each chord unit being played, elongating the resonant effect that the *Arpa* would have been able to produce had each chord been played as a blocked unit. Again, the music composed for the harp features the ringing effect of the harp's timbre, rather than a melody.

While the harp's pre-Romantic orchestral representation in Europe is very limited, its sustained symbolic use in Western iconography, religious texts, and in the dramatic structure in these prominent early operas align strongly with the notion that the harp was visually, culturally, and musically understood as a symbol of liminality. Even prior to the development of the double-action pedal harp, early orchestral composers elected to harness and expose the harp's ringing timbre when expressing liminal imagery.

3. A DEEPER ANALYSIS ON THE CONCEPT OF LIMINALITY

The basic definition of liminality simply refers to either the transition across a limen, or the state of occupying a position at or around a threshold.[49] But its meaning and use can also be elaborated depending on the context. For example, in the field of psychology and medicine, a limen can refer to "the point at which a physiological or psychological effect begins to be produced." In other words, "the sensory threshold is a transitional point where sensations are just beginning to be perceptible…[a *liminal* threshold] can mean 'barely perceptible,' and is now often used to mean 'transitional' or 'intermediate,' as in 'the liminal zone between sleep and wakefulness.'" [50]

Liminality was thus selected as the term to describe what the harp symbolizes due to the sentiments that are evoked when the harp was heard. As seen in Monteverdi's *L'Orfeo* and Gluck's *Orfeo ed Euridice,* the harp was used prominently in liminal moments of the operas' narratives, coupling a hazy, ill-defined timbre that comprised of key parallels with the uncertain emotional and circumstantial associations that would surface when passing into a mythical space where a person's soul resides after their body dies. A deeper analysis for the meaning of liminality will be discussed to show what the word encompasses, and how this correlates with the imagery conveyed through the harp's music.

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[49] *Oxford Dictionaries,* s.v. "Liminal," accessed September 5, 2017, https://en.oxforddictionaries.com/definition/liminal.

[50] *Merriam-Webster,* March 9, 2018, accessed March 11, 2018, https://www.merriam-webster.com/dictionary/liminal.

The term "liminality" first appeared in anthropologist Arnold van Gennep's 1908 publication *Les rites de passage*, where he described "life crises," or "rites" (i.e., rituals or ceremonies) that were associated with the "passages" (i.e., transitions) that occurred when an individual experienced a major shift from one societal stage of life to another. As an anthropologist, he distinguished three major phases of passages: separation (*séparation*), transition (*marge or limen*), and incorporation (*agrégation*). Pregnancy or betrothal are the most apparent societal examples of liminal "rites of transition," with betrothal encompassing the period between adolescence and marriage.[51]

In the 1960s, anthropologist Victor Turner borrowed and expanded on Van Gennep's formulation, referring to the "state and process of mid-transition" as liminality.[52] He provided an interesting elaboration on the concept:

> These rites of transition, says Van Gennep, are marked by three phases: separation; margin (or limen); and re-aggregation. The first and last speak for themselves; they detach ritual subjects from their old places in society and return them, inwardly transformed and outwardly changed, to new places. A more interesting problem is provided by the middle, (marginal) or liminal phase...A limen is a threshold, but at least in the case of protracted initiation rites of major seasonal festivals, it is a very long threshold, a corridor almost, or a tunnel which may, indeed, become a pilgrim's road or passing from dynamics to statics, may cease to be a mere transition and become a set way of lie, a state, that of the anchorite, or monk. Let us refer to the state and process of mid-transition as "liminality" and consider a few of its very odd properties. Those undergoing it— call them "liminaries"—are betwixt-and-between

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[51] Arnold Van Gennep, "The Classification of Rites" (1965), in *The Rites of Passage*, trans. Monika B. Vizedom and Gabirelle L. Caffee (London: Routledge & Kegan Paul, 1960), 10-11.

[52] Victor Turner, "Variations on a Theme of Liminality," in *Secular Ritual*, ed. Sally Falk Moore and Barbara G. Myerhoff (Amsterdam: Van Gorcum, 1977), 37.

established states of politico-jural structure...they are neither-this-nor-that, here-nor-these, one-thing-not-the-other. [53]

The harp, in all of its instrumental design iterations, was and continues to be well positioned to musically express the "mid-transition" that Turner describes above, because it is ultimately an open-stringed instrument that is engineered to resonate as much as possible. When the strings are plucked or strummed by the player, there is little control over the way these strings decay in volume or shift in pitch. As previously demonstrated, a plucked string retains enough stability to initially emit a clear fundamental, but the interaction of different vibrations on the harp alters the perceived outcome of each pitch. Thus, the ring of the harp's timbre has a hazy boundary, with only a general sense of how its sound will transform as time passes. The vibrating open strings also create an inherent limitation for the harp, necessitating a slower harmonic pace, and an emphasis on effects that linger in time. The indefinite quality of pitch and volume, the lack of control over the shifting changes of vibrating strings, and momentary pause in time that the harp necessitates in order for its aural effect to be properly appreciated, are all attributes that can be translated to the experiences and sentiments that come with pivotal moments of change and transformation. Thus, when the harp is utilized to musically convey liminality, it does so with such effectiveness, that even if the harp is not playing music, it conjures liminal concepts, as seen with iconography.

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[53] Turner, "Variations," 36-37.

4. *THE NUTCRACKER* BALLET

While understanding the harp's mechanics, timbre, and musical history may provide valuable insight into what the harp symbolizes, nothing is quite as potent as hearing the harp in music that is relevant to listeners today. A composer's seamless and convincing use of the harp to represent liminality is the ultimate evidence of its symbolic capability, made even stronger when the harp is selected over other instruments, or alongside instruments that share similar qualities and functions.

As demonstrated in earlier operas from Monteverdi's *L'Orfeo* to Gluck's *Orfeo ed Euridice*, earlier versions of the harp were used in these dramatic works to convey a transition from the ordinary world to that of a supernatural realm. In the late 1800s, composers began to use the harp more frequently in orchestral compositions, because the double-action mechanism retained and amplified the harp's key ability to resonate, while enabling a single instrument to be utilized in harmonically complex orchestral pieces that modulated to multiple keys. Composers coupled the harp's previous symbolic associations with its timbre by orchestrating the double-action pedal harp when liminal indicators in functional harmony and formal structure were signaling that change was on the horizon or in the process of occurring. When it came to accompanying dramatic stage productions, composers wrote music to facilitate telling the narrative, and used the harp to communicate and enhance liminal moments in the storyline. This positive reinforcement has continued, with the harp used to symbolize liminality today.

Pytor Ilych Tchaikovsky's ballet *The Nutcracker* (1892) was selected to study in depth for several reasons. First, Tchaikovsky's music is well-recognized and influential

with audiences on a scale not typically seen with other orchestral composers. The popularity of his compositions to broad audiences shows that people find his music relatable and understandable. *The Nutcracker*, in particular, is still regularly performed over one hundred years after its initial premiere, speaking to the widespread influence of Tchaikovsky's compositional choices on audiences who have internalized his music. Tchaikovsky also leveraged the functions of late nineteenth-century harmony and the sound world of the late nineteenth-century orchestra in a way that was persuasive, powerful, and effective. The subsequent success, ubiquity, and influence of *The Nutcracker* makes it relevant to the average audience member, and thus, and important to study when understanding what people perceive when they hear the harp.

Secondly, Tchaikovsky uses the harp frequently throughout *The Nutcracker*, providing a large quantity of examples to analyze when seeking to understand how and why he utilizes the harp. It is also the only ballet composed by Tchaikovsky using two harps–both with distinct parts–implying that his use of the harp was particularly relevant when conveying the meaning of the story.

Third, the ballet's storyline for this analysis helps to narratively confirm what Tchaikovsky's intentions were with his music. Thus, the reasons for the harp's specific appearances in the ballet will be based on concrete plot elements, rather an arguable interpretation of what Tchaikovsky may have intended. For the sake of arguing the harp's symbolism, being able to correlate the appearances of the harps with music that directly supports a libretto and stage cues, leaves minimal interpretive possibilities, and a clear sense for the harp's purpose.

Fourth, Tchaikovsky's use of the harp as part of the orchestra enabled him to leverage the harp's expressive strengths without the harp bearing the full responsibility of continuously carrying the melody and harmony, as in a solo piece. Alone, the harp's special resonating effects, such as *glissandi* and arpeggios, are insufficient to comprise a cohesive piece, and these effects would also lose their expressive impact. Within the orchestra, however, the composer can distribute the responsibility of carrying the melody and harmony across the whole ensemble, leaving the harp free to be used when it is best capable of enhancing the overall music. As we will see, Tchaikovsky repeatedly chose to feature the harp at liminal moments in the narrative, demonstrating his deliberate use of the harp to convey both the transformation and uncertainty felt in each situation.

Fifth, *The Nutcracker* was written during a period in history when technology was enabling the creation, preservation, and consumption of music at an unprecedented level. Not only do we have a clear record of Tchaikovsky's composition in the written score, we also have historical accounts of how quickly the ballet's music reached international audiences. Sound recording technologies were just beginning to be created, and excerpts from *The Nutcracker* were among the earlier materials to be recorded, disseminated, and consumed.[54] As a result, its historical significance includes the ballet's ability to reach and influence listeners on an international level. Our modern "sound repertoire" was undoubtedly influenced by and inherited from *The Nutcracker's* impact on earlier

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[54] Lance W. Brunner, "The Orchestra and Recorded Sound," in *The Orchestra: A Collection of 23 Essays on Its Origins and Transformations*, ed. Joan Peyser (Milwaukee, WI: Hal Leonard, 2006), 483; and Pekka Gronow, Ilpo Saunio, and Christopher Moseley, *An International History of the Recording Industry* (London: Cassell, 1999), 23.

composers and listeners. Thus, the ballet is a significant and influential historical work, making it relevant when studying the harp and its compositional use.

Sixth, *The Nutcracker* premiere in 1892 coincides with a pivotal moment in the timeline of the harp's mechanical development, and likely played a reasonably significant role in the harp community selecting the double-action mechanism over the cross-strung design. As previously mentioned, instrument makers were competing to address the harp's limitations, and establish a new norm for the harp's construction. Manufacturers, such as Érard and Pleyel, each commissioned pieces from prominent composers to officially promote the integration of their respective instrument designs into mainstream use (Ravel's 1905 *Introduction et allegro* for Érard's double-action pedal design, and Debussy's 1904 *Danses sacrée et profane* for Pleyel's cross-strung design). But Tchaikovsky, amongst many other prominent composers, independently chose to utilize the double-action pedal harp in his compositions, including all three of his acclaimed ballets: *Swan Lake*, Op. 20 (1875–6), *The Sleeping Beauty*, Op. 66 (1889), and *The Nutcracker*, Op. 71 (1892). Because Tchaikovsky's music was successful in reaching broad audiences, his choice to use the double-action pedal harp over the cross-strung harp contributed to the music community's collective decision to adopt the double-action pedal harp as the mainstream design of choice for the harp. Thus, studying *The Nutcracker* is valuable to understanding what types of favorable effects influenced the modern harp's evolution as an instrument.

Finally, Tchaikovsky was a masterful orchestrator who understood how to compose for the harp in a way that best leveraged its resonating quality. He capitalized on the

double-action pedal harp's newfound tonal flexibility, and composed for the harp's three timbral ranges in a way that brought out the strengths of each. His approach to composing for the harp was so effective, that even today, the harp is best-known for the type of musical effects heard in *The Nutcracker*. While many musicians and non-musicians alike might overlook *The Nutcracker* as an overplayed holiday cliché, I argue that Tchaikovsky's music would never have become that cliché if it had not been decidedly compelling with listeners both then and now. Consequently, it is more than worthwhile to approach *The Nutcracker* ballet afresh, so that Tchaikovsky's use of the harp in emphasizing specific aspects in E. T. A. Hoffmann's story can be understood for what it actually is – a symbol of liminality, and the expression of heightened and nuanced emotions that can be experienced when crossing into uncharted territory.

4.1 Liminality in E.T.A. Hoffmann's Story

The choreography and libretto for *The Nutcracker* ballet was based on Alexandre Dumas' adaptation of E.T.A. Hoffman's fairytale story, *The Nutcracker and the Mouse King* (*Nussknacker und Mausekönig*).[55] In both Hoffman's and Dumas' versions of the story, there were three overarching themes of liminality that the plot was structured around. The first, and central demonstration of liminality in the plot, is the main character's coming-of-age. The character, Marie, showed an initial affection and attachment towards the Nutcracker doll which eventually led to a marriage proposal from the Nutcracker after he returns to being human again. A very brief statement at the end of the fairytale implies "and they lived happily ever after, " but the story itself occurs

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[55] Betsy Schwarm, "The Nutcracker, Op. 71," *Encyclopædia Britannica*. 2017, https://www.britannica.com/topic/The-Nutcracker.

during the liminal phase of Marie's life. The second is the story of how the godfather's nephew was cursed into becoming the Nutcracker, and eventually transformed back to a young man after Marie verbally expressed her love for him. The third is how Marie psychologically moves between two worlds: a conventional, upper-class life in the late 1800s, and a magical world where toys come to life, mice talk, and kingdoms made of sweets are accessible. Supporting these larger themes, are many smaller moments in which someone, or something, was transitioning from one state to another. These smaller moments of liminality facilitated the conveyance of the larger themes mentioned above. Hoffman's version of the story reads slightly darker, in part because the *limen* between real life and the magical places is more ambiguous, perhaps bordering on psychosis. However, all of the key plot and liminal elements existed in both versions.

The libretto of *The Nutcracker* was written based on Alexandre Dumas' *The Story of a Nutcracker* (*Historie d'un casse-noisette)*.[56] A considerable amount of narrative detail is lost between *The Story of a Nutcracker* and the story presented in the ballet, with Tchaikovsky's score expressing substantially more emotional depth than what is conveyed through the ballet libretto. Thus, in order to fully appreciate the music, a summary of the central fairytale storyline that inspired Tchaikovsky's composition of *The Nutcracker* score will be discussed below.

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[56] Schwarm, "The Nutcracker, Op. 71.".

**4.2 A Synopsis of
E.T.A. Hoffmann's 1816 *The Nutcracker and the Mouse King*
(*Nussknacker und Mausekönig*)
and Alexandre Dumas père's 1884 Adaptation *The Story of a Nutcracker*
(*Historie d'un casse-noisette*)**

The Stahlbaum family is preparing to celebrate Christmas Eve, with Marie and her older brother, Fritz, eagerly anticipating their gifts. Marie, an aspiring lady, receives dolls, a tea set, a silk frock, and sugary delights, while Fritz, an aspiring military commander, receives a new horse toy and a regiment of hussars, which he pretends to train and command. Their godfather, Counsellor Drosselmeier, is an inventor and clockmaker who typically brings gifts to entertain the children, including ones that move mechanically. However, Marie is particularly drawn to a nutcracker doll, despite its un-appealing appearance. Over the course of the evening, Fritz breaks three of the doll's teeth while attempting to crack nuts that are too large for the Nutcracker's mouth. This upsets Marie, and she commits to caring for the nutcracker doll, as she would a beloved companion healing from an injury.

Later in the evening, Marie stays up past her bedtime to tend to the Nutcracker. As she is about to go to bed, when there is a perceptible shift in the atmosphere. The clock strikes midnight, and she sees in horror, her godfather, Counsellor Drosselmeier on top of the chiming clock. A seven-headed mouse king and an army of mice emerge. The nutcracker doll and all of the toys come to life. Having felt Marie's kindness, the Nutcracker elects to adorn a ribbon from Marie's frock, and leads all of the toys, in a battle. The toys are overcome, and retreat. Just as the seven-headed mouse is about to leap towards the Nutcracker, Marie throws her left shoe at the mouse king, which scatters

the soldiers from both sides. She feels a searing pain in her arm, and wakes up to find that she is being treated by a doctor for a deep wound in her arm. She tells the adults what she saw, and they dismiss her story as a dream. When Godfather Drosselmeier visits her, she confronts him about his appearance above the clock, during the night of the battle. Without denying the allegations, he opts to explain to her where the nutcracker doll came from.

In another kingdom, a king and queen gave birth to a beautiful a young princess named Pirlipat. The queen of the mice, Lady Mouserinks, seeks vengeance against the king and queen by casting a spell on Princess Pirlipat, turning her into a very ugly creature that is only comforted by cracking nuts. The king places unmerited blame on Counsellor Drosselmeier for angering Lady Mouserinks and the subsequent curse placed on the princess. Under the threat of execution, Counsellor Drosselmeier and a court astrologer use the princess' horoscope to determine that in order for the princess to restore her beauty, she needs a young, unshaven boy, who has only worn boots, to crack the hardest nut (Crackatuk) with his teeth, feed her the kernel, and take seven steps backward without falling or tripping. After traveling the world for nearly fifteen years, Counsellor Drosselmeier finds the nut and the young boy fitting the necessary description in his hometown. The young boy happens to be his nephew.

All goes according to plan, and the princess' natural beauty is restored. However, as nephew Drosselmeier takes his seventh step backwards, the mouse queen runs under the nephew's foot as a last attempt to thwart the princess' recovery. The nephew falls over, killing the mouse queen, and turns into an ugly nutcracker, while Princess Pirlpat

retains her beauty. Both Counsellor Drosselmeier and nephew Drosselmeier are sent away, without receiving any gratitude or promised remittances. The astrologer determines that the only way to break the spell on the nephew is for him to kill Lady Mousrinks' son, the seven-headed mouse king, and for a maiden to fall in love with him, despite his now ugly appearance. Marie is appalled by the king and the princess' insolent and unappreciative disposition, and complains that Counsellor Drosselmeier hasn't done enough to help his nephew. He simply responds that only Marie is able to help him.

Soon after, the seven-headed mouse king approaches Marie at night, threatening to chew up the nutcracker doll if Marie does not hand over her cherished collection of sweets and figurines. In distress, she gives in the first couple of times with little hesitation, but eventually realizes the futility in her efforts. She goes to the nutcracker doll and says, "'Ah, my dear, good Mr. Drosselmeier, what can I—poor, unhappy maiden—do? for, if I should give up all my picture books, and even my new, beautiful frock, to the hateful mouse, he will ask more and more. And, when I have nothing left to give him, he will at last want me, instead of you, to bite in pieces.'"[57] The nutcracker doll momentarily comes to life, and asks her to bring him a sword. She obtains one from Fritz, and the Nutcracker successfully kills the seven-headed mouse king.

The Nutcracker then invites Marie to travel through a closet to a glistening, ornate, and perfumed land, where everything is made of sweets. As they walk through Confectionville towards the capital, Marie is astonished to hear the Nutcracker addressed as "prince." The town is crowded, charming, and full of merry people from every

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[57] Ernst Theodor Amadeus Hoffmann, *The Nutcracker and The Mouse King* (E-artnow), Kindle Edition, 663-666.

country and profession imaginable. When they enter the palace, the Nutcracker Prince is

greeted by his sisters. He tells the stories of what happened, and how Marie was

instrumental in preserving his life. Then, as if to be lifted up by clouds, she becomes

distant from her surroundings before falling and a great height, and finding herself in her

bed.

Again, Marie attempts to tell the story of her adventures to her family, and this time,

even Counsellor Drosselmeier tells her once and for all to stop speaking of her silly

dreams as if they were real. Though silenced, Marie cherishes her memories in her heart.

After some time has passed, she is compelled to verbalize her love to the nutcracker doll.

Counsellor Drosselmeier's handsome and kind nephew immediately stops by for a

"coincidental" courtship visit. When they finally have a moment alone, he drops to his

knees, tells her that she has broken the spell, and asks for her hand in marriage. They

wed, and Marie becomes the benevolent queen of the kingdom of sweets, so they say.

4.3 Fairytale vs. *The Nutcracker* Ballet Libretto

While necessary to adapt the original story to a version that worked for a ballet, the

libretto only contained a few narrative components from Hoffman's story: the Christmas

Party, the battle of the dolls and the mice, and the visit to *Confiturembourg* (The

Kingdom of Sweets). The story of Princess Pirlipat, Lady Mousrings, and the Crackatuk

is absent, and there is no sense that Marie is traveling back and forth between dreams (or

delirium) and reality. Rather, there is just a single crossing-over event that happens in the

middle of Act I. The anthropological liminal shift in Marie's life from being a young

maiden to a married woman is also absent in the libretto, although the budding romance

between Claire and nephew Drosselmeier is implied in the music, and some staging interpretations. All of the battles that occur in the fairy tale are consolidated into a single battle in the ballet. All of the emotional turmoil that Marie experiences is largely unexpressed through the choreography, although I would argue that this component is present in Tchaikovsky's music in Act II's *pas de deux*. There are also some other details that differ between the fairy tale and ballet, such as the fact that Marie's name is changed to Claire (the name of one of Marie's dolls in the original fairytale), and that Fritz is also an older brother in the fairytale, but an obnoxious younger brother in the ballet.

The ballet libretto essentially retains the flashy and entertaining components of the original fairytale story that young children would gravitate towards, while deemphasizing or sometimes omitting any part of the story that would bring the psychological and ritual liminality to the forefront. Tchaikovsky struggled with this plot oversimplification, but managed to compose a memorable score around the ballet, while retaining the liminal themes in the undercurrent of the music. Orchestrating the harp heavily into *The Nutcracker* score was a large part of the reason.

Prior to the composition of Ravel's *Introduction et allegro,* Russian composers favored the double-action pedal harp, and collectively chose to compose for this instrument. Decades of beautiful music showcased this instrument by composers like Mikhail Glinka, Alexander Borodin, César Cui, Alexander Dargomyzhsky, and Reinhold Glière. Within the body of work that Tchaikovsky produced in his lifetime, he took much what was already known, and mastered the harp's iconic effects in his orchestral compositions. *The Nutcracker* was one of the last orchestral scores he composed, and

while he expressed that he was weary and past his prime, he was at his highest level of awareness and maturity as a composer. He managed to salvage what was otherwise a less than favorable stage production, while composing for two distinct harp parts, something he hadn't done in *Swan Lake* or *Sleeping Beauty*. Tchaikovsky may not have been the innovator of harp's most recognizable effects, but he did demonstrate his ability to draw out the best from the harp while engaging in listeners in a memorable way.

4.4 Tchaikovsky and the Creation of *The Nutcracker* Ballet (1892)

When commissioned to write the score for *The Nutcracker* ballet in 1892, Tchaikovsky was returning to familiar collaborative relationships and a familiar venue. Ivan Vsevolozhsky was the director of the Mariinsky Theatre in St. Petersburg, and Marius Petipa was likely to have been the librettist. There was little liability in using E.T.A. Hoffman's *The Nutcracker and the Mouse King* (1816) as a source of content considering Hoffman's popularity in Russia as a children's book author. Even Tchaikovsky expressed satisfaction with the story prior to the libretto being written.[58] Unfortunately, the actual libretto proved problematic because it simplified the original story without a sufficient substitute for the missing plot content. The selected scenes lacked rationale and made no sense when strung together.

This deficiency may have been forgivable had the choreography been masterful, but the lapse in compensatory dancing compounded the libretto issues. The balance of dance and mime throughout the ballet was uneven, with miming predominantly carrying the narrative in Act I and a series of dances that delivered a stagnant plot line in Act II. This

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[58] Roland John Wiley, "On Meaning in *Nutcracker*," *Dance Research* 3, no. 1 (Autumn 1984): 8, accessed March 1 JSTOR, 2018, doi:10.2307/1290584.

imbalance also meant that any significant appearance of the lead ballerina did not happen until the end of Act II. The divergence between important characters and significant dancers resulted in a puzzling performance, in which the central characters were either children or mimes, and the most accomplished dancers performed secondary plot roles. Tchaikovsky's inability to connect with *the Nutcracker* ballet libretto nearly drove him away from the project:

> For some time, the prospect of urgent, wearisome work has begun to frighten me. Here, in Rouen, I had to call on extraordinary willpower, to make an agonizing effort in order to work. As a result what comes out is colourless, dry, hasty and wretched. The awareness that things are not going well torments me and agonizes me to the point of sickness; a consuming depression constantly gnaws at my heart, and I have not for a long time felt as unhappy as now... *'Confiturembourg,'* 'Nutcracker' ... - these images do not gladden me, do not excite inspiration, but frighten, horrify and pursue me, waking and sleeping, mocking me with the thought that I shall not cope with them. Finally (for God's sake, do not laugh, for I am completely serious), for the last three days I have been simply sick from despair, fright, and the most evil melancholy. In the night I suddenly decided that things cannot continue thus, and that I must grieve you by the refusal to keep my word.[59]

The working relationship between Vsevolozhsky, Petipa, and Tchaikovsky was becoming strained, but the costumes and sets had already been ordered, and a new ballet had been promised to the commissioners. As a result, Vsevolozhsky pressed forward, though he extended Tchaikovsky's deadline for a year.

In the spring of 1891, Tchaikovsky had finished a tour through Europe, and was boarding a ship to the United States to conduct at the opening of Carnegie Hall. Shortly before departing, he read the devastating news of his sister's passing in the newspaper.

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[59] Roland John Wiley, *Tchaikovsky's Ballets: Swan Lake, Sleeping Beauty, Nutcracker* (Oxford: Clarendon, 1985), 196.

Feeling physically ill from the ship ride and emotionally depressed from his loss, Tchaikovsky was in poor spirits at the beginning of his tour to America.[60] However, Tchaikovsky came to realize that, in stark contrast to the life-long shower of criticisms he faced in Russia, he was resoundingly popular in the United States. The prospective success of *The Nutcracker* ballet in the U.S. seemed inevitable. He remarked:

> I am convinced that I am ten times more famous in America that in Europe. At first when other spoke to me about it, I thought it only their exaggerated kindness. But now I see it is really so Several of my works which are unknown even in Moscow, are frequently played here. I am a much more important person here than in Russia. Is that not curious?[61]

It is ultimately uncertain how he resolved within himself to complete the ballet, but perhaps, his travels through Europe and the United States provided provided the encouragement and inspiration necessary to drive forward.

Prior to the ballet's actual premier, *The Nutcracker Suite* was performed and very well-received.[62] In December of 1892, *The Nutcracker* ballet was premiered at St. Petersburg's Mariinsky Theatre, conducted by Riccardo Drigo, and produced by the Lev Ivanov.[63] Tchaikovsky himself expressed that *The Nutcracker* "infinitely worse" than

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[60] Wilson Strutte, *Tchaikovsky, His Life and times* (Tunbridge Wells, England: Baton Press, 1984), 126.

[61] Strutte, *Tchaikovsky*, 127.

[62] Strutte, *Tchaikovsky*, 131.

[63] Betsy Schwarm, "The Nutcracker, Op. 71," *Encyclopædia Britannica*. 2017, https://www.britannica.com/topic/The-Nutcracker; and "The Nutcracker." Tchaikovsky Research. Accessed March 7, 2018. http://en.tchaikovsky-research.net/pages/The_Nutcracker.

The Sleeping Beauty, [64] and critics of the ballet were quick to identify the deficiencies of the production: "Hoffmann's beautiful tale is distorted to the point of being unrecognizable…there is no connecting thread between all the scenes."[65] "The authors of ballet *libretti* never weary the intellect of the lovers of choreography…But in *Nutcracker* the author of the libretto, ballet master, Mr. Petipa, took extreme advantage of his right as regards simplicity and non-complexity of subject matter. In *Nutcracker* there is no subject whatever."[66]

Yet another critic asserted that *The Nutcracker* could not be called a ballet, because it did not demonstrate all the elements of a drama coupled with classical choreography: "There is nothing of this in *Nutcracker,* there is not even a subject…In the first act there is not one classical *pas*, and the music is written in such a way that, the ballet master's wishes notwithstanding, it was impossible to produce one classical variation."[67]

5. ANALYSIS OF THE HARP'S ROLE IN *THE NUTCRACKER*

Despite the large gaps of missing plot content in *The Nutcracker's* ballet libretto, the ballet still contains enough liminality for an extensive analysis. The interpretations of the ballet plot will be based on the music from the first edition of the ballet score, alongside the primary materials closest to what Tchaikovsky would have referenced when he conceived the music: Alexandre Dumas' and E.T.A. Hoffman's fairytale narratives, and

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[64] Roland John Wiley, *Tchaikovsky*, (Oxford: Oxford University Press, 2009), 359.

[65] Wiley, "Meaning in *Nutcracker*": 9.

[66] Wiley, "Meaning in *Nutcracker*": 9.

[67] Wiley, "Meaning in *Nutcracker*": 9.

the stage cues written into the first edition of *The Nutcracker* ballet orchestral score. The

placement the cues in the score will be taken into heavy consideration. Additionally,

Tchaikovsky's score has typically remained constant, but the choreography and staging

of the ballet has changed to varying degrees over time and between companies. When

incorporating additive visual descriptions into the analysis, I will reference my personal

recollection of the following live performances: the Pacific Northwest Ballet's 2016

production of George Balanchine's staging and choreography, the New York City

Ballet's 2015 production of George Balanchine's staging and choreography, the former

Ballet San Jose's 2014 production staging and choreography, and 10 cumulative San

Francisco Ballet performances attended between 1995 and 2013. All music examples in

the analysis were taken from the first edition score.

5.1 Act I, Scene I, No. 1: Scène: *L'ornement et l'illumination de l'arbre de Noël*

The ballet begins with a miniature overture introducing Act I. The first scene–Act I,

Scene I, No. 1: *Scène: L'ornement et l'illumination de l'arbre de Noël*–opens in D Major,

Allegro non troppo (4/4), and depicts the introductory events prior to the Christmas party

in scene 2 where most of the act's action eventually takes place.

As with many introductory acts in Russian Golden-Age ballets, a significant portion

of the movement is pantomime, and the deliberately ordinary and unremarkable tone of

the music, which remains stable in D major with no dramatic key changes and a regular

and steady rhythmic pattern, underlines the prefatory mood of the first scene, as the

characters' gestures imply that they are going about the business of preparing for

Christmas celebrations (ex. 4).

EXAMPLE 4: *Nutcracker,* opening of Act I, scene 1

The first stage cue in scene 1 states, "The president (Claire's father, Mr. Stahlbaum) with his wife, and guests, decorate the Christmas tree."[68] At measure 74, a second stage cue at the *Più moderato* states, "The clock announces nine [o'clock]. At every striking of the clock, an owl moves its wings. Everything is ready: it's time to call for the children."

At measure 85, "The door [to the main hall] opens, and children enter," and the music picks up its pace at the *Allegro Vivace,* with a new meter of 6/8 and a new key. A dominant pedal for A Major sets the stage for growing excitement and anticipation (ex. 5).

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[68] Pyotr Ilyich Tchaikovsky, *The Nutcracker (Щелкунчик; Casse-noisette)*, 1st ed. (Moscow: P. Jurgenson, 1951), 26. All subsequent score examples are from the first edition.

EXAMPLE 5: The Entrance of the Children

For 34 bars, an E Major chord, the dominant of A Major, is sustained as a pedal point,

and Tchaikovsky increases the sense of haste and momentum with a progressive layering

of instruments and an increasing *crescendo* heightening the anticipation built by the

growing range of timbre and pitches, as well as the harmonic promise to return to A

major.

But just when it seems that the music will resolve to A Major from E^7, Tchaikovsky

abruptly moves to a *fortissimo,* eighth-note, F Mm_2^4 chord, an altered deceptive cadence

(♭VI) and a surprising harmonic move. This abrupt moment is further accented with two

eighth-notes of total silence (ex. 6).

EXAMPLE 6: "Les enfants s'arrètent saisis d'étonnement"

$$F \ Mm_2^4$$

The lights on the stage dim significantly, and the stage cue reads, "the children are

stupefied" at the view of the large Christmas tree. The pause in time and the attention

given to the tree serves to momentarily foreshadow the location of many magical and

liminal events to come. The oboe and strings then quietly waver back and forth between

the IV^7 (D Mm^7) and VI^7 (F Mm^7) to instill a sense of uncertainty.

Harp I then makes its first appearance in the ballet, with a bright, sweeping D Major

arpeggio at *mezzo forte,* three octaves up and down across the middle-range of strings, as

well as the lower half of the harp's highest range (ex. 7).

EXAMPLE 7. First appearance of Harp, D major arpeggio

The oboe and strings then make an interesting harmonic shift to E♭ Major, and again,

rock back and forth with uncertainty between E♭ Major and C minor[7], with a similar

arpeggio but at *forte.* Harp I then plays a second sweeping arpeggio in E♭ Major (ex. 8).

EXAMPLE 8: Second appearance of Harp, E♭ Major arpeggio

The orchestra then fully shifts to a C minor⁷ chord, followed by a six-bar harp glissando played at *fortissimo,* containing the notes from a C minor⁷ scale (ex. 9).

EXAMPLE 9: First harp glissando, first measure only

Interestingly, the notes of a C minor⁷ scale happen to contain the same notes as both an E♭ Major chord and a D Major⁷ chord played simultaneously. This coincidental–or perhaps non-coincidental–overlap of the first two arpeggios creates a blurring effect of the first two harmonic "statements" made by the harp. The resonant timbre of the harp amplifies this blurring effect, heightening the sense of uncertainty about where the story will take its audience.

The strings then *pizzicato* from C minor⁷ (iv⁷, borrowed from the parallel minor of G major), down to an A Major chord (V/V), up to a D Major chord (V), which is the original tonic of this scene, but also the dominant of G Major (I), the first chord and new key of Act 1, scene 2 (ex. 10).

EXAMPLE 10: End of Act I, scene 1

iv⁷   V/V   V   GM: I

G Major becomes the new tonic, the Christmas party scene begins, and everything

seems to return to normal, visually, melodically, rhythmically, and instrumentally, at least

for the time being. Tchaikovsky quickly leads the music back to its original ambiance,

by returning to the same predictable, chipper rhythm and light-hearted major key (ex. 11).

EXAMPLE 11: Beginning of Act II, scene 2

At this point, the harp has only appeared once, and yet it has done so at the very first moment of the ballet where the music dramatically emphasizes an unexpected musical change through the harmonic use of a deceptive cadence, a sudden, significant change in rhythmic texture, and the abrupt reduction in the number of instruments playing. The music is then further differentiated by the featured entrance of the harp, a new and unique instrumental sound within the context of the ballet score, playing effects that amplify the harp's resonant, hazy timbre. The temporary nature of this shift indicates that while there hasn't technically been a liminal shift in the ballet plot, the music, staging, and dancers work in concert to briefly foreshadow the imminent changes to come.

During scenes 2 through 5, the staging shifts to the anticipated Christmas party scene and the harp remains absent from the music. Everything portrayed is relatively unremarkable. The adult dancers dance simple waltzes with each other, and toys are given to the children as a part of celebrating Christmas. Importantly, Claire, the main character, receives a nutcracker doll as a gift from Councilor Drosselmeier, and is delighted with the "little guy" ("Claire est enchantée du petit bonhomme"). She tenderly cares for "her favorite [nutcracker doll]" after her younger brother, Fritz, breaks its mouth and tosses it aside, laughing. Scene 5 concludes with a final waltz that the children and adults dance together, with the children skipping away at the end.

5.2 Act I, Scene 1, No. 6: *Scène: Le départ des invités: La nuit*

As Act I, scene 1, No. 6 (*Le départ des invités: La nuit*) begins, the harp reappears as the Christmas party is transitioning to a close. The guests thank Claire's father and his wife, and take their leave. The children are then sent off to bed. Claire asks for

permission to bring the sick nutcracker with her, and after being denied permission, she tucks the nutcracker in bed, and sadly leaves.

Harp I's successive downward arpeggios at the beginning of the scene create a liminal sense of drifting off to sleep, with harmonies that continuously rock back and forth like a lullaby between a stable C major (I) and dominant G^9 major (V^9) chords for seventeen measures (ex. 12).

EXAMPLE 12: Act I, scene 6: Downward harp arpeggios

The harmonic I → V^9 → I lullaby pattern continues as the orchestra gradually decreases in volume. The harp eventually changes its rhythmic pace to an even slower one, playing only an upward chord arpeggio when the oboe's melody pauses on sustained half notes. The section ends on C Major, after the orchestra drops down to a *pianississimo,* and minimal instrumentation, with only the bassoons, string basses, and the lower register of the violin I section. This lullaby passage, facilitated by the harp's

arpeggios, implies that the characters of the story have transitioned to falling asleep. The

formal structure then demarks a threshold, where one subsection ends with an authentic

cadence and a double barline.

The ballet's story line, currently in a stable key of C Major, is now primed to

transition from the real world, to the magical world in Claire's dreams – the first liminal

threshold that is crossed in the ballet narrative. The harmony at the *Moderato con moto*

(page 145, measure 49) begins to stir with borrowed, foreign-sounding A-flat Major

chord *tremolos* in the string section, signaling that some shift has happened. On stage, it

is nighttime, and the moon is shining through the window into the empty hall where the

Christmas party had taken place. In measure 51, the third measure of this new

subsection, the harp anchors the presence of this chord with a clear, downward, A-flat

Major glissando scale (ex. 13).

EXAMPLE 13: Act I, scene 6: A♭ Major scale glissando in third measure

The A♭ Major glissando scale is heard again 4 measures later, shortly before A♭

Major functions as a dominant to tonicize D♭ Major. D♭ Major also happens to be the ♭II

(Neapolitan) of C Major, implying the possibility of a broader harmonic transition away

from the C Major lullaby in the first half of scene 6. The dancer playing Claire typically

returns to the stage when the harp first plays the D♭ Major arpeggio chord, a highly

exposed effect that sweeps upward over 4 octaves. Two additional D♭ Major scale

glissandi sweep up the harp, reinforcing the tonicized key (ex. 14).

EXAMPLE 14: D♭ Major arpeggio chord, followed by D♭ Major scale *glissandi,* played
by the harp in Act I, scene 6

During this musical moment Claire, wearing her nightgown, wants to see her injured

nutcracker doll before going to sleep. As the harp and orchestra continues to play in D-

flat Major, she has some fear, yet moves toward the nutcracker's bed, which seems to be

producing a fantastical light ("Elle a peur. Elle s'avance vers le lit de casse-noisette qui

lui semble produite une lumiere fantastique."). This cue, coupled with the changes in

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harmony, and the exposed reappearance of the harp, are clearly signs that a new and magical space of the story is being entered.

After the tonicization of D-flat Major is complete, Claire (and the audience) is present in the new place within the narrative. The threshold has been crossed, the harp drops out, and the grandfather clock strikes midnight. Claire looks at the clock, and to her horror, the owl on top of the clock has transformed into the Councillor Grosselmayer ("the old councillor" in the stage cues), who looks at her with a "mocking grin." She wants to run away, but her strength fails her. In the quiet of the night, she can hear mice scratching. She tries to leave, but mice appear from all sides, and she is too frightened. She collapses on a chair, and everything disappears. The music cadences in e minor.

The Christmas tree, and its foreshadowed relevance to liminality in the story, begins growing little by little. Other stage props also begin to change, implying that Claire is actually shrinking to the same relative size as toys and mice. This transformation on stage is dramatically drawn out for the remaining fifty-two measures of music in scene 6, with the tree becoming gigantic, and the stage transitioning from Claire's living room, to the alternate magical state of her living room as she perceives it through her dreams. While this entire stretch of music in this space is liminal, Tchaikovsky orchestrates the harp within this part of the scene at the very beginning and end of the musical passage depicting the tree's growth. This approach focuses the harp's musical expression on the moments when the threshold is being demarcated, versus the myriad of other ideas being conveyed by the other instruments.

When the tree is initially starting to grow, the volume of the *pianissimo* orchestra, is

low enough to hear the harp echo each chord change in the harmonic progression,

centering around e minor. Each chord change consistently occurs on the first beat of each

4/4 measure, with most of the orchestra landing on the first beat together. The harp then

lands on beat two, which diverges from the conventional emphasis on the first and third

beats, and creates a pulsing, echo effect on the first two beats of each 4/4 measure (ex.

15).

EXAMPLE 15: The harp's echo effect, achieved by landing on beat two of each measure

This effect is further highlighted because the melody holds a sustained note during

the second beat of each measure, giving the harp arpeggio textures a chance to ring

through, without any rhythmic obstructions coming from the melody. On top of this, the harp is specifically playing chord arpeggios, one of the primary effects featuring the harp's resonating timbre. The harp's distinct timbre can already be perceived as a self-contained echo, so its harmonic delay behind the rest of the orchestra compounds the effect that the harp is already exhibiting naturally.

This approach to conveying liminality contrasts with what Tchaikovsky has previously done in the ballet, where he orchestrates the harp to appear specifically at the border of where the harmony is pivoting, tonicizing, or modulating to a new key. In this case, maintaining uniformity in rhythm while cycling through repetitive harmonic progressions means that the harp needs to convey liminality through its resonating timbre and its timely appearance in the formal structure of the music and narrative. As seen above, this is exactly what Tchaikovsky does when the Christmas tree begins to grow. The musical transition sensed by listeners is a far-reaching one, where Claire is being transported to a completely new place within her imagination. The mystery and uncertainty of this change is enhanced by the addition of the harp, echoing the orchestra's harmonic changes, while emitting a resonating, indefinite timbre. As the orchestra slowly *crescendos* and the vertical density progressively increases, and the harp is eventually drowned out by the other instruments before it stops playing. The orchestra continues to utilize tonicizations to convey the changes occurring, but by then, it is already clear that a transition has started, and the harp has served its purpose of initiating the sense liminality being experienced in this scene.

As scene 6 nears its end, the tree on stage has nearly reached its full size. The

orchestra has modulated to a brilliant A major, and reached full volume, peaking at

fortississississimo (ffff). The orchestra sustains its arrival to A major for four measures,

followed by 2 shifts to a borrowed F Major ($\flat VI^6$) for one measure each. The final stretch

of the tree's growth at the end of scene 6 marks the pending arrival of Claire (and the

audience) to a new and unknown place within her dream. The extraordinary quality of

this scene is indicated by the previous use of the $\flat VI^6$, with a musical texture that imitates

sparkles: a quality that is also extraordinary. In this particular case, the harp is less

exposed, as in had been in previous parts of the score, and is now seen doubling other

instruments in the orchestra to amplify the effect that is already being expressed.

However, its use in this particular moment still serves to convey that a transition has just

happened to place that is unknown and magical. An example of this can be seen on the

next page (ex.16).

EXAMPLE 16: Harps play sixteenth-note octaves on an F Major chord ($\flat VI^6$), when the
tonic is A major.

This is the first instance in which Tchaikovsky features the harp's highest register in this ballet. While this register may not ring as long as the middle and lower register can, it has the loudest attack volume. The decay in volume is quick, allowing the player to play more notes, in faster succession. At the same time, there is still enough resonance that allows the harp to ring, even if the string that was plucked decays quickly. Thus, what you hear in the highest register is a much tighter version of the effect compared to what is heard when strings in the middle or lower registers are plucked. Tchaikovsky utilizes this feature of the harp's high register, as he deviates from A Major to F Major (♭VI), mimicking sparkles by emphasizing the glockenspiel, harp, strings, and woodwinds, all in their higher registers. The harp, gives an extra layer of texture by playing sixteenth notes, rather than eighth-notes, like all of the other instruments, or tremolos with the string section. The music returns to A major, and the fast texture disappears. Then the music returns to the borrowed F Major, the same instruments "sparkle" in their higher registers, and then the texture remains as the music cadences to A major, and scene 6 comes to a close.

The final return to A Major in scene 6 retains the harps' "sparkling" texture, as the scene is about to transition to a new part of the narrative (ex. 17).

EXAMPLE 17: The harp's final texture in scene 6, utilizing the high register of the harp.

Now that the Christmas tree, dolls, and mice have grown to the same size as Claire, we have conclusively arrived in a new realm within Claire's dream at the end of scene 6. The beginning of scene 7 immediately moves forward into the battle between the Nutcracker and the Mouse King. It is a spectacle that involves rabbits drumming with alarm, mice and gingerbread soldiers lining up to battle each other, and a mouse king, who Claire helps defeat by throwing her slipper at him. Every dance company visually embellishes this scene in their own way. The harp remains silent as the toys battle one another, given the lack of liminality. The idea of battle also has no ties with the harp, both historically or aurally.

After the Mouse King dies, the orchestra *decrescendos* from *fortississimo* by playing a downward scale, and eventually landing *piano* on an A minor chord. The progression

continues to the parallel major chord, CM (I_4^6), then GM (V^7), then resolving to CM (I) at the beginning of scene 8.

5.3 Act I, Scene 2, No. 8: *Scène: Une forêt de sapins en hiver*

With the Mouse King defeated, Claire now enters a forest of fir trees in winter. At this liminal point of the story where scene 8 begins, Tchaikovsky orchestrates two harps for the first time in the ballet. They play identical parts, and maintain a steady output of sixteenth triplet or thirty-second note arpeggios, starting on the quarter-note beat of each measure. (ex. 18).

EXAMPLE 18: Beginning of scene 8, Tchaikovsky's first use of two harps.

The harps' dynamic marking is *mezzo piano*, while the rest of the orchestra is *piano,* implying that Tchaikovsky wanted the texture that the harps were playing to be soft, but clearly audible above the rest of the orchestra. The other instruments play a slow, sustained melodic chord progression in C Major.

To better understand how the harp is being used to convey liminality in this part of the ballet, it is important to first understand that when Tchaikovsky doubles the harp part, listeners will hear more than just the same notes played louder, as the noted music might imply. Instead, the harp naturally resonates when un-muffled effects, like arpeggios, are played in continual succession, causing this resonance to build up over time. The accumulation of pitches include those that come from vibrations from the strings being plucked, and the sympathetic and harmonic vibrations of the strings along the whole instrument. These pitches will continue to ring, unless muffled, and since no indication is made by Tchaikovsky to muffle the strings, any that are vibrating are left to deliberately vibrate, despite any chord changes that might happen. As a result, doubling the harp part not only increases the volume of the notes that the harpist initially plucks, but it also amplifies the hazy resonance effect that is naturally built into the timbre of the instruments. Additionally, the variation in timbre and style due to different instrument and player combinations, further blurs the effect, something that Tchaikovsky is intentionally capitalizing on.

The heightened use of two harps at the beginning of scene 8, correlates with several key liminal changes that are conveyed through the ballet plot. The Nutcracker transforms into a human prince, Claire begins to develop a recognizable romantic attraction towards the Prince, and the scenery shifts dramatically from the battle scene to a shimmering winter forest, representing a change from a state of war to a state of peace. The nutcracker doll transforming into a human prince is significantly under-played in the ballet, but in the original fairytale the Nutcracker's transformation leads to Marie's

engagement to the Nephew Drosselmeier/Prince of *Confiturembourg* at the end of the story. The simultaneous transitions require an additional degree of liminal expression, to differentiate from the liminality that was already conveyed when Claire fell asleep. In other words, the uncertainty of liminality has already been expressed with one harp, so to move to another level of liminality beyond where the listeners are already at, a second harp is needed to amplify the effect.

Once the initial transitions have been made conclusively through the cadence at the end of the first section, the harps drop out of the music, the orchestra's collective volume amplifies, and the initial melodic theme of scene 8 is repeated without the harp, but with every other instrument of the orchestra playing out at *fortissimo*. At the second major cadence in scene 8, there has been a glorious melodic and harmonic climax, and the dynamics drop precipitously across the board, as the music begins to transition to bring the scene to a close.

As the scene begins to end, the harps return, but this time, playing alternating arpeggios (ex. 19).

EXAMPLE 19: Act I, scene 8, two Harps playing alternating arpeggios.

This alternating effect is different from exactly doubling each other because it allows each individual harp to resonate unobstructed for a longer period of time. This leads to two results: first, there is more time allotted to letting the formant shift and bend, which widens the pitch range that each arpeggio generates. The wider the pitch range generated by each string, the more the perceived pitch range of the harps wavers. Secondly, emphasizing the resonance of the harps deemphasizes the attack that is heard when the strings are initially plucked. The percussive pluck heard comes from only one harp, rather than two, compared to when the two harps were doubled. Thus, the shift from emphasizing the beginning of the pluck to the latter half of the resonance softens the harps' rhythmic intensity as scene 8 comes to a close. The harp is one of the final instruments playing as Tchaikovsky concludes the transitions that have happened in scene 8.

5.4 Act I, Scene 2, No. 9: *Valse des flocons de neige*

Claire and the Nutcracker Prince leave the stage for scene 9, as the closing scene of Act I entitled "Waltz of the Snowflakes" begins. The dancers, dressed as shimmering snowflakes, perform an ensemble piece that remains narratively stagnant, and showcases the *corps de ballet.* The function of this scene is primarily to entertain through dance, rather than push the progress of the storyline forward. The stage props and outfits typically sparkle, mimicking the way snow glistens in the light. While snow itself may not symbolize anything out of the ordinary, the use of sparkles, gives the set and costumes an extraordinary quality.

The music in the "Waltz of the Snowflakes" also conveys these same magical and extraordinary qualities within this scene. The repeated use of high-pitched, resonating instruments throughout scene 9 symbolizes the scene is not representing reality, but rather the arrival and movement within an extraordinary location in Claire's dreams. The harp assists with aurally conveying the sparkles that the woodwind and percussion section convey through short, quick spurts of rapid rhythmic passages focused in high registers (ex. 20).

EXAMPLE 20: Excerpt from "Waltz of the Snowflakes" showing Harps I & II playing in the high register to emulate visual "sparkling"

The high range of the harp is of course where the sound has the sharpest quality, given the loud volume of the initial pluck and the quick decay of the formant. The intense timbre produced within the highest register that quickly decays, parallels the way light shines from many individual units that create a sparkling texture.

In the examples on the next page, the harp is also used to mimic gusts of wind that blow snowflakes through the air (ex. 21 and 22). The snowflakes are in the process of falling and changing positions, indicating that the setting is transitioning into a forest covered with snow.

EXAMPLE 21: Excerpt from "Waltz of the Snowflakes" showing Harps I & II playing quick, upward arpeggios, followed by a fluttering gesture made by the flutes, likely symbolizing short gusts of wind that blow snowflakes.

EXAMPLE 22: Excerpt from "Waltz of the Snowflakes" showing Harps I & II playing contrasting *glissandi. G*lissandi spanning two measures represent longer gusts of wind.

Many additional places within the "Waltz of the Snowflakes" show that the harp

doubles other instruments. Since the harp primarily sets itself apart from other

instruments through its resonance, doubling other instruments with the harp would

effectively add its resonant quality to the timeframe after the fundamental pitch is heard.

In other words, the immediate pitch heard, followed by the hazy effect of the harp's

resonance serves as a way to either add a resonance effect to instruments, or amplify the

resonance effect of resonating instruments. This compositional technique can be see in

scene 9 where the glockenspiel and harps work together to create a ringing "halo" around

the melody being sung around the unseen choir (ex. 23).

EXAMPLE 23: Excerpt from "Waltz of the Snowflakes" showing Harps I & II doubling other instruments. Glockenspiel and Harps create a ringing "halo effect" around the melody sung by the unseen choir.

One brief note about the music for both the harps and the glockenspiel: the rests in the measures above can be misleading, because they refer the absence of playing, rather than the absence of audible sound. Because there is no indication for the harps and the glockenspiel to dampen, listeners will hear both instruments ringing through the indicated rests, leading to a continuous ringing "halo" that persists around the melody sung by the invisible choir.

The harp is also used at two specific points in the formal structure of scene 9, where there are musical junctions serving as a threshold within what is otherwise a narratively stagnant scene. The first is near the first double bar line, when the orchestra holds out an extended cadence on an A# diminished 7 chord, and the score cue indicates that "a strong

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gust of wind make the snowflakes whirl." The harps play a directionally opposing

glissando at *fortississississimo*, symbolizing the wind, just as it had earlier (ex. 24).

EXAMPLE 24: Excerpt from "Waltz of the Snowflakes" showing Harps I & II playing contrasting *glissandi*. G*lissandi* spanning two measures represent longer gusts of wind.


This moment is dramatic, given both the dynamic marking, the use of two harps *gliss-*

ing in opposing directions, and the extension of the each glissando over two measures.

These gusts of wind are strong, indicated by the *ffff,* and travel far, indicated by how long

each directional glissando lasts. The breaking point within the formal structure is

accentuated harmonically with a transitional A#$°^7$ chord (vii$°^7$/V). The whole orchestra

plays this chord, but it is primarily emphasized by the harp's *glissandi.* The harp's

presence in this harmonically pivotal moment brings a heightened sense of drama and

uncertainty about where the music will transition to in the next section of scene 9.

The second musical junction is at the end of scene 9, which also marks a large-scale margin in the formal structure: the end of Act I. The harps play alternating, upward *glissandi,* which again, allows each individual harp to resonate for an additional measure, emphasizing their resonating quality over their percussive quality, and enabling a wider range for the harp's pitches (formant) to waver (ex. 25).

EXAMPLE 25: Act I, scene 9, Harps I & II, excerpt of alternating *glissandi*

The harps then switch to short-range, sixteenth note arpeggios in the highest register of the instruments, mimicking the sparking texture that emphasizes the extraordinary quality of the setting depicted on stage, followed by broken chords with the rest of the orchestra as the music approaches the final cadence to end scene 9, Act I (ex. 26).

EXAMPLE 26: Act I, scene 9, Harps I & II, excerpt showing sixteenth note arpeggios mimicking sparkles, followed by broken chords

The scene then ends with the curtain, allowing the audience to temporarily leave the imaginary world within in Claire's dreams. Yet again, the harp has appeared at a junction of change, when the ballet is narratively and programatically reaching the end of one experience, indicated by structural and harmonic cues within the music.

5.5 Act II, No. 10: *Scène: La palais enchanté de Confiturenbourg*

After the intermission is complete, Act II, scene 10 introduces the audience to a new place within Claire's dream, "The Enchanted Palace of Confiturenbourg." It begins with the brass section playing sustained notes at *mezzo piano*, while both harps double each other identically, playing repetitive, thirty-second notes of an E Major chord at *forte*. Again, the harps were meant to be heard prominently, implied by the contrasting dynamic markings between the harps and the rest of the orchestra, the doubling of the harps, and the continuous, sustained presence of the harps for an extended part of the musical introduction (ex. 27).

EXAMPLE 27: First two measures of Act II, scene 10

The harmonic progressions are relatively stable as the scene stage reveals a magic castle on the mountain of sweets. This is clearly another new and fantastical place within Claire's dream that she (and the audience) is entering, after having left the magical forest where snowflakes danced. The harps continue to play a tight arpeggios focused on the middle-range of the harps for twenty-five measures, including an eight measure section that repeats. The harps' lack of focus on a single moment where the harmony is shifting indicates that the harp is there to convey a broader liminal shift in the storyline through a change in formal structure. The arpeggios also have a stationary and stable quality, because the strings plucked are within a small range of the harps. The subsequent resonance is also limited to the partial and harmonic effects from a smaller range of strings. This contrasts other parts of Act I, where several octaves were spanned, with *glissandi* or arpeggios sweeping across the instrument, giving the harps a sense movement over a larger space.

After the first twenty-five measures of scene 10, there is a shift in the texture of the harps, where they change their musical pattern from arpeggios that move back and forth within a small range in the middle of the harp, to directionally repetitive upward arpeggios that *crescendo*, and migrate stepwise from the middle-range of the harps up to the high range of the harp, while inverting and embellishing a B Major[7] chord (ex. 28).

EXAMPLE 28: Act II, scene 10, Harps I & II emphasizing a B Major[7] chord, the dominant to the new tonic, E Major.

The harps help to sustain the dominant 7 chord (V^7), before the harmony reinforces

the overarching shift to a new tonic in Act II, scene 10: E Major, which again, correlates

to the arrival in Confiturenbourg. The majority of the orchestra comes in at *forte*, and the

harps then remain stationary in their high range, generating the louder, percussive

twinkling effect using thirty-second notes in continuous succession at *fortissimo* for

sixteen measures. The harps then begin to play alternating upward *glissandi* that de-

emphasize the percussive plucks, and relax the rhythmic and timbral intensity of the music (ex. 29).

EXAMPLE 29: Act II, scene 10, Harps I & II alternating *glissandi*
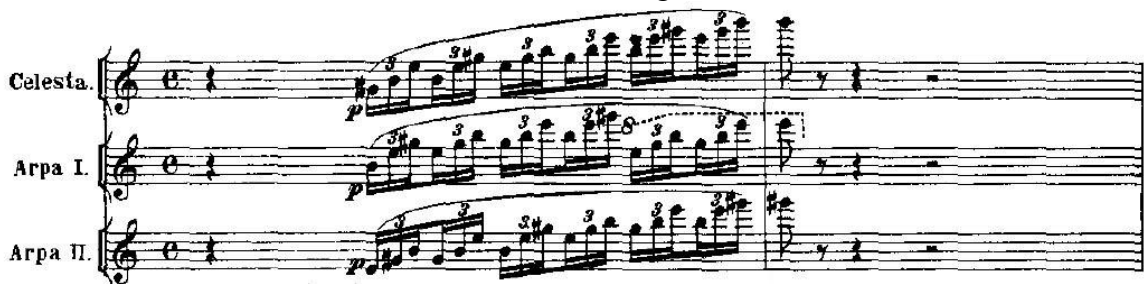
The end of this introductory subsection, cadences momentarily on E Major, at which point, the music has firmly established the new tonic, and sufficiently carried its listeners into "The Enchanted Palace of Confiturenbourg."

The harp then drops out, as the orchestra beings to cycle through several rounds of tonicisations. At the very tail end of these harmonic progressions, both harps join the celeste to create a twinkling effect, as the "Fairie Dragée appears with her followers." As this imaginary character is introduced to the audience, the harp continues to maintain running thirty-second notes, which gives the Fairie Dragée's presence an extraordinary association, reinforcing that Act II also involves the transition that comes with meeting new people within Claire's imagination. Act II scene 10 ends with a warm, relatively subdued passage played by woodwinds and supported by bass-range instruments, cadencing on E Major.

5.6 Act II, No. 11: *Scène: L'arrivée de Casse-Noisette et Claire*

Scene 11 immediately starts with a cue stating that "the river of rosewater essence surges," and Claire and the prince appear. In line with this imagery, the celeste and two harps play triplet, upward swelling thirty-second-note arpeggios (ex. 30).

EXAMPLE 30: "The river of rosewater essence surges."

This occurs seven more times, with each cluster of notes swelling upward occurring on harmonic changes that modulate the key to C Major (pages 294-301). The "tide" is literally turning within this part of Claire's dream, implying that something is changing. Each choreographer makes a different decision about what visibly changes on stage during this musical moment, but often, Claire and the nutcracker prince disembark from a prop boat, after having sailed in on the river of rosewater essence. This passage builds up to a regal melody by the brass section at *fortissimo*, reinforcing that his castle in the mountain of sweets is a place of royalty and grandeur within Claire's imagination.

After the double bar line on page 304, the meter changes to 6/8 and the score cues the appearance of "twelve serving boys bearing torches." Harp I then doubles the high pitch instruments playing alternating thirty-second notes, an octave apart. The high pitch is likely to convey the youth of the young servant boys entering the stage, while

maintaining the dreamy and sparkling texture of the music by doubling the melody with the harp, resonating in its upper register (ex. 31).

EXAMPLE 31: Act II, scene 11, Harp I plays a sparkling texture as the young servant boys are cued to appear on stage.

The extensive introduction and transition to the new realms within Act II continues to feature the harp's highest register. Once it has finally concluded, and we as an audience are well situated in this new place within Claire's dream/imagination, the harps stop playing, and the Nutcracker Prince uses dance and miming to recap the story of how Claire saved him during the battle with the mouse king. The fairy makes a signal and a sumptuous table appears, either by magic or by the castle servants who set the table.

The ballet then moves to scene 12, which is the famous succession of small ensemble or solo dances, each of which carry different themes. In order of appearance, there is "Chocolate" (Spanish dance), "Coffee" (Arabic dance), "Tea" (Chinese dance), Trepak (aka "Russian Dance"), The Lilies ("Les Mirlitons," i.e., "Dance of the Reed Pipes"), and "The Mother and the Puppets" ("La Mere gigiogne et les polichinelles"). Through this scene, it becomes clear that Act I is narratively directionless, as though to wander aimlessly between different places, ideas, and emotions, as dreams often do. Even though there are concrete changes in the themes between different numbers being

performed, the overarching storyline ceases to progress or move forward in a narratively purposeful or meaningful way.

5.7 Act II, No. 13: *Valse des fleurs*

The harps stay silent until the beginning of scene 13, titled "Waltz of the Flowers," where Harp I plays a cadenza, and transitions the stage to the largest ensemble dance routines in the second half of the ballet. Liminality is harmonically implied in this scene by the thirty-three measure extension of the dominant (A^7 Major) approaching the new tonic key (D Major), and visually implied by the ballet dancers transitioning to their starting positions for the waltz. Just like "Waltz of the Snowflakes" in Act I, this ensemble piece features the *corps de ballet*. In contrast with the "Waltz of the Snowflakes," the "Waltz of the Flowers" has several elements that closely resemble traditional ballroom dancing. Just before the scene begins its triplet waltz meter, it starts with an unstructured "upswing," during which dancers would have normally assembled themselves, prior to officially beginning the waltz. Similarly, the ballet dancers on stage also assemble themselves into formation, during an extended harp cadenza that hovers on an A^7 Major chord for nearly all thirty-three measures, prior to resolving to the tonic, D Major. In some cases, there is a small solo routine at the beginning of the harp cadenza, which, ultimately, leads to a transitional rearrangement of the stage to begin the waltz.

This transitional passage does not simply utilize the harp, but features the harp in one of the most famous orchestral harp cadenzas ever written. In the original cadenza written by Tchaikovsky, a single harp first plays an arpeggio spanning four and a half octaves, sweeping up and down the harp, first in A major, then in A^7 Major (ex. 32).

EXAMPLE 32: Harp I's entrance in "Waltz of the Flowers."

The resonance of the strings in each case is centered on the notes and harmonics

related to the A^7 Major chord. This focus remains as the rest of the cadenza extends,

building anticipation for the start of something new, extraordinary, and magical (waltzing

plants).

Example 33 is the remaining music for Harp I's cadenza.

EXAMPLE 33: The harp cadenza for "Waltz of the Flowers," original.

On the piano, this would create a texture where the listener would hear contrasting notes hovering in the vicinity of an A^7 Major chord, which would slightly muddle the texture, similar to what the harp's innate timbre already accomplishes. However, this

compositional method is not only unnecessary on the harp, but it is un-idiomatic to play.

Thus, the cadenza is universally performed differently. An example of a common

approach is as follows (ex. 34):

EXAMPLE 34: The first four measures of the harp cadenza from "Waltz of the Flowers," re-written according to how the author was taught to play the cadenza.

Notice that the right hand part is identical to the original score, while the left hand is

nearly identical to the right hand part, but played in succession, an octave lower.

Although the left and right hands are originally written to play together, harpists will

instead play the right and left hands in quick succession. On paper, changing the music

in this way may seem to drastically deviate from the original texture of the music. But

the intrinsic resonance of the harp, actually leads to a persistent, hovering ring that yields

the same ultimate effect: the harp resonates extensively on an A^7M chord, facilitating a

transition to a new, exceptional, magical place with waltzing flowers.

While some may see the dominant chord as the main driver of liminality in this situation, the dominant chord is extended for such a long period of time, that as listeners might naturally be inclined to lose a sense of directionality without any harmonic movement. Thus, it is arguably Tchaikovsky's choice in instrumentation, and subsequently the harp's timbre, that gives this cadenza the sense of traveling to an unknown space. Only by the very end of the cadenza, does it becomes clear that the A^7M chord is a dominant to the new tonic, as the harp reduces the spread of notes it plays, thereby reducing the width of the audible resonance in time. After the harp finishes, the music begins the waltz in D Major.

During the waltz itself, the harp often doubles the triplet rhythm played by the strings (ex. 35).

EXAMPLE 35: Harp doubling string section in "Waltz of the Flowers."

When the harp doubles other instruments, the harp is technically inaudible at the moment the strings on the harp are plucked, because the harp cannot compete, volume-wise, compared to the entire string section of the orchestra. However, the harp's resonance surrounding the notes bowed by the string section, is subtly audible, creating a halo effect that retains an indefinite boundary around each note. This leads to a lack of clarity or sense of uncertainty that is ever present in an unfamiliar and "over-worldly" place. The presence of the harp is thus to retain the notion that we are wandering through Claire's dream. In contrast, the harp was silent during Act I, when the guests danced during the Christmas party in the "real world."

5.8 Act II, No. 14: *Pas de deux—Andante maestoso*

The harp continues to be featured prominently in scene 14's, *pas de deux*. As in other classical ballets, a *pas de deux* is when a pair of dancers perform a partner routine. Romance is a common theme of the *pas de deux*, and arguably, one of the nebulous and unpredictable emotional experiences that a person can have. Given that the audience is wandering through Claire's dreams, it is probable that this *pas de deux* can be interpreted as the part of Claire's psyche related to exploring her emerging interests in romance. As a young, inexperienced girl, this is uncharted territory, which explains the featured use of the harp's resonating timbre to express both the uncertainty and idealized comprehension of her feelings towards the Nutcracker Prince. The drama of toys battling a mouse king, with the safety of her beloved Nutcracker Prince in jeopardy, seems juvenile and inconsequential from the perspective of adults. Yet these toys were a meaningful part of Claire's young life, such that the angst she felt as she sacrificially extended her care for

the Nutcracker Prince was significant to her. Much of this emotional turmoil is lost in *The Nutcracker*, and the lack of narrative directionality in Act II. But this dramatic emotion prevalent in the original story that the ballet was based on, as well as in the music composed for scene 14.

Scene 14's formal structure is separated into three parts, with the harp appearing in the first of the three sections, the *pas de deux*. Unsurprisingly, Tchaikovsky transitions from using one harp in "Waltz of the Flowers," to using two harps in the *Pas de deux*, further differentiating the two scenes, and emphasizing the transition from Claire's imaginative and playful thoughts about social dancing, to a new, emotional realm of romance.

The main motive of the *pas de deux* is essentially a downward scale, first played by the cello section. Variations of this motif are played dramatically throughout the *pas de deux,* with altered rhythms, keys, and instrumentation. In keeping with the harp's strengths, Tchaikovsky uses the harps to support this melodic motif by accentuating the harp's resonance (ex. 36).

EXAMPLE 36: *Pas de deux* motive, accompanied by two distinct arpeggio harp parts.

For the first sixteen measures, the harps simultaneously play two effects, where Harp I plays triplet arpeggios that move up and down, across the harp's middle-range, while Harp II plays broken, arpeggiated chords on each quarter-note beat to emphasize the soft "landing" on the quarter-note beats of each measure. The resonating timbre of the harps creates an effect where the broken chords of each quarter-note beat are rhythmically drawn out in a way that conveys an imprecise indefiniteness about each chord, while simultaneously sounding harmonically clear enough to retain the identity and functionality of each chord. Harp I then overlays the broken chords by playing arpeggios that move back and forth in the harp's middle-range, which leverages the harp's resonating timbre to further blur and extend the rhythm, texture, and harmonies of the

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chords. It is as though we are floating on a dynamic, ill-defined surface, like waves in the middle of a large body of water.

The intensity continues to build through the melody, as the number of instruments playing the motif increases. Once the violins join the woodwinds and cellos, the motif is played in unison at *fortissimo*, and the harps switch to doubling each other playing arpeggios, with more notes being played in the same span of time (ex. 37).

EXAMPLE 37: *Pas de deux* motive in unison, with harps I & II doubling the same part.

This not only diverts the collective volume of the harp section to emphasize the broader resonance of the harp (tighter broken chords vs. wider arpeggios), but the increased number of notes played at a given moment increases the volume of the harp section, and the perceived pace of the music. While the music may have already arrived in this new place within Claire's dream, it is clear by the continued presence of the harp, and the shift in texture, that the music is still in the process of transporting its listeners to a different emotional place within Claire's psyche, and the growing care and emotional attachment that she is experiencing as she falls in love with the Nutcracker.

After the music modulates to the relative minor (e minor), and the harp temporarily stops playing. A new, non-repetitive melody is introduced, deviating from the original motif. The density of the instrumentation is reduced, and the dynamic markings lowered to *piano*. Over the course of twenty-one measures, there is a slow build of dramatic intensity through an overarching *crescendo* and a steady stacking of instruments to increase the complexity of sound that the orchestra emits. The non-repetitive approach of the melody also temporarily shifts the music back to a story-telling quality. Listeners and scholars have proposed several hypotheses about the meaning that Tchaikovsky was trying to convey through the *Pax de deux*. If we consider the narrative of the original fairytale, then this section appears to be a recap of Claire's emotional turmoil during the extortion she experienced with the Mouse King. This music comes later in the ballet, and thus, Claire might have been reflecting on how she eventually overcame these (imaginary) trials as she held fast to the love and care she felt towards the Nutcracker Prince.

The harp, in this section, is orchestrated in a way where Tchaikovsky means for it to be deliberately audible. Each time the melody pauses on a sustained note, the harp plays arpeggios, almost like an echo or afterthought of each phrase (ex. 38).

EXAMPLE 38: Harps I & II echoing the melody in the *pax de deux*.

While the harmonic progression is sufficient to signify the development and changes that Claire is reflecting on when she overcame hardship, the harp retains an ever-present sense of liminality. She is psychologically straddling between what is real (Claire's emotions) versus what is merely a dream (the events that led to Claire's emotional experience). These experiences and emotions aren't just being explored, rather they are being explored from the perspective of a growing young girl (transition), who is falling in love (rite of transition, leading to betrothal). As seen before in the main body of "Waltz

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of the Flowers," the harp is likely present during the *Pas de deux* to retain an "other-worldly" sense, retaining the notion that Claire's explorations of romance, and its various transitions, are still taking place within Claire's dreams. In the end, the dramatic, regal, build-up to a modulation and cadence back to the relative major (G Major) signals that Claire was victorious.

The harps continue to audibly play arpeggios during brief gaps when the rest of the orchestra either has rests or is playing sustained notes, with Harps I and II alternating, so that each harp is allowed to ring for the longest possible span of time (ex. 39).

EXAMPLE 39: Score excerpt begins with cadence on G Major, followed by Harps I & II alternating arpeggios to maximize the time each harp resonates.

In a last moment of emphasizing the harps' resonating timbre, the harps play

contrasting arpeggios as the rest of the orchestra victoriously concludes the *Pas de deux*

by playing sustained notes (ex. 40).

EXAMPLE 40: End of *pas de deux* shows harps playing contrasting arpeggios at full
volume.

Claire's emotional transition from uncertainty and angst to strength and overcoming is now conclusive. All of these intertwined liminal themes are still manifesting within Claire's dreams, as made clear by the unobstructed presence of the harp.

The harp then remains silent through the remainder of scene 14, as the ballet reverts to its narratively stagnant format, with featured solos dancing to a Tarantelle and the famous music of the Sugar Plum Fairy.

5.9 Act II, No. 15: *Valse finale et Apothéose*

During the final scene of the ballet, there is a waltz-like triple-meter as the dancers being lining up to bow for the audience. The harps stay silent until the key temporarily modulates to D major, and Tchaikovsky uses a sparkling texture to express the magical, other-worldly quality of the ballet's storyline (ex. 41).

EXAMPLE 41: Harps I & II double each other with Celeste to create a sparkling texture.

In this case, the harp plays in the upper half of its register, while playing in conjunction with the celeste, flutes, and piccolo.

At the end of scene 15, during the Grande Finale (L'Apotheose), the harps "sparkle" for the very last time, by playing rhythmically quick passages in the higher register of the instrument, in conjunction with the celeste (ex. 42).

EXAMPLE 42: The final appearance of the harps in *The Nutcracker* ballet, playing a "sparkle" texture.

Tremolos in string section and trills in the woodwind sections create a sense of instability. The resonance of the celeste and harps playing sixteenth notes, emphasizes the "sparkling" quality that maintains the sense of being present in a different world, and the position of this passage at the very end of the ballet signifies that the story is transitioning away from the magical world within Claire's dreams. The high registers in which each instrument plays is conducive to imitating the sparkling texture, but also re-emphasize Claire's youth. With much of the ballet's story about liminality and the thresholds crossed between different unknown and magical places, the harp and celeste maintain their sixteenth note texture for the entire finale, until the last seven measures of the entire ballet score, at which point the rest of the orchestra plays a grandiose cadence to conclude the ballet, as Claire awakens from her dream.

Conclusion

Once *The Nutcracker* ballet became a regular part of holiday festivities, the influence of its music on the masses also became a regular part of the subconscious reinforcement of the harp's representation of liminality. Deeper analysis of the score showed that the harps appeared around the general theme of dreams, love, and magical/supernatural destinations, not to directly express those themes, but to facilitate the transition of the story to and from these places, or to maintain movement within each of these places. The psychological, emotional, supernatural, and even practical storytelling thresholds that were crossed coincide with compositional choices that exposed and maximized the harp's resonating timbre. Beyond *The Nutcracker* ballet, many other pieces have also effectively used the harp to convey liminality, while iconography and religious texts have also confirmed this association.

Though simplistic in its original design, the harp's evolution as an instrument also demonstrated that retaining the harp's ability to ring was a priority for musicians and listeners, even at the expense of becoming a fully chromatic instrument. This ringing timbre, and the indefinite nature of vibrating open strings, has been the essential quality that has given the harp a unique niche within the comprehensive range of musical expression, and an ability to convey the types of emotions that are coupled with the indefiniteness that people sense as they experience change and transformation.

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LIST of MOVEMENTS in *THE NUTCRACKER,*
and the NUMBER of HARPS USED

Act and Scene	Description	Harp
Act I, Scene I, No. 1	*Scène: L'ornement et l'illumination de l'arbre de Noël*	I
Act I, Scene I, No. 2	*Marche*	---
Act I, Scene I, No. 3	*Petit galop des enfants et entrée des parents*	---
Act I, Scene I, No. 4	*Scène dansante*	---
Act I, Scene I, No. 5	*Scène et danse Grossvater*	---
Act I, Scene 1, No. 6	*Scène: Le départ des invités: La nuit*	I
Act I, Scene 2, No. 8	*Scène: Une forêt de sapins en hiver*	I & II
Act I, Scene 2, No. 9	*Valse des flocons de neige*	I & II
Act II, No. 10	*Scène: La palais enchanté de Confiturenbourg*	I & II
Act II, No. 11	*Scène: L'arrivée de Casse-Noisette et Claire*	I & II
Act II, No. 12	*Divertissement* 1. *Le chocolat: Danse espagnole* 2. *Le café: Danse arabe* 3. *Le thé: Danse chinoise*. Allegro moderato 4. *Trépak: Danse russe*. Tempo di Trepak, molto vivace 5. *Danse des mirlitons* 6. *La mère Gigogne et les polichinelles*	---
Act II, No. 13	*Valse des fleurs*	I
Act II, No. 14	*Pas de deux—Andante maestoso*	I & II
Act II, No. 15	*Valse finale et Apothéose*	I & II

FRENCH to ENGLISH TRANSLATIONS of STAGE CUES in FIRST EDITION
SCORE of *THE NUTCRACKER* BALLET
Translation By: Daniel Higgins

Page #	French Stage Cues in First Edition score of *The Nutcracker* Ballet	English Translation	Translator's Comments
26	*Le prèsident avec sa femme et ses invités ornent l'arbre de Noël*	The president, with his wife and guests, decorate the Christmas tree.	The grave accent on the word "prèsident" is more indicative of old French. Modern French uses an acute accent.
36	*Il sonne neuf heures. À chaque coup de l'horloge la chouette fait un mouvement avec ses ailes.*	The clock sounds nine o'clock. At every striking of the clock, an owl moves its wings..	
36	*Tout est prèt, il est temps d'appeler les enfants*	Everything is ready: it's time to call for the children.	
40	*La porte s'ouvre. L'entrée des enfants*	The door opens. Children enter.	
44	*Les enfants s'arrètent saisis d'étonnement*	The children stop, stupefied.	
46	*Le président ordonne de jouer une marche*	The president orders a march to be played.	Presumably he orders the orchestra/musicians, but it is unspecified.
77	*Entrée des parents en "incroyables."*	Enters the parents, "incredible."	In this case, "incredible" may mean "amazing" or "unbelievable."
90	*Arrivée du conseiller Drosselmayer. La grande horloge sonne, la chouette bat des ailes.*	The councilor drossmayer arrives. The large clock rings, the owl flaps its wings.	"Grandfather clock" may also be appropriate in place of "large clock."

90	*Les enfants vont se blottir prés des parents; ils se rassurent en voyant que Drosselmayer porte des joujoux.*	The children gather near their parents. They come out when they see Drosselmayer carrying toys.	I would interpret "gather" more as a "cowering" near their parents, clearly shy. The word "rassurent" is more like to "regain courage."
96	*Les deux enfants du Président attendant avec impatience la distribution des cadeaux du parrain Drosselmayer.*	The president's two children wait with impatience to open Uncle Drosselmayer's gifts.	From the analysis: in the original story, Drosselmayer is described as a close family friend who they call "uncle" by courtesy.
96	*Celui-ci fait apporter deux caisses de l'une retire un grand chou de l'autre un grand paté.*	He has two boxes brought out, from one he takes a giant "puff pastry", from the other a giant pie.	The word "chou" and "pate" are ambiguous without context. Given the later, I interpret the first one to be a pastry, keeping with the food theme.
96	*Tout le monde est etonné.*	Everyone is astonished.	
99	*Drosselmayer en souriant ordonne qu'on pose devant lui les deuz cadeaux.*	Drosselmayer, smiling, orders the two gifts to be set before him.	
99	*Une grande poupée sort du chou et un solat du paté.*	A giant doll comes out of the pastry and a soldier out of the pie.	
102	*Pas de deux: la permission de dix heures.*	*Pas de deux:* the ten hours grant.	From the analysis: "Les enfants vont avoir la permission de dix heures," which I believe refers to the children being permitted to stay up until 10 pm.

115	*Scène et Danse du Gross-vater*	Scene and Dance of the *Grossvater*	The *Großvater Tanz* is a dance played at the end of celebrations.
115	*Claire et Fritz maintenant sont enchantés et veulent emporter les joujoux.*	Claire and Fritz are enchanted and want to keep the toys.	
115	*Les parents le leur défendent.*	The parents forbid it.	
115	*Claire pleure.*	Claire cries.	
115	*Fritz fait le capricieux.*	Fritz throws a tantrum.	*Capricieux* has a different meaning: an impulsive, seemingly unmotivated notion or action. The alternative is tantrum which fits better here.
115	*Pour le consoler le vieux conseiller retire de sa poche un troisième cadeau : un casse-noisette.*	To appease [comfort] them, the old councilor reaches into his pocket and takes out a third gift: a Nutcracker.	
115	*Claire est enchantée du petit bonhomme.*	Claire is delighted with the little guy.	
115	*Claire demande au conseiller la destination du cadeau.*	Claire asks the councilor what the gift is designed to do.	The word in French is "destination," its meaning and usage here is archaic: today it's more commonly used in the same way as in English but in this case it is the purpose of the gift.
115	*Celuici prend une noisette et la fait casser par le casse-noisette.*	The councilor takes a nut [hazelnut] and operates the Nutcracker to crack it.	*Noisette* is a hazelnut and not just any type of nut.

115	*Fritz entendant le knack-knack du casse-noisette s'interesse à lui.*	Fritz hear the "knack-knack" [sound] of the Nutcracker and gets interested.	
115	*Il veut à son tour lui faire casser des noisettes.*	He also wants to crack hazelnuts with it.	
115	*Claire ne veut pas le lui donner.*	Claire does not want to give it to him.	
115	*Les parents font observer à la petite que le casse-noisette ne lui appartient pas à elle seule.*	The parents point out to Claire that the Nutcracker does not belong solely to her.	
115	*Claire cède son favori à son frère et regarde avec effroi comment Fritz lui fait casser deux noisettes,*	Claire gives her favorite to her brother and watches, horrified at how he makes it crack nuts.	The next two are a single sentences are split to convey the drama's sense of urgency in the explanatory text. The music crescendos at the same time until Fritz breaks the Nutcracker's teeth, at which there's a brutal ratchet (the instrument) sound.
115	*puis il lui fourre dans la bouche une si grande noix que les dents du casse-noisette se cassent.*	Fritz stuffs a nut so big in the Nutcracker's jaws that its teeth break.	
126	*Fritz jette le jouet en riant.*	Fritz throws the toy aside, laughing.	
126	*Claire le prend et avec des caresses tâche de consoler son favori.*	Claire picks it up and, tenderly petting it, tries to comfort her favorite.	
126	*Elle enlève la poupée du lit et y pose le bonhomme*	She removes the doll from her bed and puts the "little guy" in its place.	It is assumed here is that there is another doll, not the Nutcracker, and she removes it to put the Nutcracker in its place.

			The word used "bonhomme" is often used for little (male) kids and very old ones alike. It translates literally to "good man."
128	*La berceuse*	The lullaby	
	Elle est par deux fois interrompue par fritz et ses amis avec leur vacarme de tambours, trompettes, etc..	She is twice interrupted by Fritz and his friends with their racket of drums, trumpets and other instruments.	
133	*Pour couper court a ce tumulte, le président prie ses invitées de danser un gross-vater*	To cut short to this noisy ruckus, the president request that his guests dance a Gross-vater.	The *Großvater Tanz* is a dance played at the end of celebrations. Robert Schumann also quotes it in his *Papillons* (1831), and *Carnaval* (1835).
138	*Les invités remercient le prèsident et sa femme et s'en vont*	The guests thank the president and his wife and then take their leave.	
138	*On ordonne aux enfants d'aller se coucher*	The kids are sent off to bed.	
138	*Claire demande la permission d'emporter avec elle le casse-noisette malade*	Claire asks for permission to bring the sick Nutcracker with her.	
138	*Elle s'en va toute chagrine après avoir bien enveloppé son favori*	She leaves, saddened, after tucking her favorite into bed.	The word "enveloppé" is literally "wrapped" here. But the meaning appears to be a kind of tucking in. It is implied that she was refused permission.
145	*La scene est vide*	The scene is empty.	

145	*Il se fait nuit*	It is night.	
145	*La lune éclaire le salon par la fenêtre*	The moon illuminates the room through the window.	
145	*Claire en toilette de nuit revient avec precaution;*	Claire, in her nightgown, carefully returns;	
145	*Avant de s'endormir elle a voulu voir son malade chéri*	Before going to sleep, she wanted to see her cherished sick charge.	"son malade cherie" doesn't translate very well, "malade" (used as a noun) being a "sick person." It could be "her favorite sick person," but I chose to view it more as a nurse taking care of a patient
145	*Elle a peur*	She is afraid.	
145	*Elle s'avance vers le lit de casse-noisette qui lui semble produire une lumière fantastique*	She moves toward the nutcracker's bed which seem to be producing a fantastical light.	"Fantastical" as in a supernatural or ghostly light
145	*Minuit sonne*	Midnight chimes	"Sonne" implies that the "chiming" of a clock, but the term "sonne" is often used to denote the passing of time, with or without a chime.
145	*Elle regarde l'horloge et voit avec effroi que la chouette s'est transformée en grosselmayer qui la regarde avec son rire moqueur*	She looks at the clock and sees, to her horror, that the owl has transformed into Grosselmayer, who looks at her with a mocking grin.	"Grosselmayer" being the councillor.

145	*Elle veut s'enfuir, mais les forces lui manquent*	She wants to run away, but her strength fails her.	
151	*Dans le silence de la nuit elle entend les souris qui grattent*	In the quiet of the night she can hear mice scratching.	
151	*Elle fait un effort pour s'en aller mais les souris apparaissent de tous côtés*	She tries to leave, but mice appear from everywhere.	"De tous côtés" literally means "from all sides."
151	*Alors elle veut s'enfuir mais sa frayeur est trop grande*	She wants to leave, but she is too frightened.	
151	*Elle s'affaisse sur une chaise*	She collapses on a chair.	
151	*Tout disparaît*	Everything disappears.	
155	*L'arbre de noël grandit et peu à peu devient immense*	The Christmas tree grows and little by little becoming gigantic.	
170	*La sentinelle crie: "qui vive?"*	The sentry shouts: who goes there?	"Qui vive" is "who lives?" a common shout for a guard, but a different question would be used by English sentinels. I substituted the English phrase here.
170	*Pas de réponse*	No answer.	
170	*Elle tire un coup*	He shoots once.	"Elle" would be "she," which without more context could imply Claire. "Sentry," however, is a feminine noun, even if the person assigned as a sentry is male. I chose to refer to the sentry rather

			than Claire.
170	*Le coup de fusil*	The gunshot	This is a note on the last measure, implying the sound from the orchestra should be that of a gunshot.
171	*Les poupées sont effarouchées*	The dolls are alarmed/scared.	"Effarouchées" is scared, maybe not quite enough to run away, but enough to cause confusion and maybe some running around on the stage.
171	*La sentinelle réveille les lapins à tambours*	The sentry wakes up the drum rabbits.	"Drum rabbits" means rabbits playing drums.
172	*Les lapins battent l'alarme*	The rabbits drum furiously in alarm.	"Furiously" is not in the original text, but "drum in alarm" doesn't quite convey the meaning here.
172	*Les souris et les soldats à pain d'épices se rangent en bataille*	The mice and Gingerbread soldiers align themselves for battle.	
172	*lapins a tambours*	The drum rabbits	
174	*la bataille*	The battle	
182	*Casse-noisette appelle sa vieille garde*	The Nutcracker calls for his old guard.	
182	*Il crie: "aux armes!"*	He shouts: "To arms!"	
183	*Le roi des souris arrive*	The King of the Mice enters.	
183	*Son armée l'açcclame*	His army cheers for him.	
185	*La seconde bataille*	The second battle	

195	*Claire jette son soulier sur le roi des souris et tombe évanouie.*	Claire throws her shoe at the Mouse King and faints	"Shoe" is the word used, but it implies "slipper."
197	*Une forêt de sapins en hiver*	A forest of fir trees in winter	
197	*Les gnomes avec des flambeaux se placent prés de l'arbre de noël pour faire honneur au prince, à claire et au joujoux qui vont se placer sur l'arbre*	The gnomes, bearing torches, position themselves next to the Christmas tree to honor the Prince, Claire, and the toys which array themselves on the tree.	
218	*Valse des flocons de neige*	The snowflake waltz	
218	*CHOEUR invisible de 24 voix de femmes, ou d'enfants sur la scène*	Invisible chorus of 24 women's voices, or children, in the scene	In the score, it is clearly described as a chorus of 24 women or children "humming" ("chante bouche fermee," or singing with their mouth closed).
249	*Une forte rafale fait tourbillonner les flocons de neige*	A strong gust of wind makes the snowflakes whirl.	
260	*"Jeu de cloches"*	Set of bells	The "bells" refer to a musical instrument.
268	*AVIS. l'artiste qui remplira cette partie devra ètre un bon pianiste*	Note: The artist who will play this part must be a good pianist.	
291	*La fée dragée apparait avec sa suite*	The *Fairy Dragée* appears with her followers.	It is implied that a cohort of court followers ("her suite") are around the Fairy. A *dragée* is a type of hard sugar candy in the shape of a ball (a "plum").

294	*Le fleuve d'essence de rose se gonfle*	The river of rose water essences surges.	They are now in realm of "Confiturenbourg." *Confiture* in French is "jam," such as a fruit jam. The kingdom is made of sweets and candies, and a river of rose water is shown in the distance. They are presented to the *Fairie Dragée* and the Prince Orgeat. This context is taken from the score.
294	*Claire et le prince paraissent*	Claire and the Prince appear.	
305	*Douze petits pages arrivent portant des flambeaux*	Twelve little pages come bearing torches.	
311	*Casse noisette raconte son histoire et comment Claire l'a sauvé*	Nutcracker tells his story and how Claire saved him.	This story is told to the Confiturenbourg court.
317	*la cour célèbre le service rendu par claire au prince*	The court celebrates the service rendered by Claire to the Prince.	
320	*Sur un signe de la Fée dragée une table resplendissante parait*	The Fairy makes a signal and a sumptuous table appears.	The French text makes it seem that this happens as if by magic: the score implies she signals servants to set it up.
502	*L'Apotheose*	The "Grand Finale"	