

Making Western Swing:
An Analysis and Reproduction of 1930's and 40's Production Techniques

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Abstract

The intent of this creative project is to explore the production techniques of the 1930's and 40's, primarily through the lens of Western Swing music. In the written portion, I explore the impact that the era, its history, and its technology had on the musical production being implemented at the time, as well as how the genre itself influenced the production approach taken during the recording process. The creative portion includes two complete recordings of a classic Western Swing tune, both of which I oversaw as the musical producer. The former consists of my truest attempt at producing a Western Swing track as it would have been done in the 1930's. The latter consists of producing the same song with all the resources and techniques available to a modern producer utilizing the same set of musicians. Lastly, I've included a reflection on the pros and cons of each era's approach.

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List of Terms

For the purpose of fully comprehending this work, the following terms are important to understand:

Analog (Adjective) – Having to do with the continuous use of mutable physical quantities to represent signals or information.

A&R – Abbreviation for ‘artist and repertoire.’ Usually the branch of a record label or similar publishing company that handles the scouting of new talent, as well as the supervision of creative works in development.

AT&T – The American Telephone & Telegraph company. Originally a subsidiary of Bell Telephone Company founded by Alexander Graham Bell, the company held a monopoly on the phone service industry until the 1980’s.

Bandwidth – The entire span of a continuous band of frequencies.

Bleed – As it relates to microphones, any sound that is unintentionally captured by a microphone, usually from a loud and/or nearby sound source.

Burrus Mill and Elevator Company – A Texas-based flour mill who marketed their light crust flour with a daily radio show in 1931. Bob Wills and others were frequent performers, eventually playing under the name “The Light Crust Doughboys.”

Bell Telephone Laboratories – A scientific research and development company with shared ownership by Western Electric and AT&T until the 1980’s.

Condenser Microphone – A type of microphone that functions through the use of an electrically powered capacitor. This involves the movement of an electrically conductive membrane in relation to a solid metal plate. As sound pressure causes movement in the

membrane, the changes in distance between the solid metal plate creates an electric signal.

Diaphragm – An extremely thin, yet semi-rigid membrane that moves in response to external changes in sound pressure.

Dynamic Microphone – A type of microphone that converts sound pressure into electrical signal through the use of electromagnetism.

Electric guitar – A type of guitar electrically magnified through the use of a microphone or magnetic pickup device built into the instrument or attached otherwise. This signal is then amplified by an audio-frequency amplifier connected to a loudspeaker.

Engineer – In the field of audio, the individual who oversees the technical aspect of the recording or amplification of sound.

Equalization (EQ) – A form of audio processing involving the adjustment of volume for different frequencies or range of frequencies.

Fidelity – In the field of audio, how accurately a sound source is reproduced.

Frequency Spectrum – The entire range of available frequencies contained in a recording or sound source.

Frequency Band – An interval of frequencies within a frequency spectrum.

Hertz (Hz) – The standard unit of measurement for frequency. Equal to one cycle per second.

The Grand Ole Opry – A Nashville, Tennessee based country music stage concert held weekly and broadcast over radio. Founded in 1925, it is the longest running radio broadcast in the United States.

The Great Depression – A severe global economic recession that lasted for the majority of the 1930's.

Mono – In the field of audio, short for monophonic. When a recording is mixed as if it was coming from a single source, rather than the two-channel setup most modern recordings are done in.

Overdubbing – The process of recording additional material or instruments over an already existing recording.

Pan/Panning – In the field of audio, the process of distributing a single sound source across two or more channels of audio to change the perceived direction of a sound.

Pedal steel – A type of guitar built into a frame supported by legs, played using a steel bar against plucked strings. One of the first instruments to be electrically amplified.

Production – In the field of audio, the recording and editing of sound to create a desired auditory and/or emotional effect for the listener of a finished audio recording.

Production Techniques – An infinitely wide array of methods used by a producer to create an auditory and/or emotional sensation for the listener of a recording. This can range from microphone technique, audio processing, songwriting, and more.

Processing – In the field of audio, the electronic manipulation of an audio signal.

Moving-Coil Microphone – A type of dynamic microphone that uses the movement of a diaphragm attached to a metal coil. The change in distance between the coil and a stationary magnet produces an electric signal as sound pressure causes the diaphragm to move.

Multitrack Recording – A recording method developed in 1955 that allows sound sources to be recorded and processed as separate streams of audio within an overarching whole.

Resonance – In the field of acoustics, a phenomenon involving the extension or increase of a certain frequency's amplitude when matching an acoustic system's natural frequency of vibration.

Ribbon Microphone – A type of dynamic microphone that uses the movement of a thin sheet of metal suspended in an electromagnetic field. The electric signal is produced by sound pressure causing movement of the sheet in relation to the stationary magnetic field.

Riff – A relatively short melodic phrase that is repeated within a piece of music.

Sonic – Having to do with the nature of sound waves. In a broader sense, involving sound in general.

String Band – A type of musical ensemble consisting of only string instruments popular in the 1920's and 30's

Stylus – A hard, needle-like apparatus used in the original recording and playback of recorded material.

Swing/Swung – In the field of music, a technique that utilizes the unequal subdivision of notes, creating an alternation between short and long durations within the pulse of a musical piece.

Stereo Image – The auditory image created for the listener by the combination of signals coming out of a two-channel system.

Take – A single continuously recorded performance.

Tracking – In the field of audio, the process of recording the first sounds in a project.

Transducer – A device that converts a signal between two different forms. For example, sound pressure being converted into an electrical signal by a microphone.

Introduction

For as far back as I can remember, music has played a consistent role in shaping the way that I live my life. I was fortunate enough to be raised by parents who were very adamant about exposing my siblings and I to various forms of musical expression as soon as we were able to comprehend. Whether this was getting enrolled in various music lessons, attending concerts all across the country, or even just having music continuously playing in our house, a deep love and appreciation for music was instilled in me from a very young age. This eventually led to my decision in attending Middle Tennessee State University, where I will be graduating with a Bachelor of Science in Audio production at the end of my Spring 2021 semester. It was during my time at MTSU that I became enamored with the act of producing – that is, helping fellow creatives to turn their musical ideas into fully realized recordings. There was something about the collaborative effort of creating a song that was immediately and immensely satisfying, and it quickly became my goal do to this for the rest of my life.

When it came time to choose a topic for my undergraduate thesis, it was pretty easily decided that it would be based around some aspect of record production. I began to study exactly what it is that delineates a record producer but was met with a rather convoluted answer. At first glance, the role of a record producer may appear relatively straightforward to explain: they are simply the one who oversees and ensures a musical project's completion. But what does that mean exactly? In my opinion, that is precisely what makes the profession so fascinating.

There exists a myriad of equally essential tasks that must be completed in order for a record to be fully realized, and depending on the project, the record producer (often

just called the producer) can be responsible for any or all of these requirements being filled. Some producers are only in charge of the business aspect of a recording such as scheduling, booking, budgeting, and branding. Some only deal with the technical aspect of record production, such as choosing which takes to use, placing microphones, and supervising the mixing process. Others are only involved in the musical process, such as writing, arranging, performing, musical coaching, and the hiring and firing of musicians. Some are even the artist themselves. Often though, producers will handle some combination of all of these tasks, as well as generally overseeing the recording process and the subsequent recording sessions associated with it.

Although the producer is an undeniably crucial component to a musical endeavor, the wide array of duties they perform make it rather difficult to delineate the role to the layman. As of 2021, The Recording Academy defines a producer as “the person who has overall creative and technical control of the entire recording project . . . (they make) creative and aesthetic decisions that realize both the artist's and label's goals in the creation of musical content (Grammy).” This has been the music industry's general understanding of what exactly it is that a producer does since the early-to-mid 1960's (Huber). That being said, ever since the advent and distribution of recorded music in the 1920's, people were still needed to make sure these tasks were being accomplished. It was the artist & repertoire executives – commonly referred to as A&R men – of the era that functioned as the predecessors to the modern-day producer. (Huber).

These A&R men of the 1920's and 30's were employed by the prominent record companies of the time, and they were primarily responsible for discovering and recruiting talented artists to be recorded as content for the record companies to sell and distribute

(Huber). As an extension of this task – and similarly to the modern record producer – A&R men were often expected to oversee the recording sessions themselves to assure that a quality product was being delivered to the record companies. Coincidentally, it was also right around this time period that the vibrant and energetic musical genre of Western Swing was beginning to gain notoriety in the US (Burns). This made Western Swing performers prime candidates for A&R men seeking talent across the country.

In this project, I explore just how far modern production techniques have come since the days of Western Swing and A&R executives. To accomplish this, I do my best to fulfill and simulate the many rolls of a record producer tasked with producing a hit Western Swing track. “My Window Faces the South” – a 1939 release by Bob Wills & his Texas Playboys – will be the tune I am producing for this project. The process will include the scouting and coaching of a full recording ensemble capable of performing Western Swing, as well as the hiring of a talented audio engineer who will assist me in managing the recording. All of this will culminate in a series of rehearsals and recording sessions which I will personally lead and oversee as the producer.

The end goal is to record and produce the aforementioned song under two separate circumstances: once restricted by the production and technological limitations of the 30’s and 40’s, and once more with zero restrictions and all the advancements and liberties of a modern record producer. For these processes, I will be simulating the roles and production decisions of an A&R executive and present-day producer during a recording session held in their respective time periods.

Typically, an A&R man in the 1940’s would only be responsible for overseeing recording and occasionally leading the recording ensemble, while another individual –

the audio engineer – would handle the nature and sound of the final recorded product. In the case of these sessions, I will be performing the duties of a modern record producer for each of the recordings in order to form a more accurate comparison of each era's production techniques. By doing this project, I hope to not only grasp an understanding of what it means to make Western Swing, but also discover the peaks and pitfalls of each era's production approach.

What Makes Western Swing

Similar to the previously discussed role of a record producer, Western Swing can be a rather difficult genre to define, largely due to the many different elements that compile it. Commonly referred to as an offshoot of country and western music, Western Swing is a melting pot of several prominent genres of the early 20th century including jazz, cowboy, blues, folk, and especially big band swing. The genre was largely characterized by improvisation and the addition of electrically amplified instruments such as the pedal steel and the electric guitar, both of which were also gaining popularity at the time (Brenner).

To get an accurate sense of what made Western Swing such a commercial success, it is important to understand the social environment in which it was conceived. Like many musical genres, social dance played a key role in shaping and cementing Western Swing in popular culture. Prior to the 1920's, polka and waltz were the primary facets of dance that dominated the zeitgeist in the US (Aldrich). However, following the end of World War I, many Americans began expressing a desire for more freedom and expression in their entertainment following such a tumultuous time period. This newfound spirit of spontaneity allowed for jazz music – created by African American communities in New Orleans – to gain rapid and widespread popularity in other major American cities such as New York and San Francisco (Stewart). Along with this newfound popularity of jazz came the livelier and more suggestive dance-styles such as the foxtrot and jitterbug (Zelazko). With help from the rise of radio at the latter end of the decade, these new styles of music and dance – and social dancing as a whole – became an American past-time spanning from coast to coast.

Around the same time, country and western music was also becoming widely popular in the southern and Midwest United States, with artists such as Jimmie Rodgers and The Carter Family at the forefront (Solomon). Originating from blues and several facets of American folk music, this is considered to be the first generation of country music and is distinguished by its primary use of string bands, playing songs often lead and driven by a fiddler (Daniel). This style of music was especially favored in dance halls throughout the lower great plains of Texas and Oklahoma, where string bands would often entertain crowds of dancers with country and western instrumentals (Logsdon).

As social dancing was becoming increasingly prevalent across the country, and the overall nature of these dances were growing more energetic, it became clear that the country musicians performing in these dance halls needed to adapt in order to keep the patrons entertained. In the latter half of the 1920's, The East Texas Seranaders – a dance hall band from Lindale, Texas – would become one of the first bands to begin incorporating different aspects of jazz and big band swing in their performance of country and western music (Bogan). This included elements such as the use of heavy improvisation as well as a swung style of playing. This would become the core foundation and one of the very first recognized instances of Western Swing, foreshadowing the genre's first big surge of popularity in Oklahoma, Texas, and other midwestern states. Eventually this would grow to be a key factor in what is referred to now as the second generation of country music.

Another key factor of Western Swing was its inclusion of the drum kit as a core element of the performing ensemble. Prior to the genre's conception – and up until the late 1950's – drums were considered much too brash and inorganic to be included in

country music (Wells). Even respected institutions such as the Grand Ole Opry were known to reject the notion of having a drummer on stage during the performance of country music (Rich). In spite of this, the drum kit proved to be a hit amongst attendees of dance halls and clubs across the country. This new combination of drums, newly electrically amplified instruments, and high-energy performance proved to be a hit amongst the ever-growing crowds of dancers.

There is a quote from a 1949 interview with Bob Wills – whose band The Texas Playboys are largely responsible for the genre's acclaim – that I believe effectively encapsulates how the genre was formed. In regard to how his band would come up with material, Wills said “(We would) just lay a beat behind (popular country songs) an' the people would begin to really like it . . . Nobody intended to start anything . . . We was just tryin' to find enough tunes to keep ‘em dancin’ (Barnett).” Coincidentally, this concept of ‘keeping the people dancing’ grew to be the most identifiable element of the genre. It would not be out of the ordinary for an in-person performance of a Western Swing tune to take upwards of 15 minutes (Ginell). Bands at the time were able to achieve this through the aforementioned heavy improvisation, with the various members of the band taking turns performing extravagant riffs between sung verses, as the tempo steadily rose throughout the song.

During the early days of the genre, Western Swing only existed in the live performance format – that is, the only way for one to experience the music was in the dance halls where it was being performed. It wasn’t until the early 1930’s that the first professional Western Swing act, The Light Crust Doughboys, would be formed by Bob Wills and Milton Brown (Reid). Although the group mainly served as a vessel to market

light crust flour for the Burrus Mill and Elevator company on the radio, its critical success allowed both Wills and Brown to start their own respective groups: Bob Wills and the Texas Playboys, and Milton Brown and His Musical Brownies (Ginell). Both men's work in these groups earned them the titles the "King of Western Swing" and "Father of Western Swing" respectively, and also helped to solidify the genre's place in popular culture (Ginell).

By the late 1930's, the Great Depression had caused many fans of Western Swing to migrate from the American Midwest to Los Angeles and other major cities in search of work (Croft). This helped to expand the genre's relevance outside of the central united states, and partly facilitated the peak of its success that continued into the mid 1940's (Townsend). Music promoter Burt "Foreman" Phillips further contributed to this period of success with a circuit of dance halls he organized along the California west coast, popular among both the newly migrated Midwesterners, as well as an entirely new audience of social dancers (Wyeth). It is Phillips who is credited with coining the actual term "Western Swing," to advertise his client, the famed musician Spade Cooley around 1942 (Wyeth). Like Wills, Cooley was also dubbed the "King of Western Swing" after famously besting legendary swing band leader Benny Goodman, among others, in a voted radio contest (Martin). This is just one of the ways that radio would play a noteworthy role in the popularization of the genre.

Although Western Swing first garnered its success through in-person live performances, it was the broadcasted and recorded music of these acts that helped further catapult the genre into the public eye. Popular AM radio stations such as Los Angeles-based KFI, KMTR, and Nashville-based WSM (the then and current broadcasters of the

Grand Ole Opry), began airing live Western Swing performances as daily additions to their regularly scheduled programming (Birkline). These often-sold-out performances would typically be hosted in popular ballrooms of the area, while simultaneously being broadcasted to dancers and listeners all across the country (Birkline). This “live” method of miking and broadcasting would go on to greatly influence the way Western Swing bands would be recorded during this time period. Radio-listeners soon grew accustomed to the “sound” of the genre as it was presented over the radio, thus expecting purchased recordings to possess this same “sound.” In the following sections, I will discuss what exactly this “sound” was, and how audio engineers at the time sought to reproduce it.

Unfortunately, it would not be much later that Western Swing’s upward trajectory would come to a grinding halt. By 1944, the United States was entering its third year of involvement in World War II, and military funding was beginning to grow scarce as the war showed little signs of stopping (Richardson). With the government searching for new sources of income, the massively popular and financially viable scene of social dancing became a prime candidate for a new business tax. This soon arrived in the form of the federal Cabaret Tax of 1944 – also referred to as the “Nightclub tax” – which strictly enforced a 30% tax on every dollar made by any club or similar venue that allowed dancing on its grounds (Duddleston).

Although this was partially effective at raising funds, it primarily resulted in many venues banning all dancing on their premises to afford to stay open (Duddleston). This new tax impacted all genres of music and dance, but the prominence of Western Swing was hit especially hard. Even with its recently expanded popularity, live performance was still the primary format by which the genre was consumed. With that avenue now

unavailable, and the popular music interests of the public beginning to shift after the war, Western Swing struggled to ever return to its former level of notoriety. Despite the unfortunate setback, this hardly meant the end for the genre.

In the decades that followed, bigger acts such as Bob Wills and Spade Cooley were able to maintain a pretty steady level of relevance. Their recorded music was even able to surge in popularity as the accessibility for recorded music steadily increased. To this day, the effect that Western Swing had and continues to have on popular music is undeniable. The inclusion of both electrically amplified instruments and a drum kit as central elements of the band drastically impacted the future of country music, with these features still serving as staples of the country genre, and many others, even today. A number of noteworthy country stars continue to site Wills and his music as strong influences in their musical career, including Merle Haggard, Willie Nelson, George Strait, and countless others (Morrison).

Early Recording Technology

At the time of its popularity, it was the unfamiliar and enthusiastic energy of Western Swing that made it an instant craze across the United States. When recording this music, it was important that this same level of energy translated in the recorded format. This could be difficult without the presence of a crowd for the ensemble to feed off of, as well the fact that recording technology was nowhere near the level of advancement it is at today.

From a technological standpoint, the recording industry was just beginning to take shape as it entered the 1930's. The decade prior saw the transition from acoustical to electrical based recording, marking the first major advancement in recording technology since its advent in the late 1800's (Hochheiser). Prior to this era, recordings were almost exclusively done by playing into the mouth of a large cone-shaped horn attached to a mechanical recording apparatus. Invented by Thomas Edison in 1877, these devices were called phonographs, and were originally intended to record and play back spoken telegraphs over the telephone (Koenigsburg). The changes in air pressure caused by sound entering the horn would in turn generate back and forth movement by an extremely sensitive diaphragm located at the narrow end of the horn. A stylus attached to this diaphragm would then inscribe the changes in air pressure onto a constantly rotating physical medium such as a disc or cylinder composed of an easily incised material such as wax (Beardsley, Leech-Wilkinson). To play back this recording, a similar stylus was used to travel along the new grooves pressed into the rotating wax medium, causing movement once more in the sensitive diaphragm, producing sound out of the original horn – essentially the same exact process for recording, but done in reverse.

This method of recording and playback was naturally low fidelity, largely due to the high level of acoustic energy needed to cause movement in the diaphragm, and in turn, engrave with the stylus. Because of this, the bandwidth of recorded frequencies was only around 150 to 2500 Hz during this era. (Jenkins). To highlight just how small of a range this was, the average range of frequencies audible to the human ear is roughly 20 to 20,000 Hz –although this range tends to shrink gradually from both ends with age (Rossing). With such a narrow portion of the audible frequency spectrum to work with, this meant that neither very low nor very high-pitched instruments were able to be recorded effectively using this technology. This resulted in much of this era's recorded music being performed on mid-frequency range instruments in order to capture as much detail as possible. The goal in this case – and even more so as future technology expanded the capturable range or frequency – was to completely fill out the available frequency spectrum while still balancing the volume of the audible elements that occupied each frequency band.

In the decades that followed, monumental progress was made in the audio recording field. Western Electric – an electrical engineering subsidiary owned by AT&T – had pioneered the use of an entirely new type of electric-based recording technology developed by Bell Telephone Laboratories in the early 1920's (Wilson). This method largely improved upon the mechanically based process discussed previously, though both processes function quite similar.

The process of transcription into an impressionable medium remained the same as before, but the function previously held by the horn had been given to the microphone. This microphone transduced acoustic energy into an electrical signal, which was then

amplified by an amplifier before being sent to a magnet attached to the stylus, causing movement in place of the diaphragm (Jenkins). The electrical signals produced by the microphone provided much more sensitivity than its predecessor, the horn. It also prevented many of the unnatural acoustic resonances that occur from sound traveling through a horn, allowing the sound to be recorded much closer to how it was heard by ear (Jenkins). This new technology was also able to increase the bandwidth of recorded frequencies from around 150 to 2500 Hz to around 50 to 6000 Hz, or nearly an octave more of audible frequencies (Lorbecki). In 1924, Western Electric sold licenses to this new recording method to Victor Talking Machine Company and Columbia Phonograph Company, record company giants at the time (Huffman). Within the next five years, electrical recording would become the new industry standard in recording technology, with acoustic recording being almost entirely phased out from most American record companies (Beardsley).

Despite these new advancements, the techniques used to position sound sources in front of the recording device initially remained unchanged. This was due to the fact that the recording stylus was still only able to receive signal from single source – in this case the source was now the microphone instead of the horn (Jenkins). Achieving the desired level balance between players in a recording ensemble would still require their physical repositioning around the microphone, but the small size of the microphone compared to the horn used previously provided some benefit. The microphone was much easier to adjust and position as necessary, allowing mixing techniques to start playing a much larger role in the overall sound of a recording.

The newly expanded frequency range and increased sensitivity of electrical recording also allowed for lower-pitched instruments such as the upright bass and tuba to become more popular additions to recording ensembles (Wells). 50 to 6000 Hz was still quite far from the 20 to 20,000 Hz of human hearing, but it was enough of an improvement to require much less consideration of the available frequency spectrum when arranging instrumentation to be recorded. This allowed for the popularity of recorded music to increase considerably. Genres of music that utilized a large number and variety of instrumentalists were now able to more accurately be recorded, giving record companies higher incentive to release more recordings of genres such as big band, and the focus of this paper, Western Swing (Beardsley).

In the years that followed, an increased popularity in radio spurred many advancements in broadcast technology – technology that would soon be repurposed for use in record production (Auld). The most significant of these advancements was the introduction of the broadcast console, a large device that allowed the sound transduced by multiple microphones to be coalesced into a single stream of audio before being broadcast across public radio (Auld). Although originally created solely for broadcast, it was not long before record companies began custom-building their own in-house consoles – occasionally even repurposing existing broadcast consoles – to be used for recording. In fact, it would not be uncommon for recording sessions to be held in broadcast studios, as they already possessed most of the necessary equipment to record (Auld).

Typically, these consoles would only be designed with 4 inputs at most, but each input was able to be adjusted in volume independently from the others, achieving much

more control over the “sound” of the recorded mix (Auld). Although this didn’t allow for any mix adjustments to take place after tracking, engineers were now able to adjust the levels of each input as they were being recorded. This allowed new recordings to be more dynamic and engaging as different inputs could be adjusted per musical section. It also placed more responsibility on those in charge of the recording, rather than the performers, to make sure the music was balanced. This entire recording process would remain largely unchanged until the era of magnetic recording started around 1945.

The “Sound” of Western Swing

Although there are countless similarities between the act of listening to recorded music and music that is performed in front of you, there is one unique factor that clearly separates them. Regardless of the way that a song sounds in person, the way that that same song is recorded can drastically impact the effect that it has on the listener. For example, recording a singer with a microphone placed two inches from their face may result in an in-your-face and possibly uncomfortable level of detail in the recording. This microphone placement also has the potential to create a very intimate experience with the listener. However, if that same song is recorded with the same microphone, yet this time placed twenty feet away, that previous feeling of intimacy may be replaced with isolation or even mystery. The point is that the combination of ways in which a recording is approached all contribute to an overall “sound” that creates an experience for the listener. This is true for any genre of recording.

With the decline of Western Swing occurring in 1944, the “sound” of classic recordings in the genre can be largely credited to having been recorded using the methods described in the section prior. The limitations that came with electrical recording – and early recording technology in general – resulted in very distinct sonic characteristics that influenced the final recorded product. In addition, Western Swing was first and foremost a genre performed in-person, so being able to replicate the same essence and energy of a live dance hall performance was crucial. This meant that early Western Swing recordings would have been done almost exactly as they were performed – that is, with the entire ensemble playing together in one room. There came some unavoidable issues with this, one being the types of microphones being used during the Western Swing era.

Although Western Electric had invented the condenser microphone in 1916, by the late 1930's dynamic microphones were the primary type used for the recording of Western Swing (Webb). The two types of dynamic microphone being used were moving-coil and ribbon, and they both had rather wide polar patterns – polar patterns being the directionality of a microphone that inform which directions sound is captured. Moving-coil microphones of this time period had an omnidirectional pickup pattern, meaning they captured 360 degrees of sound at equal levels, regardless of the direction. Similarly, ribbon microphones of this time had a bi-directional pickup pattern, meaning that sound from the front or rear of the microphone was captured equally, but sound from either side was rejected. This meant that when recording a number of close-together sources – such as the many members of Western Swing band – isolation between instruments was difficult to attain. Through careful positioning, the side-to-side rejection of a bi-directional ribbon microphone could be used to attain some level of isolation, but because sound was still being picked up from both the front and rear, isolation was still unrealistic. Inversely, the benefit of these polar patterns was that they allowed much more flexibility with the placement of sound sources in relation to the microphone. For example, four individuals could stand on either each side of a moving-coil microphone, and as long as they were all projecting the same volume, they would all be captured at the same volume.

Having only two to four inputs available to record an entire ensemble of musicians resulted in further difficulty in achieving much clarity between the wide variety of instruments being played. Dealing with this issue typically involved using a single microphone that was responsible for picking up as much of the ensemble as possible,

with any additional microphones being used on instrumentalists that were either lacking detail or required a solo. For each recording, a decision had to be made regarding which elements of the ensemble were supposed to be the focus of the song. For Western Swing, this was usually the lead vocals, fiddle, and occasionally pedal steel or electric guitar. These elements would usually be placed closest to the microphone when recording with fewer mics, occasionally receiving their own mic depending on the need of the recording.

Preparation and Methodology for My Recordings

Before I could begin planning for the recording sessions, I was first tasked with finding a recording ensemble and engineer that could help me realize my goal. Unfortunately, my financial situation during this process was less than ideal, so I was only able to allott myself a budget of \$500 to complete this project. More fortunately, over the course of time at MTSU, I have been able to meet and network with a wide array of talented musicians, which made this process relatively straightforward and inexpensive.

At the time of doing this project, one of my roommates was Sam Killian, a fellow senior at MTSU, and a talented producer and recording engineer in his own right. I've had the pleasure of working with Sam together on a number of projects before this, so he was my first choice when it came to choosing an engineer. As the designated engineer for this project and its subsequent recording sessions, Sam needed to be able to clearly understand and implement the research I had done, as well as operate all the recording equipment we would eventually use. I had zero doubts in him as an engineer, so he was the first person to join the project.

Before continuing my search for a recording ensemble, I began to consider the technical aspect of how exactly I was going to record this Western Swing track, as well as where exactly I planned on recording it. My initial plan was to record at the on-campus recording facilities available at MTSU, but unfortunately, due to COVID-19 and scheduling conflicts with the university, this became less than likely to happen. Luckily, my roommates and I had already converted the largest room in our home into a dedicated tracking space that served as a pretty substantial home studio. At the time, we had 24

channels of available input, all routed to a set of audio interfaces that converted audio into our computers. We also had a decent microphone collection between us, only missing a few ribbon microphones that I would need for the sessions. As a recording venue, the space was perfect for this project – especially for the “modern” recording, as Sam and I were already accustomed to making “modern” recordings there, and we were fully comfortable with the inner workings of the space.

The only thing missing – and the primary reason I planned to record at MTSU – was the presence of an analog mixing console. Especially for the “classic” recording, the ability to track and adjust level without a computer was a huge factor in keeping the recording authentic, so I began to search elsewhere for a place to record. Unbelievably, in the few days that followed, I found myself purchasing an early 90’s Ramsa WR-T820 – a twenty channel analog mixing console – for a reasonable price. Although the 90’s and its technology are quite distant from the 30’s, all I really needed was 4 channels of input that I could send out of a single output to be recorded, and the Ramsa console could handle that perfectly. Although the console technically output two channels of audio in a stereo pair, I would not be panning any of the tracks for the “classic,” so these two channels would end up being identical. I decided to use \$150 of the aforementioned \$500 budget to help cover this purchase, as it was an integral part of the project. In the span of time leading up to the sessions, Sam and I purchased the necessary cables and equipment necessary to integrate the console with our home studio setup. This finalized the decision to use our home as the recording venue.

From there, I continued my search for musicians, as well as a fitting Western Swing tune for me to record. To help narrow down what exactly I needed to accomplish,

I first determined which instruments I knew would be necessary to make an accurate recording in the genre. A drum kit, a fiddle, and an electrically amplified instrument were the first must-haves of the ensemble, as they were the elements of Western Swing that really encapsulated the genre. After that, I knew I wanted a full rhythm section, so I included upright bass, piano, and acoustic guitar in the lineup. With the addition of a lead vocalist, I decided this was the minimum number of musical elements to make an adequate Western Swing recording. That ended up being very fortunate for me, because those elements are exactly what I was able to find.

There were three big factors I had to consider that made my hunt for musicians challenging at times: their ability to play with a band, scheduling, and cost. With just \$350 left in my budget, this meant that I could reasonably afford to pay each musician, and the engineer, \$50 each to help me with this project – which, frankly, is much lower than I feel comfortable paying, but is what I had to work with. Looking at mine and Sam's schedules, there was only a span of one week that we both had available to record and rehearse, which immediately rendered a few potential musicians unable to participate. After constant messaging back and forth between different musicians, and trying to navigate everyone's schedules, I eventually acquired a full band.

The fiddler (Livi Goodgame), electric guitarist (Weston Stewart), and upright bassist (Jackson Mayhall) I ended up hiring were all trusted musicians I had met and worked with before on other projects. Being able to have Weston specifically as part of this project is what finalized my decision to go with electric guitar over pedal steel, due to his absurd level of proficiency at the guitar. Sam was able to put me in contact with a drummer (Josh Cook) and lead vocalist (Benjo Marcus) who would double as the

acoustic guitarist, both of which he personally vouched for. All of these musicians had ample recording and performance experience with other ensembles, so I felt pretty confident in this lineup.

The only instrument I was missing at this point was piano, which ended up being surprisingly difficult to find. I contacted a number of pianists that I knew, but all of them either had conflicting schedules or wanted more money than I could afford to offer them. This left me in a predicament as the deadline for the sessions grew closer. I eventually decided to just play the piano myself, as I'd been playing for thirteen years and had spent half that time playing in various bands and ensembles. My goal in hiring all of these individuals was for me to be able to focus solely on managing and overseeing the creation of these recordings, so this wasn't ideal. In modern record production though, it is actually fairly common for a producer to be an instrumentalist on the projects they work on, or occasionally be the artist themselves. That would not have been common for an A&R executive, but I decided to make a compromise for the sake of accomplishing both recordings. With the recording ensemble fully assembled, the dates for the session and rehearsal finalized, I just needed a song.

From the start of this project, I had zero doubt that whichever song I chose, it was going to be a track by Bob Wills and his Texas Playboys. They were the obvious choice given that they are the past and present face of the Western Swing genre. Because I had chosen electric guitar as my electrically amplified instrument, this meant that any song that featured pedal steel as a primary instrument was not an option. This was also true regarding any song that featured any brass instruments, as I clearly did not have any. I also wished to refrain from choosing a song that prominently featured piano in order

distance myself as far as I could from the role of musician. The only other factor I considered when picking the song was whether or not it featured prominent fiddle and electric guitar parts, since those were my two “lead” instruments, so to speak. All of this pointed directly to Wills’ “My Window Faces the South” as the chosen song, so that is what I chose.

From an equipment standpoint, there was not too much that Sam and I did not have access to on our own. We owned an upright piano and drum kit, with the rest of musicians bringing their own instruments. We had all the microphones and technology necessary for the modern session. We now even had an analog mixing console. The primary thing that was still missing was access to microphones that were more representative of the 1930’s and 40’s. For the classic session, I decided to limit myself to four inputs, as that would’ve been the maximum possibly available. Even four would have been rather generous, but I decided to go with the maximum in order to give myself more options to experiment with. I knew I wanted to use two ribbon microphones, an omni-directional moving coil microphone, and a fourth “wild card” mic that would be either another ribbon, or an early condenser. With assistance from my thesis advisor Michael Hanson, I was able to check out all of the equipment I still need directly from MTSU for the sessions. I was finally good to go.

By the time all of this was set in stone, it was already the weekend before the bulk of the project was set to take place. The rehearsal was planned for the upcoming Tuesday, with the “classic” recording happening on Friday. The plan for the “modern” recording was to meet with each musician individually over the following weekend to record their parts separately. This was done partly to lean into the overdubbing process in order to

heavily contrast the Western Swing Era, but also because the musicians were still figuring out their schedules for the weekend. I checked in once more with each musician to go over what I expected from each of them in terms of parts, but I purposely left a lot of room for them to come up with their own parts on the spot in order to highlight the improvisational aspect of Western Swing in both recordings. In the following sections, I break down exactly how the rehearsal and subsequent recording sessions were carried out.

The Rehearsal

The day before the rehearsal was to take place, I sat down with the engineer to go over the details of the song we would be recording. The 1988 rerelease of “My Window Faces the South” off of the album *Classic Western Swing* would serve as our reference for how the recording should be approached. From a song structure standpoint, the track could be broken down into four distinct sections, with the song only running a little over two minutes. It begins with a primarily fiddle-driven intro section, leading into a verse section clearly led by the vocals. Following this verse, the song transitions to an electric guitar solo section, before ending the song on a verse identical to the previous. Breaking the song down in this way showed that fiddle, electric guitar, and vocals were the musical elements that needed to be at the forefront of the mix, and closest to the mics.

For the rehearsal, my primary concern was making sure everybody felt comfortable and confident in playing their parts with the group. The “modern” recording would be done with each musician individually, so this rehearsal would mainly be important for the “classic” recording to succeed. Because of this, I also wanted to make sure everybody was accustomed to how it was going to sound in the room during the “classic” tracking process. This meant that before the rehearsal I needed to figure out the general positioning of each musician. At first, I was concerned that the sound of drums would overshadow all other sounds in the room, mostly due to the smaller size of the space. To address this, we initially planned to utilize an adjacent room that the drums would be played in during tracking. The door would stay open between these two rooms to allow the musicians in the main room to hear the drums, and we would then mic each room individually. Because this would involve completely tearing down and

reassembling the drum kit, we decided we would begin the rehearsal with everybody in the same room to go over each person's parts. We would then transition to rehearsing with the drums in the other room for the latter half of the rehearsal to get accustomed to the sound.

For the performers in the main room, we decided to position the acoustic/vocalist, fiddler, bassist, and electric guitarist facing each other in a circle in the center of the room. As the loudest instrument in the room, the upright piano would stay in the corner of the room, though still in the line-of-sight of the other musicians. This setup would allow the musicians in this room to easily hear and play off of each other, while still hopefully hearing the drums. At the center of this circle, we planned to place a pair of bi-directional ribbon microphones to pick up the direct sound of the four musicians, as well as the indirect sound of the nearby piano and drum kit in the next room. It was my thesis advisor who assisted me in coming to this conclusion. The exact microphone setup is detailed in the following section.

On the day of the rehearsal, everyone showed up on time and ready to play. After I gave a quick rundown of how the rehearsal was going to go, everyone was positioned, and we soon began to rehearse. I refrained from playing piano for the first few passes through the song in order to observe each player, and I was extremely satisfied with what I heard. Fortunately, everyone had arrived to the rehearsal fully prepared, and there was very little that needed fixing. There was some slight confusion on how the song was supposed to end, but it was quickly remedied with repetition of the tune. Besides a few minor arrangement adjustments, such as cutting the fiddle during the solo section and

lowering the dynamics of the drums, the ensemble sounded fantastic after a few more passes.

Standing and listening in the room during the rehearsal, the engineer and I were quite surprised with the drummer's ability to not overshadow the other instruments. In light of this, we decided to set up a single omni-directional microphone in the center of our circle of musicians and record the last few takes of the rehearsal. We hoped this would give us a better idea of how the recording would sound with everybody in one room, and possibly prevent us from having to move the drum kit at all. I then went over to the piano and joined the rest of the ensemble on three back-to-back passes through the song, all of which were recorded. After listening back to the best of the three takes, I knew for certain that we would be doing the "classic" recording with all the musicians in one room. The drums were still a little too loud compared the other instruments, but through the use of two gobos – moveable acoustic isolation panels – we believed we could dampen the sound of the drums even further. There were also some issues when it came to clearly hearing the vocalist, but we knew we would have one additional microphone for this exact reason, so this was not an issue. Content with the recording ensemble and the general plan for the recordings, everyone was dismissed to reconvene that Friday. I've included a recording of this rehearsal to be found in Appendix A.

“Classic” Production: The Setup

As partly mentioned in previous sections, the restrictions decided for this recording were as follows:

- Only a maximum of four inputs are allowed.
- Bi-directional ribbon, omni-directional moving coil, and tube condenser microphones are the only devices allowed for the input sources.
- No processing is allowed on the inputted signals.
- Although the level of each input may be adjusted during tracking, only a single channel of audio consisting of all inputs used is allowed to be recorded.
- The final mix of the single channel of audio must only consist of frequencies between roughly 150 and 6000 Hz.
- The frequency content of this single channel of audio may be slightly balanced using an equalizer, but this is the only post-processing allowed.
- Besides the recording of the single channel of audio, a computer may not be used during the tracking process.
- Mix adjustments must be made either by moving the members of the ensemble in relation to their respective microphone, or by adjusting the volume of each microphones output using the analog mixing console.
- The entire ensemble must record at one time in a single room.
- The final recording must be done in a single take.
- No overdubs are allowed.

On the following page, I have included an illustration to assist in visualizing the setup used for this recording. In this figure, as well as the ones that follow, a white circle

with a white triangle represents a microphone, a thick black line represents a balanced microphone cable, and a thin white line represents an instrument cable.

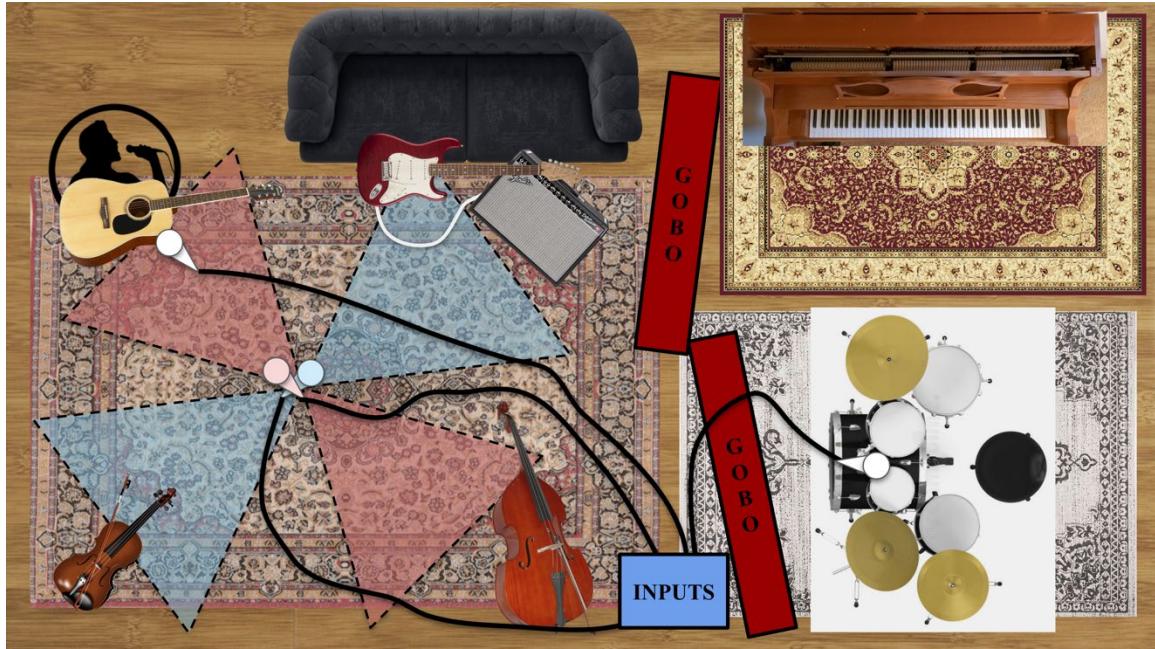


Figure 1. Placement of instruments, microphones, and other equipment used for “classic” recording. Not to scale.

Thanks to the ensemble practice on Tuesday, we were able to determine exactly which microphones we would be using after listening back to our recording of the rehearsal. Our final selection came largely from which mics were available for checkout from MTSU, as well as what we had access to in our home. These microphones were as follows:

- 2 AEA NUVO N8 bi-directional ribbon microphones.
 - Placed in the center of four musicians positioned at various distances.
- 1 1970's Electro-Voice 635A omni-directional moving coil microphone.
 - Placed right above the kick drum beater, pointed towards the drummer.
- 1 1950's Sony C37A multi-pattern tube condenser microphone.
 - Placed roughly two feet in front of the vocalist's mouth.

As shown in *Figure 1*, the pair of N8's were placed at the center of our circle of musicians, with each microphone's bi-directional polar pattern picking up an opposing pair of instruments. With this setup, each instrument could be placed closer or farther away from their respective mic in order to achieve balance between each other. By doing this, we were able to have a greater level of control over each instrument's volume in the mix. Although these are fairly newly produced microphones, they were constructed using the same exact ribbon as the RCA Type 44 – one of the first invented ribbon microphones (Baecham). The Type 44 would have almost certainly been used to record during the Western Swing era, which made the N8's an obvious choice for our ribbon pair.

When choosing which pair of instruments would be recorded by each ribbon mic, we decided that one microphone would be aimed at the acoustic guitar and upright bass, and the other at the fiddle and electric guitar. This allowed the first input to be dedicated to primarily rhythm instruments (acoustic and bass) and the second to primarily lead instruments (fiddle and electric). Although, some bleed between these four sources would be unavoidable due to their close proximity. To minimize overwhelming amounts of bleed from the piano and drum kit from also being recorded by these microphones, we constructed a wall out of two gobos', separating the room into two halves.

The 635A would serve as our dedicated drum mic, which allowed us to easily blend in the drums with the rest of the instrumentation. Because this was an omnidirectional microphone, not only were we able to get a fairly balanced sound of the entire drum kit, but we were also able to use this mic to pick up the sound of the nearby upright piano, which had no dedicated mic. This positioning was also ideal because the microphone would pick up significantly more drum kit than piano, which was desired

goal in our mix for this recording. Thanks to the wall of gobo's this mic would also have very little bleed from rest of the ensemble.

Lastly, the Sony C37A would be used as our vocal detail mic. This was the oldest mic we used in this session, although it was still a couple decades younger than the time period being modeled in this recording. The C37A has the unique ability of having switchable polar patterns, a feature that wasn't available until after World War II (Webb). To make this more applicable to our session, we made sure it was used in its bi-directional state, which is what condensers used during this time would have been (Webb). Although the condenser microphone was less commonly used than its dynamic counterparts, it would have been available to select record companies at the time, meaning it would be acceptable to use for this recording. Placed within a couple feet of the lead vocalist's mouth, it allowed us to capture the necessary clarity to understand the lyrics being sung for this recording.

“Classic” Production: The Recording

With all of the recording equipment set up before the ensemble arrived, we were able to get into recording quite quickly after the start of the session. To begin, I had the musicians perform the song four times consecutively, all the way through. This was partly done to allow the musicians to warm up, but also to give the engineer time to adjust the various levels of the different microphone inputs. Similar to the rehearsal, I refrained from playing piano with the ensemble at this point in order to make sure I was somewhat satisfied with the sound of the engineer’s initial mix. It was also during this time that we began to adjust the positioning of the instruments and microphones.

The ribbon microphones were the first to be addressed, as they were going to be capturing the majority of the overall signal being recorded. The first thing that became apparent was that the upright bass was overshadowing the acoustic guitar on the ribbon mic shared between them. Fixing this was a simple matter of moving the bass further from the microphone, and slightly turning the instrument to the side. There was a similar issue with the violin on the second ribbon mic, but it was easily remedied in the same manner. From that point, we noticed that the electric guitar and its amp presented a unique challenge from the other instruments – although it was much too quiet in the recording, it was actually beginning to be too loud in the tracking room. We quickly realized that this was because the amp was on the floor, outputting sound directly forward, yet the microphones were all five feet off the ground. To fix this, I experimented with stacking the amp at various heights on top of miscellaneous objects until I was satisfied with how it was being captured by the mic.

Adjusting the ribbon microphones took the entirety of the three passes through the song I had asked of the ensemble, so I had them do two more in order to correctly position the other two mics. Next, we added the omni-directional drum mic into the mix with the ribbons. Much to my disbelief, it sounded decent almost instantly. Specifically, the detail that the mic was able to capture on the snare drum was immediately impressive. In combination with the distant sound of the drum kit indirectly captured by the ribbon microphones, there was very little to be done to achieve a satisfactory drum sound. The only thing I did with this mic was have the drummer play slightly softer dynamics, and we were then ready to move on to the last mic.

Introducing the C37A, we were immediately met with some quite apparent issues – specifically with the ribbon microphone facing the acoustic guitar. The issue was that both microphones were capturing the sound from the acoustic guitar/vocalist at the same time, but from different distances. The slight delay between the two nearly identical signals being captured caused an audio phenomenon known as phasing. This is typically a result of multiple microphones attempting to capture a single source, and results in certain frequencies being unnaturally boosted or reduced. To solve this issue, we experimented with moving the acoustic guitar/vocalist different distances from the ribbon mic, while keeping the same distance from the C37A. Although we weren't able to entirely solve this problem, we were able to find a distance where the phasing was hardly noticeable – roughly seven feet from the ribbon mic, and around 2 feet from the C37A.

With all the adjustments made, I decided I was reasonably satisfied with the overall sound of the mix, so I decided to join the ensemble on piano, and leave the rest of the mixing to Sam. From this point, it was just a matter of playing and recording the song

over and over again until I was satisfied with the take. This process involved a fair amount of playing the piano, rushing to the control room to listen back to the takes, hearing a glaring mistake, and doing it all over again. Fortunately, the song's run time was only two minutes long, so this was not too burdensome. What I did begin to notice after about the eighth or ninth take was the soloists – specifically the electric guitarist – beginning to lose steam. This was primarily because they chose to improvise a completely new solo each pass through the song, which was clearly starting to become frustrating. I figured that there were probably only a few more takes left before this began to happen with other members of the ensemble, so I decided we were going to do just three more takes, and whichever take was the best, that would be the final take. Three takes later – just like that – the session was over for the “classic” recording.

After listening back to two of the three recordings – one was unusable due to the electric guitarist forfeiting halfway through his solo – there was a very clear “best” take, although it is far from perfect. By some miracle, this entire recording process had only taken roughly one hour, yet three had been originally scheduled. This left me with the difficult decision of either doing more takes to achieve a better recording or transitioning into the start of the “modern” recording session. The ensemble was clearly tired, so I decided to give them a break and go with the latter. Even with the imperfections in this “classic” recording, I was very proud of the chosen final take, as I really felt it was an accurate depiction of Western Swing. In the final portion of this project, I will discuss what succeeded and what failed in this recording, as well as compare it to production process of the “modern” recording that took place immediately after. This “classic” recording of “My Window Faces the South” can be found in Appendix A.

“Modern” Production: The Setup

Unlike the “classic” recording, hardly any restrictions were put in place for us to follow for the “modern” recording. The only goal during this process would be to record the song as if it was being produced in the present day. Given that I am fairly familiar with producing in the present day, this process required much less research and preparation than the former. I would just need to follow the instincts I had gained in my nearly four years of schooling in audio production at MTSU – hopefully producing the best recording that I could, while still showcasing the general attitude of Western Swing. The main obstacle in this case would be accomplishing everything within the roughly two hours I had left from my originally scheduled time. In order to accomplish this, it would require ample amounts of planning to assure that no time was wasted. Fortunately, the engineer and I had met beforehand and readied a plan for the off chance that we were able to do both recordings in a single night. We were prepared.

I left the majority of the microphone selection and placement to the engineer, which allowed me to be more focused on the planning and running the session. Between the two of us, we decided to split the recording process into five phases, with one or two instruments being recorded at a time during each phase. The goal in doing this was to achieve a much greater level of isolation between each instrument than the “classic” recording, as well as to allow each musician multiple takes in a row to achieve and record the best take possible. That being said, I still wanted this “modern” recording to have elements of an authentic Western Swing track. To do this, I attempted to have every musician do their takes in a single pass – that is, they could do as many takes as necessary, but the final take should be done in one pass. My thought process was that this

would give the overall recording a more “live” feel than if there were a bunch of edits and overdubs throughout. I also attempted to record many of the sources in mono to later be panned across the stereo image. My thought process in doing this was to allow the listener to pinpoint the direction of each individual musical element, fully taking advantage of the stereo recording that would not have been possible in the 1940’s. I will briefly go over the microphones used in this recording when discussing each phase individually.

The first phase of the “modern” recording consisted of capturing the core rhythm section of the ensemble: upright bass and drum kit. I have featured an illustration below to help visualize the setup for this phase.

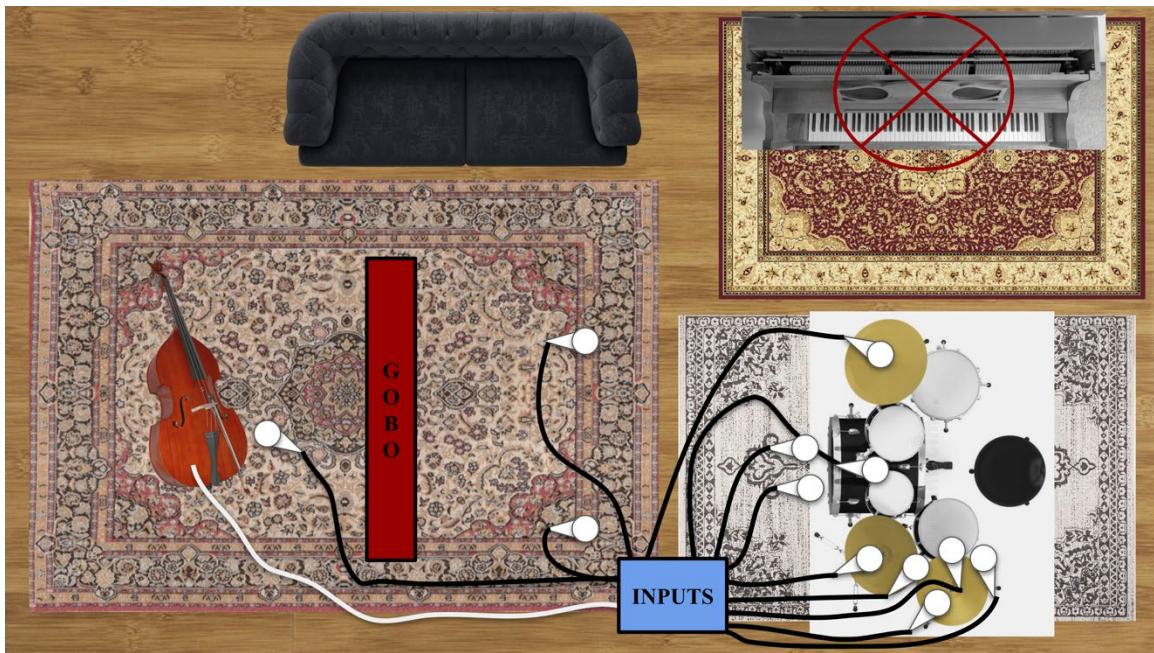


Figure 2. Placement of instruments, microphones, and other equipment used for the first phase of “modern” recording. Not to scale.

For the upright bass, we decided to record using a Warm Audio WA-47 jr. condenser mic pointed towards the bridge of the bass, along with the direct output coming from a pickup the bassist had installed. This would allow us to blend the two

signals to achieve a desirable overall sound. We then chose to place a single gobo between the bass and the drum kit to lessen the amount of drum bleed that was captured by the WA-47. For the kit itself, we decided on a fairly straightforward eleven mic setup. The main thing I wanted to achieve here was a wide stereo image by panning all of the different elements of the kit being recorded. The setup consisted of the two previously used N8 ribbon microphones as left and right front mics, a pair of Apex 185 condensers as overheads, and a Shure SM7B on the hi-hat. Because the percussion elements featured used Western Swing are mostly just kick drum and snare, I also made sure the engineer used multiple mics on both of these sources to give us a variety of sound options later on. For these we chose a Shure SM57 moving coil mic on the snare top, an Audix CX111 condenser mic on the snare bottom, an Apex 415 condenser mic on the snare side, an AKG D112 moving coil mic on the inside of the kick, and a homemade subkick mic to capture the lowest frequencies of the kick. Because no toms would be used during the song, they were not given a microphone.

In the illustration on the following page, you can see the setup decided on for phase two, which consisted of recording fiddle and electric guitar. As mentioned previously, my goal in recording these two instruments at the same time was to achieve a small level of bleed between the mics of each source to create a sense of cohesion in the final recording. For this “modern” recording, I decided to split the tracking of the electric guitar into two separate phases to allow for more distinction between the tone the guitarist used for the solo and the rest of the song.

Similar to the approach used for the upright bass, we recorded the direct output coming from a pickup the violinist had installed, along with an Apex 460 multi-pattern

tube condenser set to omnidirectional near the violin. The thought process was that the omni-directional polar pattern would allow for a “roomier” violin tone, as well as partially picking up the electric guitar to create a “live” sound. For the guitar amp, we decided to use an SM57, paired with a Royer 122 ribbon microphone, graciously lent to me by my thesis advisor. The SM57 would be used to capture the harsher mid-range, with the 122 capturing more of the body and fullness of the amp. These signals would then be blended together to taste. Finally, a gobo was chosen to be placed between the two sources to lessen the direct sound being captured by the violin mic, though not completely eliminate it.

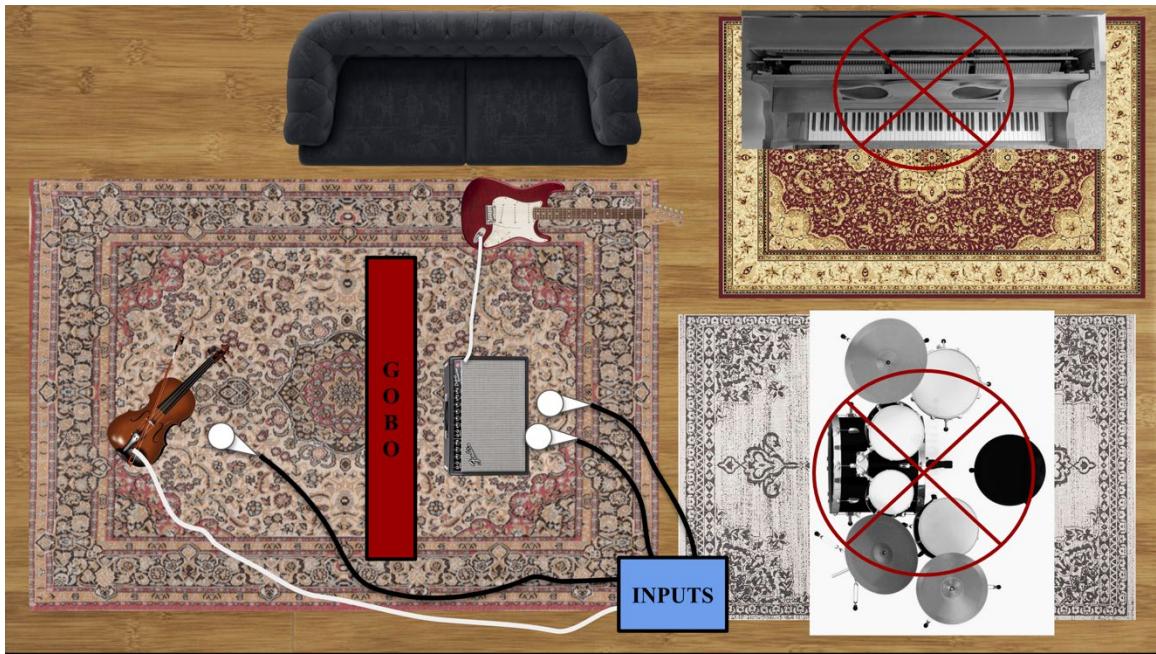


Figure 3. Placement of instruments, microphones, and other equipment used for the second phase of “modern” recording. Not to scale.

As mentioned previously, the next phase also consisted of electric guitar, though this phase would only be for capturing just the guitar solo. Due to the guitar solo being largely improvised for each take, it was paramount that this element of the song be recorded on its own to give plenty of time for experimentation. We assumed this would

also be the quickest phase, as the solo is only present for roughly a quarter of the song, whereas the other instruments play all the way throughout. We used the identical mic setup for this phase, although we placed a second gobo in front of the amp to create more isolation, as the solo would be one of the main focuses of the final recording. The illustration for this setup is featured below.

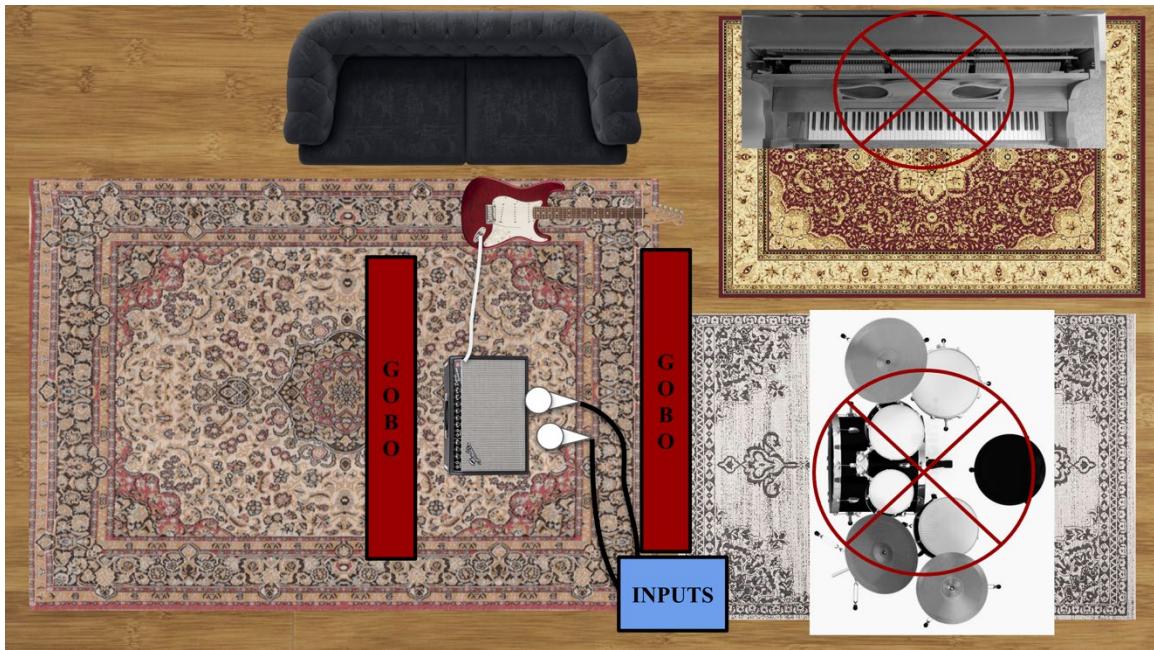


Figure 4. Placement of instruments, microphones, and other equipment used for the third phase of “modern” recording. Not to scale.

The fourth phase of this recording consisted of just acoustic guitar, which we decided to capture using the exact same setup as the violin: a direct out and the Apex 460 tube condenser, which would be combined into a single signal. Although acoustic guitars are often recorded with two microphones to create a wider sounding recording, I decided to go with a mono recording approach to further assist the listener in pointing out its direction in the final mix. A gobo was also placed in front of the guitar to get a tighter, more isolated recording – much like other phases. The illustration for this phase can be found at the top of the following page.

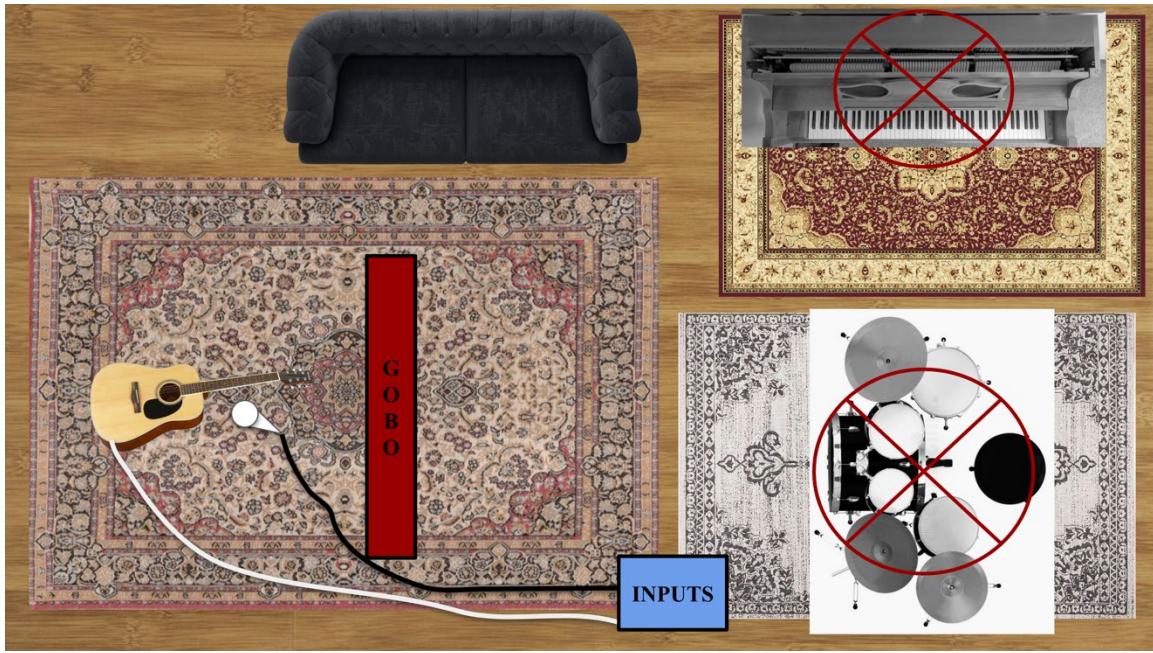


Figure 5. Placement of instruments, microphones, and other equipment used for the fourth phase of “modern” recording. Not to scale.

Vocals were the focus of the fifth phase, and although they are arguably the most important element of the song, they also had the simplest setup plan. We planned to use a single mic placed roughly six inches in front of the vocalist’s mouth, which would be panned directly center in the final mix. This is typical for the vast majority of musical recordings since you normally want the main element of a song to be the first thing that listeners notice. We also knew that going into this recording, the vocalist was going to want to stand during their take, which meant that our four-foot-tall gobos were not going to do much in terms isolation. Despite this, we decided to place a single gobo a few feet in front of the vocalist in an attempt to somewhat dampen the reflections in the room coming from the vocalist's voice.

We decided to use the Sony C37A tube condenser as the vocal mic to draw some similarity to the “classic” recording, as it was the vocal mic used for that recording as well. The main difference here is that we would be using the cardioid polar pattern rather

than the bi-directional pattern we had used prior. Cardioid polar patterns make up the largest percentage of microphones, functioning the way the layman would expect a microphone to – that is, they capture the sound that is directly in front of them, while rejecting the sound coming from the rear. The invention and popularization of this polar pattern is a large reason for the overall improvement of audio recording since the Western Swing era, which is a big reason why the majority of the microphones we decided use in this recording are cardioid microphones.

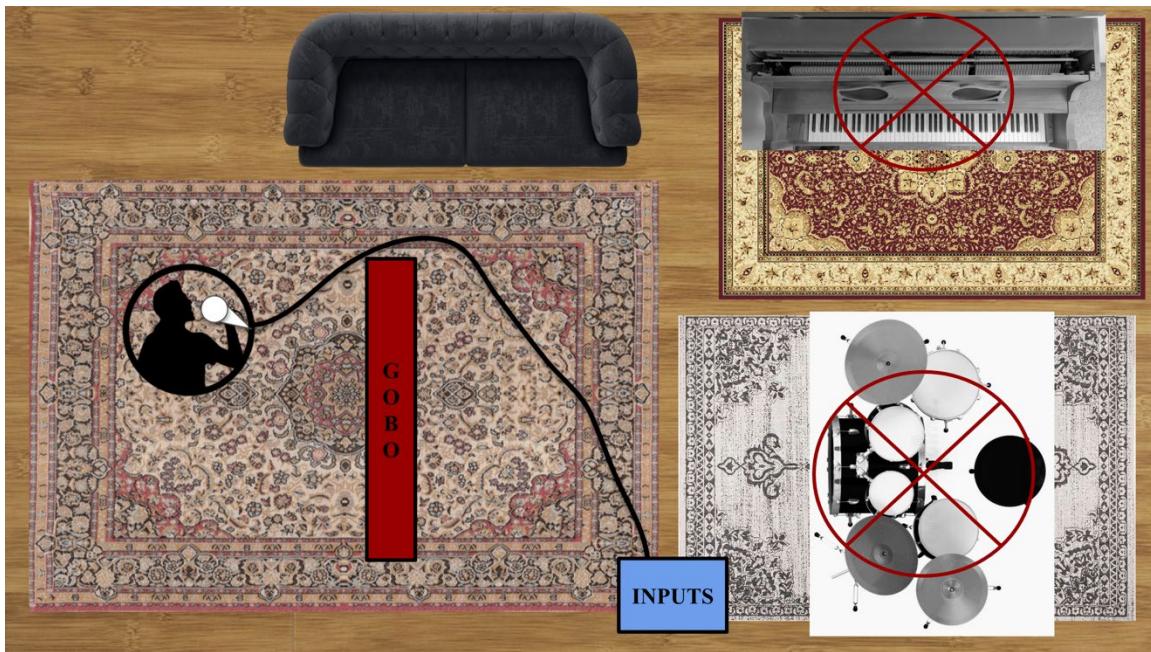


Figure 6. Placement of instruments, microphones, and other equipment used for the fifth phase of “modern” recording. Not to scale.

We decided it would be best to record the piano during the very last phase, since it would be myself laying down the part. This would allow the engineer and I to record it on a later date if for some reason we ran out of time during our planned session. A single gobo was to be placed to the left side of the piano to attempt create some sense of isolation, though the functionality of this decision was unsure. Similar to the acoustic, the piano is another instrument often recorded with two microphones, but I decided on just

one for the same reason as the other mono mic setups. I also knew that I wanted the piano to be less prominent than the other instruments, similarly to how it was the only instrument not directly captured with a microphone in the “classic” recording. I decided to use the same Royer 122 ribbon microphone that was used on the guitar amp to get a somewhat darker and mellower recording.



Figure 7. Placement of instruments, microphones, and other equipment used for the sixth and final phase of “modern” recording. Not to scale.

With the plan in place, we decided to set up each microphone that we knew we would be using on a stand in a separate room to assure that we could immediately transition to the tracking of the “modern” session if we had enough time. We also made sure to prepare multiple pairs of headphones for the various musicians to be able to hear themselves, and the overall recording, during their respective phases. By the time “classic” recording had wrapped, it would be a simple matter of repositioning before we would be ready to go.

“Modern” Production: The Recording

Having the plan detailed in the previous section at our disposal, I felt confident coming out of the “classic” recording that the engineer and I would be able to finish the “modern” recording before the end of the night. The two of us quickly began setting up for phase 1 – upright bass and drum kit – as the recording ensemble convened in the kitchen.

The first issues we ran into was the fact that the bassist and drummer were not 100% certain on the structure of the song without the other instruments giving them cues, so they would need some sort of way to know when to transition in between sections. Although it was primarily their job to make sure they were familiar with the song, it was my job to do whatever was necessary to get the best possible take, so we quickly improvised a solution to get the best possible take. We set up a microphone in the corner of the control room with a cable for the vocalist to plug his acoustic guitar into, and simply had the vocalist sing and play along with the drums and bass. We then sent that signal into the bassist’s and drummer’s headphones, and after a quick sound check, we began recording.

I had the pair record three takes back-to-back for the sake of having options, but they frankly nailed their performances right away. While talking to everyone during the initial rehearsal, I learned that the two of them had played in various ensembles together quite frequently and were actually good acquaintances. This came across in their three takes with just how naturally they performed with each other despite having no one else to play along with. Within fifteen minutes of starting, we were already moving on to the next phase.

With the foundation of the track recorded, it would only become easier for the other musicians as more of the other elements were added. The second phase went similarly to the first, with the fiddler and electric guitarist knocking out their parts in just a few takes. Having played this same song countless times in a row just earlier that evening, it was clear that all the musicians were already in the right mindset, making this entire process incredibly smooth. Three takes later, and it was time for the next phase.

This third phase of recording ended up taking the longest, as this was when we recorded the improvised guitar solo. After experimenting with different tones for the solo, we eventually decided on a more “modern” country tone to really provide a sense of contrast with the “classic” recording. After four or five initial takes – none of which were perfect all the way through – the guitarist began to become frustrated with himself. Although the playing overall was excellent, there was continually just a portion or two where he clearly made a mistake that required him to try again.

We eventually began to consider breaking the ‘all one in take’ rule, as he was consistently nailing the first half of the solo, but only occasionally landing the latter half. After suggesting this a few times after the next failed takes, we decided he would try just a few more times, and if he did not get the take, we would start splitting the solo into chunks to be recorded separately. That must have been the push that he needed, because on the second take after that, we got a perfect pass all the way through. Although the guitarist was not entirely satisfied with the take, we all admitted that it fit really well in the overall recording, and it was probably the best take we would get that night. I decided I was happy with it, so we transitioned to the next phase.

Luckily, the fourth phase – acoustic guitar – went much quicker than the previous. After experimenting with the microphone placement during a sound check, we did just three takes before we were ready to move on. At this point in the session, the time was nearing midnight, so I decided we would go ahead and record the vocals and finish the rest of the recording the next day. That would leave just the piano left to record the following afternoon, which we had already accounted for during our planning.

With the little bit of time we had left, the engineer and I did a quick clean of the tracking space to give the vocalist the optimal environment to record in. As the element of the song most impacted by its delivery, it was important to me that the vocalist did not have to stare at a messy recording space while recording, dare it possibly put him in a negative headspace and impact his performance. Although this may seem like a minor thing to worry about, capturing the high energy of Western Swing was incredibly important to the success of this recording, and if the vocalist was not bringing his utmost energy to his performance, it would negate any energy found in the instrumental.

After expressing this to the vocalist, we began to sound check with a few passes through the song. This was the first time that the vocalist had performed the song without playing the acoustic guitar, so I was slightly worried as the first few takes were not quite ideal. Fortunately, after getting used to performing alone and moving just a little bit closer to the mic, his energy began to visibly and audibly increase with every pass. Because the guitar solo takes place in between the two verses, and we did not want the vocalist to have to sit through the guitar solo every time, this ended up being the one phase where we broke the ‘all in one pass’ rule – though you would not be able to tell this with how well his final performances turned out for each verse.

We ended up wrapping up recording that night just a little after midnight, which was right around the amount of time we had originally scheduled to do just the “classic” recording. Listening back to what we had so far, I nearly forgot that I still needed to record the piano for the song. In that moment, I was incredibly content with everything we had recorded that night, though still conscious of the fact that there would be a fair amount of work involved in finishing this recording. I then dismissed everyone and readied myself to complete the “modern” process the next day.

The following afternoon, the engineer had his own prior engagements to attend to, so I had to engineer the final recording phase: tracking piano. Fortunately, this is something that I am fairly familiar with doing on my own as a longtime pianist and engineer for my own personal projects, so I had little trouble as I placed the microphone and prepared to record. What I did realize while tracking the piano was just how collaborative and satisfying of a process making music can be when properly planned out. Steps of recording that had taken 5 minutes the night before took four times as long when done on my own. While the night prior I had been able to very clearly tell if a take was going to work in the context of the song, I now found it much more difficult to distance myself from the part that I had recorded just seconds ago. It really clicked in that moment how beneficial it can be to have an objective producer overseeing the recording process, but also how useless a producer can be without a team. Without a clear end goal in mind and someone to reinforce it, there would not be much reason to make anything in the first place. With that in mind, I hammered away at the piano until I was satisfied with my take, concluding the tracking process for both the “modern” recording and the entire

project. This “modern” recording of “My Window Faces the South” can be found in Appendix A.

Final Reflections

Before getting too far into analyzing either recording, I think it is important to recognize the flaws in the overall process that could have possibly been improved in hindsight – as well as what decisions worked in my favor. For starters, although I am both incredibly thankful and proud of the recording ensemble I worked with for these recordings, I believe a more accurate reproduction of the “classic” recording may have been possible using musicians more experienced in the genre.

Much of what made Western Swing so notable during its prime was its heavy use of improvisation and high level of interaction between each band member during performances. Although I was able to include a slight improvisational component in the form of the electric guitar solo, I believe there may have been more opportunities to experiment with the overall arrangement given the addition of other instruments. For example, the inclusion of pedal steel, trumpet, another violin, or even a more qualified pianist rather than myself may have resulted in a livelier overall arrangement, rather than the ensemble essentially doing their best at performing an iconic Western Swing tune exactly as it was recorded. That being said, there was little I could do to remedy this in my case due to my limited budget. Given what I had available to work with, I believe the band performed to the best of their ability and delivered the best possible performances they were able to give.

On a technological note, I also admit that a more faithful reproduction of the era’s production may have been possible had I had access to technology more in line with what would have been used during the discussed era. That being said, I believe that I did my best attempt in approximating the desired limitations and characteristics associated with

1940's technology with the microphones and equipment I had available. I recognize there was only so much that I could do to replicate the actual sound capturing techniques that would have been used at the time without access to more authentic technology.

As far as the “sound” of each recording, I do feel like I was able to accurately capture the general attitude of each era’s recording approach in my final recordings to a reasonable degree of success. I aimed for a high contrast between the two recordings in terms of audible detail, which I believe is very apparent when comparing the recordings side by side. While I think the “classic” recording is lacking overall – it may have benefitted from more detail if possible – I believe a remedy lies with more experimentation of musician placement in relation to each microphone. Unfortunately, this lack of experimentation was largely due to another issue with the overall process: time management during the sessions.

Although completing both recordings almost entirely during a single evening felt incredibly efficient and satisfying in the moment, I do believe that one recording benefitted more from this decision than the other. The choice to transition to the “modern” session immediately following the “classic” session resulted in much more confident performances from the ensemble across the board during the second recording process. This allowed much more thought to be put into an already lengthier session than the one previous, which may have skewed the overall differences between the two. I would be curious to see if doing the sessions in reverse order would have resulted in a reverse problem. I believe the best decision would have been to spend the rest of the night experimenting with the “classic” production, then finding another night where everyone could meet for the “modern” session, in order to give the ensemble a fresh start

coming into each process. That being said, the reason this was not done in the first place was due to too many scheduling conflicts – an issue I may have been able to prevent with a higher budget and more available musicians.

Additionally, the way that the two sessions were ultimately divided may have also resulted in a much less polished performance in the “classic” recording than its counterpart. I believe with more time to run through the song, there is a chance that the ensemble may have been able to achieve a collectively better take. Although, it is also possible that the “modern” recording was merely more polished due to the ability to record each part individually.

Despite this, there is a sense of cohesion and overall musical comradery found in the “classic” that is unmistakable. The lack of clarity between the “classic” and “modern” recordings was stark to say the least, but being able to have all the musicians performing together in a single room largely made up for this shortcoming. Despite how familiar a musician is with a piece of music, there is a unique interaction that occurs when that same musician is able to cooperate in real-time as they perform together. The combination of having to listen, consider, and react to the music at the turn of a hat – all while remaining musical in your execution – allows for performance decisions that may not have been made when recorded in isolation. Musical execution aside, there is also a sense of high energy that is created naturally from so many performers playing music in one room. This makes perfect sense when considering the feeling of even just standing in quiet room versus one filled with people. Regardless of the advancements we have seen in recording technology, both of these aspects are features of “classic” recording that remain beneficial tools to engineers and producers today.

Going into this project, I will admit that my expectations were not incredibly high for myself. Western Swing is not a genre that I was incredibly familiar with prior to my research, and I will be the first to say that leadership is not typically my strong suit. The idea of being responsible for hiring and managing an entire recording ensemble, planning multiple extensive recording sessions, and shaping the sound of a recording – all while doing my best to not make a mockery of a historic and respected genre – made me question if I was capable of finishing this project multiple times throughout. Fortunately, through the help of all the talented individuals who were part of this project, I truly believe that I accomplished what I set out to complete: to make Western Swing.

Appendix A: Original Recordings

The “modern,” “classic,” and rehearsal recordings of “My Window Faces the South” by Bob Wills & his Texas Playboys done for this project are available to be heard through the following options:

- Online streaming/download
 - o Available on a specialized Bandcamp page created specifically for this project. The recordings can be streamed directly from the website listed below using any internet browser, as well as downloaded directly to your computer.
 - o makingwesternswing.bandcamp.com
- Emailed recordings
 - o Under the circumstance that the link above is no longer active, high-quality duplicates of the original recordings may be requested at my either of my personal email addresses listed below.
 - o jb4d@mtmail.mtsu.edu
 - o bynum.gus@gmail.com

Works Cited

- Aldrich, Elizabeth. *Nineteenth Century Social Dance*. 1998,
www.loc.gov/collections/dance-instruction-manuals-from-1490-to-1920/articles-and-essays/western-social-dance-an-overview-of-the-collection/nineteenth-century-social-dance/.
- Auld, Robert. “The Art of Recording the Big Band.” 1997,
<http://www.auldworks.com/bbandrecord/bbandrec1.htm>.
- Baecham, Frank. “Ribbon Microphones Make a Full Circle in Audio History.” *The Broadcast Bridge*, 24 May 2017,
<https://www.thebroadcastbridge.com/content/entry/8667/ribbon-microphones-make-a-full-circle-in-audio-history>.
- Barnett, David C. *Honky Tonks, Hymns, & the Blues*, 2002,
www.honkytonks.org/showpages/lonestar.htm.
- Beardsley, Roger, and Daniel Leech-Wilkinson. “A Brief History of Recording to Ca. 1950.” *Charm*, Apr. 2009, www.charm.rhul.ac.uk/history/p20_4_1.html.
- Birkline, Robert. “Country Music Recordings.” *COUNTRY MUSIC RECORDINGS*, 2003,
www.shsu.edu/~lis_fwh/book/roots_of_rock/Country%20and%20Western2.htm.

Bogan, Patrick H. "East Texas Serenaders." *TSHA*, 15 Dec. 2006,
www.tshaonline.org/handbook/entries/east-texas-serenaders.

Brenner, Patrick. *The History of the Steel Guitar*.
www.steelseguitaracademy.com/instruction/history/.

Burns, Ken. *Country Music*. www.pbs.org/kenburns/country-music/western-swing-branches-of-country-music/.

Croft. "Dust Bowl Facts: Migration During the Great Depression." *The Great Depression*, 9 Apr. 2017, www.thegreatdepressioncauses.com/dust-bowl/dust-bowl-migration/.

Daniel, Wayne W. "Gid Tanner and His Skillet Lickers." *New Georgia Encyclopedia*. 23 May 2003. <https://www.georgiaencyclopedia.org/articles/arts-culture/gid-tanner-and-his-skillet-lickers>.

Duddleston, Meridee. "Did the Cabaret Tax Kill Big Bands?" *WRTI*, 19 Feb. 2015,
www.wrti.org/post/did-cabaret-tax-kill-big-bands.

Ginell, Cary. "Milton Brown and the Founding of Western Swing." 1994. University of Illinois Press.

Grammy. "Producer." *Grammy Award Eligible Credit Definitions*. 9 February 2015.

https://www.grammy.com/sites/com/files/pages/producer_definitions_for_awards.pdf.

Hochheiser, Sheldon. "What Makes the Picture Talk: AT&T and the Development of Sound Motion Picture Technology." *Coutant*, www.coutant.org/ecwente.html.

Huber, Patrick and Brian Ward. "A&R Pioneers: Architects of American Roots Music on Record." Vanderbilt University Press. 26 June 2018.

Huffman, Larry. "Licensing the Western Electric Electrical Recording System." *Licensing the Westrex Electrical Recording System*, 2012, www.stokowski.org/Licensing_Westrex_System_to_Victor_Columbia.htm#TOPOFPAGE.

Jenkins, Amanda. "Acoustical Recording: Articles and Essays: National Jukebox: Digital Collections: Library of Congress." *The Library of Congress*, 28 June 2018, www.loc.gov/collections/national-jukebox/articles-and-essays/acoustical-recording/.

Logsdon, Guy “Western Swing,” *The Encyclopedia of Oklahoma History and Culture*,
<https://www.okhistory.org/publications/enc/entry.php?entry=WE018>.

Lorbecki, Glenn. “1920s To Now: Comparing Tonal Balance in Popular Music.” *IZotope*, 3 May 2018, www.izotope.com/en/learn/comparing-tonal-balance-in-popular-music.html.

Koenigsberg, Allen. “Edison Cylinder Records.” 1889-1912. New York: Stellar Productions, 1969.

Martin, Barbara. “Cowtown Birthplace of Western Swing - Spade Cooley.” *Birthplace of Western Swing*, 2003, www.birthplaceofwesternswing.com/cooley.html.

Morrison, Craig. “Bob Wills.” *Encyclopedia Britannica*, Encyclopedia Britannica, Inc., 2 Mar. 2021, www.britannica.com/biography/Bob-Wills.

Rossing, Thomas D. *Springer Handbook of Acoustics*, Springer, 2007, pp. 747–748,
www.archive.org/details/springerhandbook00schr_653/page/n749/mode/2up.

Reid, Terry. “History (Music).” *The Official Website of the Light Crust Doughboys*, 7 May 2020, <http://www.lightcrustdoughboys.org/music/history/>.

Richardson, Gary. "Federal Reserve's Role During WWII." *Federal Reserve History*, 22 Nov. 2013, www.federalreservehistory.org/essays/feds-role-during-wwii#:~:text=Military%20expenditures%20rose%20from%20a,2491%20billion%20in%201944.&text=Plans%20for%20financing%20the%20war,Treasury%20and%20the%20Federal%20Reserve.

Rich, Kienzle. "Southwest Shuffle: Pioneers of Honky Tonk, Western Swing, and Country Jazz." 1 April 2004.

Solomon, Peter. "When the Stars Came Out At Bristol: The Summer Ralph Peer Discovered Jimmie Rodgers and the Carter Family." *VPM.org*, 9 Sept. 2019, www.vpm.org/news/articles/6837/when-the-stars-came-out-at-bristol-the-summer-ralph-peer-discovered-jimmie.

Stewart, Jack. "Jazz Origins in New Orleans." *National Parks Service*, U.S. Department of the Interior, 1993, www.nps.gov/jazz/learn/historyculture/history_early.htm.

Townsend, Charles R. "San Antonio Rose: The Life and Music of Bob Wills." 1976. The University of Illinois.

Wyeth, Leonard. "Western Swing." *Acoustic Music*, 7 Nov. 2018, www.acousticmusic.org/research/history/musical-styles-and-venues-in-america/western-swing/.

Webb, Jim. "12 Microphones That Made History." 2002,

https://www.aes.org/aeshc/docs/mtgschedules/113conv2002/webb_12-microphones.pdf.

Wells, Paul F. "Encyclopedia of Country Music." *Country Music Hall of Fame*, Oxford University Press, www.countrymusichalloffame.org/education/instruments/.

Wilson, Mark R. "Western Electric Co." *Encyclopedia of Chicago*, 2004,
www.encyclopedia.chicagohistory.org/pages/2900.html.

Zelazko, Alicia. "Jazz Dance." *Encyclopedia Britannica*, Encyclopedia Britannica, Inc., 20 July 1998, www.britannica.com/art/jazz-dance.