

Study of the Adaptation and Production of Funk Works on the Electronic Organ

-- Taking Mr. Toad's Wild Ride as an Example

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Abstract. With the continuous development of economy and human thinking, there has emerged the electronic organ, a product of modern science and technology. The electronic organ possesses the volume advantages of the organ and the solemn characteristics of the pipe organ, thus becoming an indispensable instrument in modern music performances. With rich expressive power, the sound of the electronic organ can be integrated with various musical styles. Therefore, it is necessary for a performer to be able to play different instruments, and master various professional skills for performance and composition. Taking the funk work Mr. Toad's Wild Ride as an example, this article studies and analyzes the adaptation of Funk works on the electronic organ from the perspective of the short band score and the sound production of the electronic organ, especially focusing on the analysis of the distribution of band parts and performing techniques.

Keywords: Electronic Organ; Adaptation and Production; Funk; Mr Toad's Wild Ride.

1. Introduction

Playing Funk works on the electronic organ is a process in which one player plays the shortened version of scores that are played by many people before. This process mainly includes the skills of shortening the scores for the electronic organ playing, the methods of transcribing for solo, and the production of timbre, which is a relatively complex new subject requiring a lot of practice. Combining the author's own music performance practice in recent years with relevant literature, this study presents the author's knowledge and opinions concerning this subject.

This article is divided into following three parts: The first chapter mainly introduces the band and orchestra arrangement. the second chapter mainly takes Mr. Toad's Wild Ride as an example to discuss the method of adapting funk works on the electronic organ. The third chapter mainly explains in detail the sound production method and process of the electronic organ by focusing on the different sound effects of different timbres on the electronic organ. Finally, there is a summary of this article.

2. Introduction to Mr. Toad's Ride and the Band

Taking the work of Tower of Power as an example, this chapter first introduces the establishment and membership of the band Tower of Power, then sorts out the music albums and songs released by the band, and finally discusses the orchestration arrangement of Mr. Toad's Wild Ride.

2.1 Introduction to Tower of Power

Originated in Oakland, California, Tower of Power is an American R&B jazz band that has been performing since 1968. In the early days of the band's establishment, the band member Francis Rocco Prestia was the creator of the Fingerstyle guitar FUNK. Influenced by James Jamerson, Chuck Rainey, Jerry Jemmott and Duck Dunn, Rocco created and developed his own playing style. The band really started to run after the drummer David Garibaldi joined.

2.2 Introduction to the Works of Tower of Power

Tower of Power has released 17 studio albums, 5 live albums and 8 singles. Through the combination of the Horn section in the orchestra with modern instruments such as drum kits, basses, electric guitars, etc., Tower of Power has brought black music to the fullest. While the presumptuous

syncopations create the original funk spirit, the unreserved singing voice thoroughly expresses the mood of Soul music.

In 1971, the band released its first album called East Bay Grease, which was considered to be the beginning of Tower of Power's classic creation. The second album released by the band was Bump City, in which we can hear classic bass performances in You Got to Funkifize, classic songs such as You're Still a Young Man. The classic bass performance in You Got to Funkifize is a representative of Rocco's playing style. The third album of this band was named Tower of Power, including popular songs such as This Time It's Real, So Very Hard to Go, and Soul Vaccination. Later, Squib Cakes in the album Back to Oakland, Only So Much Oil in The Ground in the album Urban Renewal, and On the Serious Side in the album In the Slot became popular classic songs.

2.3 Orchestra Arrangement of the Band

The orchestra arrangement of the band generally includes five saxophones (usually two alto saxophones, two tenor saxophones, and one baritone saxophone), four trumpets, four trombones, and a rhythm group (piano, guitar, acoustic bass (contrabass) / electric bass, drums, etc.). The orchestra arrangement of a band is flexible and changeable. The number of instruments and singers can be appropriately reduced or added according to the composer's and the arranger's ideas. The orchestra arrangement also reflects the multi-level structure of a track.

3. Adaptation of Mr. Toad's Wild Ride on the Electronic Organ

The electronic organ has rich timbre and can be played with both hands and feet, including more parts. Multiple players play multiple parts and multiple instruments at the same time on a jazz score; meanwhile, there are complex harmonies and accompaniment in jazz. Therefore, electronic organ adaptors usually may not adapt all the parts of a jazz score. One important issue of the first chapter of this article is how to shorten the various parts of a jazz score to meet the performance characteristics of "three-line staff" for the electronic pipe organ as completely as possible without affecting the performance.

3.1 The Main Points of Reading Scores before Adaptation and the Reading of Transposing Instruments

MR TOADS WIL0 RIDE

1ST TRUMPET



Fig 1. Example 1: (Excerpt from Trumpet Voice)

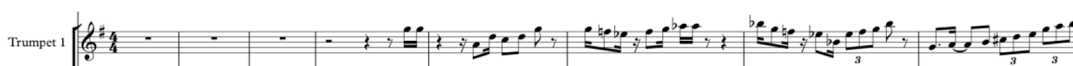


Fig 2. Example 2: (Excerpt from Trumpet Voice)

First, an adaptor must learn how to read a score in the early stage of the adaptation. In fact, shortening a score to the “three-line staff” of the electronic organ is a process of “translation”. As for the reading of an orchestral score, the key is to be familiar with the conversion of various clefs and the notation of transposing instruments. When we can correctly convert the actual pitch of each transposing instrument, we can shorten the score to the “three-line staff” of the electronic organ and allocate parts more reasonably. Transposing instruments refer to those instruments whose actual sounds are always inconsistent with notation due to the structure of such instruments. For example, B flat trumpet, F horn, A clarinet, and B flat clarinet may create different pitches in the performance. Transposition is usually adopted to score the voices of these transposed instruments in order to make these instruments achieve the expected actual pitches during performance. [1] For instance, the notation of Trumpet in B flat is changed to actual pitch notation in this song (as shown in Example 1 and Example 2); it can be seen that this song is in A major under Trumpet’s notation (as shown in Example 1), so the adaptor needs to use the actual pitch notation as G major (as shown in Example 2).

3.2 Selection of Voice Parts in Adaptation

How to restore the original multi-voice jazz composition to the greatest extent through the electronic organ after transposing all the instruments? The selection of the score is essential to shortening the score. For works with relatively complex parts, it is extremely difficult to arrange and perform the various parts of the band through the electronic organ. Therefore, the adaptor needs to shorten the score appropriately and choose suitable parts to integrate them. No matter how complex the music is, there are always main, basic, and relatively minor, auxiliary parts in it. The expression of music mainly depends on the basic parts. Therefore, it is important to first grasp the main melody, harmony, and basic rhythmic pattern which are used to express the basic content of the music when reading a score. Secondly, the relatively minor and auxiliary parts can be simplified or even omitted if necessary. [1] If there are sounds with too large span during the adaptation, it is important to change them from an open arrangement to a dense arrangement. Besides, they can also be appropriately shortened if necessary. The way of chord inversion can make the repertoire more in line with the player’s habits.

For example, when adapting the first section of the work, it is necessary to shorten the segments (as shown in Example 3) to make it more in line with the performer’s playing habits. Copper pipes and wood pipes, or the same material of the rhythm group can be integrated (as shown in Example 4) into a segment of the electronic organ performance.

The image displays a musical score excerpt for Example 3, consisting of ten staves. The instruments listed are Alto 1, Tenor 1, Tenor 2, Bari. Sax., Trumpet 1, Trumpet 2, Trombone 1, Guitar, Piano, and Bass Guitar. The score is in 4/4 time and begins with a tempo marking of ♩=128. The notation includes various clefs (soprano, alto, tenor, bass), notes, rests, and triplets. The piano part features chordal accompaniment with some accidentals. The bass guitar part is mostly rests.

Fig 3. Example 3: (Excerpt from the score)



Fig 4. Example 4: (Excerpt from Electronic Organ Score)

3.3 Keyboard Assignment

As for the conventional production of electronic organ music orchestration, the upper, middle and lower three rows of keyboards represent the most basic structure of musical works-- “melody, harmony and gesture, and bass.” [2]

The melody level: As the name suggests, the melody level is the part used to play the melody, which is the foundation of musical thought and of profound significance to express the thought of musical works. It is also the main part of the electronic organ playing. In most cases, performers assign the melody part to the upper or lower keyboard and play with the right or left hand when playing music of multiple parts. In addition, the melody part is also played on the foot keyboard sometimes.

The harmony and gesture level: The melody is the concentrated expression of the essence of the musical image. However, the music image is still not perfect with melody alone, which should be enriched with harmony and accompaniments to leave a complete and profound impression on the audience. It is the same with the red flowers looking more gorgeous with green leaves. [3] A personalized accompaniment often requires several instrument parts with appropriate chord progression; and the rhythm of the music makes the melody perfect. Usually there are column chord accompaniments, broken chord accompaniments, linear accompaniments, and so on. These levels are not only the basis for the establishment of mode and tonality, but often play a “shaping” role in the auditory image of music. As for electronic organ adaptation, the gesture performance should be appropriately selected according to the musical characteristics of each level of the music, which is usually played with the left hand on the upper or lower keyboard.

Bass level: In orchestral works, the form and writing of the bass part play an extremely important role in the character of the entire music. Therefore, inappropriate bass may seriously damage the clarity of the sound. Attention should be paid to the duration (length) of the bass tone, the form of the tone, the height position of the tone, the selection of instruments, the method of playing, the repetition of the instrument, etc. to make the bass part in line with the sound of each part. [2] In electronic organ playing, the bass part is often played with the left foot or both feet. In addition to the cello, double bass, bass, tuba, and electric bass used in a regular band, percussion instruments such as timpani are sometimes played. The bass part has the same function of harmony, melody, and rhythm as other gesture factors. Generally, the bass part is the progress of a line, which plays the role of harmony support and sometimes plays the main melody or sub melody. Besides, the bass can also be reinforced in the rhythm part to strengthen rhythm.

The above three levels are the more conventional adaptation methods used by electronic organ adaptors for analyzing and categorizing a score. In the following, the author takes the Funk work Mr. Toad's Wild Ride as an example to analyze the special performing technique of the electronic organ-Lower Memory.

After a score is shortened, regular playing habits should be taken into account when assigning the parts. Playing with the foot on the footboard is a unique way of playing electronic pipe organ. Therefore, it is necessary to pay attention to the allocation of hands playing and feet playing. For example, we will put the melody that best expresses the theme of the music on the upper keyboard when adapting a score. Sometimes, there may appear multiple voices consist of two or more melodies in parallel at the same time (as shown in Example 5 of the score). However, it is difficult to consider other melodies except the main melody while playing. In this case, the special playing technique Lower Memory of the electronic pipe organ is needed. As for this technique, the tone of the keyboard will not disappear after a player's fingertips are lifted off the keyboard. In addition to using the technique Lower Memory to adapt this section, the author also split the lower keyboard to control the sound of the piano behind the guitar part in order not to affect the harmony of the piano. In this way, different instrument sounds can be played on the same keyboard. (As shown in Example 6) The author transferred the guitar sound of the upper keyboard of A4 to the lower keyboard of A5, and then set the sound of the upper keyboard of A5 to the brass ensemble sound. In this case, playing 4 parts at the same time is possible; and the alternate playing of the upper and lower keyboards of the right hand can bring visual prominence to the performance and highlight the senses. Since the musical gesture of some jazz scores is more complicated, some rhythms can be appropriately simplified or omitted while playing. For example, although the bass part drives the overall rhythm of the music, the author has omitted it appropriately without destroying the excessive rhythm since it is played with the foot keyboard.



Fig 5. Example 5: (Excerpt from the score)



Fig 6. Example 6: (Excerpt from Electronic Organ Score)

3.4 Selection of Lower Memory and Sustain

There is another way playing electronic organ that is like Lower Memory, that is, Sustain. Since Lower Memory will keep the entire keyboard playing the original sound, the other half of the keyboard cannot perform the melody when the keyboard is split. In this case, sustain is needed. For instance, in the music Mr. Toad's Wild Ride, when the melody part is played with the right hand, both harmony and rhythm enhancement need to be done with the left hand. Therefore, sustain should be selected for adapting this part.



Fig 7. Example 7: (Excerpt from Electronic Organ Score)

3.5 Transcription for the Solo Part

The score of Funk music is different from the established scores of general symphonic works. Funk music pay more attention to improvisation in the solo part. Therefore, it is usually difficult to find a score that is exactly the same as the original song in Funk works. In order to better restore the track, the author has transcribed the solo part when adapting the track. Generally, an adaptor spends more energy on the transcription when adapting jazz. Transcription can test and improve one's comprehensive music literacy, which can not only cultivate and improve one's control of pitch and rhythm, but also enable him to master more harmonic techniques. First, adequate theoretical knowledge is needed in addition to a pair of keen ears. The theoretical knowledge includes understanding of various clefs and relevant readings, rhythm, duration, pitch, interval, chord, chord mark, time signature, mode, tonality and other basic theories. In this song, we only need to transcribe the melody as the harmony is known. As the soul of music, melody is the most sensitive part in transcription, which perfectly combines rhythm, pitch, mode and tonality. Before transcribing the melody, it is necessary to divide the bars on the staff. This is because only when each bar is clear can we use the instrument to determine the pitch and record it. Meanwhile, lossless audio is the best choice for transcription, which can be in the format of APE, FLAC, WAVE, and AIFF. Regular listening to lossless music can help the ears develop a good music aesthetic and discrimination ability. After that, a stereo or monitor headset is needed, which can make the sound clearer and better restore the music. It is unwise to blindly play the audio after finishing the preparation for transcription. Instead, it is worthwhile to first distinguish the phrasing position of each period. Then the transcription can be started after the number of bars in the variation position. After that the complex scores can be sorted out, and finally the adaption for electronic organ can be made.

4. Making the Tone of Electronic Organ

The electronic organ has nearly a thousand tones, which imitates all kinds of musical instruments through sound source. The combination of different sounding tones affects the sound effect of the music on the whole. Since various instruments have different timbres due to different playing methods, it is necessary for the adaptor to make a more reasonable allocation to achieve the optimal effect. Besides, it is also important to know several common timbre processing and effect processing techniques before making timbre; and adjustment is made according to the selected timbre. The reverberation is usually adjusted first before the sound is produced. Reverberation is an acoustic phenomenon which continues to exist after the sound source stops. Since the propagation of sound waves needs to be blocked and reflected by walls or obstacles, the disappearance of reverberation

lags behind. The reverberation on the electronic organ can be simulated in concert halls, opera houses and other places where special construction materials are used according to the sound needs of different occasions. Common reverbs on electronic organs include Hall, Room, Stage, plate, Tunnel, Canyon, and Basement. The sound usually sounds “dry” under the reverberation conditions of Room; and adjusting it to Church will make the tone sounds moister. Generally, we use Hall more when dealing with the timbre of a large-scale music composition. This is because Funk works usually perform in concert halls or theaters with large space and special construction materials; and the sound effects need to be moister. Jazz has shorter duration of reverberation due to a strong sense of rhythm, while the reverberation of symphony can be longer.

4.1 Introduction to Woodwind Instruments

Woodwind instruments can be divided into saxophones, flutes, clarinets, oboes, bassoons, etc. (including deformed instruments). Among them, saxophones are commonly used in Funk works.

The woodwind instruments used in the Funk work Mr. Toad’s Wild Ride include an alto saxophone, two tenor saxophones, and a baritone saxophone.

4.1.1 Tone Selection and Making of Woodwind Instruments

The sound of the saxophone is deep and calm, full of emotion, soft and sad. The saxophone has a variety of ranges and tonality, and each different range of each saxophone possesses its own unique color. Classical saxophone is dominated by alto saxophones, while jazz and pop music are dominated by alto and tenor saxophones. When making the saxophone sound, it is essential to understand the sound of a saxophone and plan and arrange the sound block on the electronic organ. Taking the Funk work Mr. Toad’s Wild Ride as an example, the author gives a basic introduction to the production of saxophone sounds on the electronic organ ([6]).

Before making saxophone sounds, it is necessary to understand all the saxophone sounds on the electronic organ. There are two main types of saxophones sounds on the electronic organ, that is, saxophone solo sounds and ensemble sounds. A single musical instrument can best reflect the timbre characteristics of each saxophone. Using this type of timbre means that the timbre of saxophones must be emphasized, which is common in the solo part.

In the adaptation of Funk works, the sounds of the saxophone ensemble are used more frequently. On the one hand, such sounds make it more convenient for the adaptor to edit, which help save the use of timbre blocks. On the other hand, ensemble sounds are more practical and can be used for both strong and weak playing. In the category of saxophone ensemble timbres, the difference of each timbre is mainly reflected in the types of instruments and the different ranges.

The production of saxophone sound can be divided into the following two aspects.

First, it is necessary to grasp the main instruments and omit some unimportant instruments. It is not possible to edit so many instruments in the timbre block at any time due to the limitation of the electronic organ sound library. Therefore, some unimportant instruments need to be omitted to ensure the overall effect. If a deformed instrument cannot perfectly present the sound, it should be replaced by other instruments of the same type according to the importance of the part. Besides, the sound of the saxophone ensemble can be used as well. For example, in Mr. Toad’s Wild Ride, the bass part needs to be supported by thicker and more powerful timbres. Although the baritone saxophone has a corresponding timbre on the electronic organ, its characteristics and important parts are not highlighted. As the baritone saxophone and the tuba are in the same voice level, the baritone saxophone timbre is combined with the tuba timbre to make the sound head sound faster and the tone thicker.

Second, the production of saxophone tones is inseparable from brightness. Therefore, the adjustment of brightness needs to be taken into account when making all the sounds of saxophones. Inadequate brightness may lead to the failure to highlight the unique timbre of the saxophone and cause the saxophone to lose its unique charm. When there is only one saxophone in the solo part, usually the brightness will be adjusted to a higher position. However, the brightness should not be adjusted too high, because too high brightness will cause the timbre to sound inappropriately harsh

and sharp. Therefore, accurate sound brightness is also the key to making woodwind sounds, including saxophone sounds.

4.2 Introduction to Brass Instruments

Brass instruments can be divided into treble instruments, alto instruments, baritone instruments, and bass instruments according to the category and range. The types and number of instruments used in each part depends on the orchestration and number of voices.

4.2.1 Tone Making of Brass Instruments

Brass instruments sound majestic, brilliant, and enthusiastic, which can make the orchestra sound full and powerful. Meanwhile, the timbre of brass instruments can be soft as well, which is indispensable in Funk works. When making brass timbres, an adaptor must pay attention to the changes in the timbres of brass instruments in different zones, different ways of exerting force, and different emotional expressions. In addition, it is also necessary to grasp the overall volume balance of the band in the adaptation. Taking the Funk work Mr. Toad's Wild Ride as an example, the author gives a basic introduction to the production of brass tones on the electronic organ [6].

In the Funk work Mr. Toad's Wild Ride, brass instruments include two B-flat trumpets and a trombone. Compared with traditional jazz band music with four trumpets and four trombones, this work reduces the band configuration without greatly affecting the sound production. It's worth mentioning that this work uses only one trombone, meaning that the sound production on the electronic organ should not be too prominent and that the trombone part and the whole should be integrated in the balance of brightness and volume.

Brass tones on the electronic organ can be divided into three main categories, including solo instrument tones, ensemble tones and mixed tones. Trumpet and French horns are commonly used for solo brass tones. Especially, French horns are used more frequently in bands with the double-pipe orchestration or above. However, Funk works generally use trumpet solo instead of French horns because trumpets are more common in jazz bands. The playing method of French horns is like that of trumpets. Specifically, the player should press the mouthpiece against the lips, use the vibration of the lips to drive the vibration of the air in the tube, and use the valve to control the length of the airflow to make various notes. Since the mouthpiece of a French horn is smaller than that of a trumpet, the player must stretch the horn muscles to both sides very hard to send a suitable airflow into the pipe. While jazz is flexible and needs to be played quickly, solo requires longer time. Therefore, there are great tests for the skills of French horn players. The brass ensemble tone is also the most widely used tone, which is like the saxophone ensemble tone. But unlike the saxophone ensemble sound, the brass ensemble sound also has a combination sound of a solo instrument and brass ensemble in addition to the general ensemble sound, such as "trumpet + brass". The timbre of this sound is thick and heavy, which is highly suitable for the bands to play in unison. The brass mixed tone mainly refers to the combination tone of "brass + string", which is not discussed here since Mr. Toad's Wild Ride does not involve it.

The production of brass tones is mainly divided into the following 3 aspects.

First, it is necessary to judge the proportion of brass instruments in the whole, and then add the tone and adjust the brightness to make the sound more realistic when making the brass tones of the unison part. For example, when the trumpet and the saxophone are played in unison, a "brass ensemble" is needed in addition to the original "trumpet + brass" and "saxophone ensemble" to thicken the overall tone in order to create the sound effect of Funk works.

Second, due to the difference in tone quality and thickness mentioned above, the ensemble tone of "trumpet + brass" should be used to replace the single instrument tone of "trumpet" when making brass ensemble sounds. Although there is no other brass part in this case, the ensemble sound of "trumpet + brass" is still selected in order to ensure the overall effect. The author has sorted out the following situations where a single solo instrument may be used. One is in the solo part of the band; another is in extremely weak playing or small orchestration; besides, choosing the same ensemble

tone for different tone blocks (such as “trumpet + brass”) will cause beat frequencies when part of the sound area overlaps, where a similar tone (such as “trumpet”) should be used instead.

Third, the sound of brass is slower than that of woodwind and string; and its sound head sounds heavier, such as the sound of a trumpet. Therefore, it is often necessary to adjust the “attack value” of the brass tone to change its speed according to the speed of different parts. The lower the “attack value” is, the faster the speed is. It is not advisable to make excessive adjustments to the brass tone in order to avoid excessive changes in its sound quality. For example, when the trumpet enters the solo part in Mr. Toad’s Wild Ride, there are continuous six consecutive tones. In this case, it is necessary to reduce the “attack value” of the trumpet tone to make it sound faster to make the sound head more prominent and clearer.



Fig 8. Example 8: (trumpet solo)

4.3 Introduction to Rhythm Instruments

Rhythm instruments used in Funk works usually include keyboards, acoustic basses / electric basses, guitars / electric guitars and drums. In Mr. Toad’s Wild Ride, the sound of electric pianos is added in addition to the common piano sound, so enough attention should be paid to timbre changes when adapting the keyboard part.

4.3.1 Tone Making of Rhythm Instruments (Keyboard, Guitar, Bass, Drums)

The rhythm group is mainly responsible for accompaniments in Funk works; and the maintenance of rhythm is the framework of the entire band. In addition, the rhythm group needs careful listening. For example, it is difficult for keyboardists to stand out in Funk works most of the time. However, keyboardists in Funk works must first recognize his role and position in the band. Unlike general rock bands, Funk works involve a larger number of performers, in which everyone needs to hear other players’ voices to maintain sound balance. When making the timbre of such instruments, it is important to pay more attention to the characteristics and timbre characteristics of different instruments.

The electronic organ can use the upper, middle and lower keyboards to play the basic structure (melody level, harmony and gesture level, and bass level) of musical works. However, the electronic organ alone cannot realize the diversity of percussion when it comes to modern musical works. Therefore, it is necessary to combine the produced audio files with the electronic organ in the live performance. There are generally two methods in the production of electronic organ percussion rhythm instruments. The one is to use the rhythm making function of the electronic organ itself; the

other is to use music production software on computer such as Logic, Cubase, etc. The present study discusses rhythm production with the second method. To begin with, it is necessary to understand that the drum kit is composed of bass drum, snare drum, tom drum, crash cymbal, rhythm cymbal, and hi-hat. Sometimes musical instruments such as cowbells, temple blocks, maracas, triangles, and bar chimes are added. The author transcribed the drum score and selected a certain sound source of jazz drum kit for production. In order to make the percussion produced on the computer better simulate a real drummer, it is necessary to pay attention to properly adjusting the strength of percussion as well as the quantization function. More importantly, we should identify whether the volume of the drum group is appropriate by matching it with the overall performance.

5. Conclusion

The electronic organ has seen rapid development in China with more mature hardware facilities and more diversified playing styles. The range and style of jazz works are very wide, and the combination of modern jazz and traditional jazz has generated more innovative music attempts. The author believes that in addition to active practice, it is also necessary to make more attempts on the electronic organ when learning the orchestration of such emerging instrument to make advancements in the creation of electronic organs. As students majoring in electronic organs, while improving our expertise, we should try to get in touch with various different music styles, and have a deeper understanding of a piece of musical work and better express the work instead of simply imitation. Taking the Funk work Mr. Toad's Wild Ride as an example, the author has studied the background of the track, the use of harmony, the selection of orchestration, and the orchestration and production of timbre and percussion. Meanwhile, I hope to become a better electronic organ player in terms of creating, editing and playing by continuous practice.

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