Adapting Bach's Goldberg Variations for the Organ

by

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ABSTRACT

This creative project provides an adaptation of J. S. Bach's Goldberg Variations, BWV 988, for the Fritts Organ at Arizona State University. This organ was designed and built by Paul Fritts and Co. in 1992, and is in the style of the high-Baroque instruments of Northern Europe. Along with the musical score of the adaptation, this document discusses the registration choices included as well as relevant historical and performance practice details about the piece. A link to the recording of the author's April 2017 performance of this edition of the Goldberg Variations on the ASU Fritts Organ is included with the project.

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INTRODUCTION

This project began with my learning the Goldberg Variations (BWV 988) so that I could perform the entire work for the first time during my graduate study. While preparing for my performance of the work on piano, I was also continuing my organ study on the wonderful Fritts organ that we are so fortunate to have at Arizona State University, and like a tiny spark that grows into a massive flame, it became more and more obvious to me that I should also learn to play the Goldberg Variations on organ. To date, there have been only a few recordings of the work on organ, and any adaptations that were made in the process were for personal use only and not in print. What makes my project unusual is that my adaptation is by a performer who is primarily a pianist and also proficient on organ, and so my approach to the piece may be quite different in style from the past recordings made by organists. Also, though it is a modern instrument, the ASU Fritts organ was created in a style similar to that of the North German organs Bach would have played. The instrument is inspired by German and Dutch baroque models and so has two manuals: Hauptwerk (which is called Great in English), the main division based on Principal 16, and Unterwerk, a large positive division located under the Hauptwerk, based on Principal 4. Its characteristics make it a particularly suitable organ for performance of these variations.

In the discussion leading up to a full score of the adaptation, I offer an overview of the performance history and performance practice of the work, especially surveying the adaptations that are currently available; a consideration of Bach's attitude toward the playing of his keyboard works on instruments other than the original intended one; and

notes on making appropriate registration choices for the organ in light of the considerable technical challenges the piece presents.

HISTORICAL CONSIDERATIONS

Bach was Thomaskantor when these variations were completed, past the age of 50. He had already composed most of his major works and was nearing retirement age. Given that it was this period in his life, there is an experimental nature and reflective quality to this work. The framework with which Bach composed the Goldberg Variations shows an effort to produce a set of variations comprehensive in its musical styles and techniques and organized to a logical whole. The variations generally keep the main notes of the bass line and the binary structure of the theme, but even given these limitations Bach includes an impressive array of canons.

Bach's exploration of canon and his explicit statement of their use in this piece (he titles every third variation *Canone all'Unisuono*, *Canone alla Seconda*, *Canone alla Terza*, and so forth) may show the influence of a musical authority and former student, Lorenz Christoph Mizler, from around the 1730s. Mizler founded the *Societät der musikalischen Wissenschaften* (Society of Music Sciences), and he was interested in the "philosophical, historical, mathematical-acoustic, and rhetorical-poetic foundations of music—not so much music itself as in everything that could somehow be brought into connection with it." (Eidam 295) Though Bach's early biographers mention a distinct change, a more theoretical component, in the composer's style during this late period, Bach's son Carl Philipp Emanuel Bach also wrote about his father's disdain for the Society of Music Sciences and Mizler's aim to bring music completely into the form of a science: "'My late father,' he writes in his obituary, 'was no friend of dry theoretical stuff.' And in another place he adds: 'It is true that our late Bach did not occupy himself

with deep theoretical reflections on music, but he was all the more outstanding in the practice of the art.'" (Eidam 295)

Bach's outright labeling of the canon variations may have been indicative of his reaction against the increasing emphasis on a theoretical understanding of music. Bach's reaction was not entirely serious, but shows a hint of what Eidam calls a "kindly, mischievous humor." (Eidam 41) The practice of using a series of canons, at consecutively widening intervals, goes back to the 16th century, but it was quite ambitious of Bach to employ this technique on such a grand scale. Also consider that the 30th and final variation, the famous Quodlibet, is made up of the popular tunes "It's So Long Since I've Been with You" and "Cabbage and Turnips Drove Me Away," even though the Goldberg Variations is generally regarded as a lofty, serious work.

The story behind the work explains Bach's motivation for composing it. According to biographers such as Eidam, Bach was acquainted with a Count von Keyserlingk, who had in his employment an unusually gifted young harpsichordist named Johann Gottlieb Goldberg:

> Because he suffered from insomnia, Imperial Count von Keyserlingk ordered a little night music from Bach for Goldberg to play. For such a purpose, any conventional composer would have produced a composition that encouraged sleep—not music that was boring, of course, but something soothing nonetheless. It is remarkable that this most obvious approach did not cross Bach's mind at all. On the contrary, though he did begin with a very soothing aria in the vein of a folk song—a lullaby, really—he then produced thirty variations on it that are anything but soothing, that are extremely exciting piece for piece. A cultivated connoisseur like Keyserlingk could only fall over himself with enthusiasm (and he did, as Bach's honorarium shows). (Eidam 285)

Bach's honorarium was paid with a silver goblet filled to the brim with 100 louis d'or. (Eidam 284) The composer was definitely on great terms with the Count. The

Quodlibet's opening tune, "It's So Long Since I've Been with You," might refer to Bach's last visit to Keyserlingk's home, and "Cabbage and Turnips Drove Me Away" could be a reference to the fine dining they enjoyed on that visit. Bach ends the variation with the song "With You, with You, to the Featherbed, with You, with You, to the Straw" which is a sending-off of the count to bed. (Eidam 285)

Though parts of this story may be true, such as Bach's relationship with Keyserlingk, other serious scholarship has cast much of it in doubt. Goldberg may have been too young at the time, and the first performances of these variations were probably given by Bach's son Wilhelm Friedemann, already a notable keyboardist at the time. (Williams 5)

Having largely given up on composing liturgical works, Bach continued with the *Clavierübung*, and the Goldberg Variations make up Volume Four of this "Keyboard Practice." For the following few generations after Bach's time, a large part of the *Clavierübung*, including Volume I (the Partitas) and Volume II (the Italian Concerto and French Overture), were used as Bach intended, as pieces for self-study rather than to be performed in public. That it took almost a century before Bach's keyboard works became an established part of the standard performance repertoire could be due to the initial sparse publication history as well as the late realization that these works could be performed on the fast-developing modern piano. Obviously, the number of recordings by the major artists from the last forty years shows how permanent their status in the repertoire has become.

However, Bach's works that are played on the piano are all adaptations! The available instruments of the time were the clavichord, harpsichord, and Bach's favorite

instrument, the organ. Jan Chiapusso (1890-1969), Bach specialist and teacher of Rosalyn Tureck, wrote:

> It is only natural that various musicians cherished a preference for certain instruments. Bach already preferred the organ, partially because this instrument was capable of realizing the most complex contrapuntal structures. At the organ he was master of an entire orchestra. The polyphonic creations that flowed from his pen could all be brought to sound by one person only. His patience need not be taxed with an unruly choir of boys; nor with His Highness' chamber musicians, whose musical comprehension was considerably slower than his own. Above all, of course, the organ was the core of the musical service in church and fulfilled his primary desire to devote his genius to 'the exaltation of God's glory'. (62)

While copying the Goldberg Variations into the music typesetting program *Finale*, I recognized numerous elements of Bach's compositional ingenuity, especially in terms of his success at varying the counterpoint while keeping the bass line roughly the same. I thought about earlier works by other composers that may have directly influenced Bach's compositional style. Bach was familiar with the "New Keyboard Practice" by Johann Kuhnau, published in 1689, the first part consisting of a set of seven suites that could be the direct precedent for Volume I of Bach's *Clavierübung*, the Partitas. (Cosand 2)

On the surface, the Goldberg Variations are highly organized, since Bach gives them a logical order, based on groupings of three. Beginning with the famous theme (aria) and the first two variations, Var. 3 is a canon at the unison. Then, Var. 6 is a canon at the second, and the pattern continues, all the way to Var. 27, canon at the ninth. Two of the most important variations are No. 16, the French Overture, and No. 30, the Quodlibet. The Overture variation seems to divide the work into a first half and a second half. Similarly, Volume I of *Clavierübung* (the six partitas) has an Overture that begins Partita No. 4 and Volume II also divides into two parts, each beginning with an Overture.has an

Overture dividing it into two parts. In terms of intensity, however, Var. 16 is not a focal point, but rather a moment of special interest. The intensity level is at its highest in Vars. 27-29, with block chords in both hands, simultaneous trills in two voices, and complicated textures. These toccata-like variations are followed by the Quodlibet, another very special movement, which serves as a culmination of the previous developments, yet it also softens the mood and provides a brief and pleasing transition back to the Aria. The work is symmetrical in that it begins and ends exactly the same way and re-starts in the center with the French Overture. (In the first edition, Bach does not write out the return of the aria at the end, but just designates "Aria da Capo è Fine.") Despite this symmetry, the focal point of the set is near the end. The overall structure holds together the disparate styles of the individual variations. In this work we hear all the elements of Bach the progressive composer of his time.

PUBLICATION AND PERFORMANCE HISTORY

The Goldberg Variations were published as Volume IV of *Clavierübung* around 1741. In his book for the Cambridge Companion series, Peter Williams provides a thorough account of the editorial history of this masterpiece. Starting with the Bach Society Edition of 1853, he goes on to discuss harpsichordist Ralph Kirkpatrick's 1935 Schirmer edition. The Henle edition by Rudolf Steglich (1962) is the one I used to learn the piece. From a scholarly point of view, "by far the most authoritative is the *Neue Bach-Ausgabe* vol. V/2 (Christoph Wolff, 1977) and its Critical Commentary of 1981 (KB or *Kritischer Bericht*, pp. 91-143, 153-5)." (8)

During the first half of the 20th century, the Goldberg Variations became more widely known, due to successful performances by leading artists such as Wanda Landowska and Rosalyn Tureck. Then came Glenn Gould's spectacular recording of 1955, which made him a household name and popularized the work for all. The work came to be known as a piano piece. Dorottya Fabian's assessment of the major recordings of the Goldberg Variations for a span of 30 years between 1945 and 1975 yields insight into the ways that the performance practice of Bach's keyboard works was established as an important area of study and also into the main stylistic shifts that occurred during this post-World War II period. She compares the interpretations of the aria and each variation, as performed by a wide variety of different pianists, including Tureck, József Gát, Wilhelm Kempff, Karl Richter, Jörg Demus, Igor Kipnis, and others. Fabian assembled a recording, with a chart detailing the tracks with performer names for all of the different interpretations of each selected section. (Fabian 299-300)

As for playing the Goldberg Variations on organ, that appears to be a recent phenomenon. There have been only a few recordings of the Goldberg Variations on organ, and there is no organ version readily available in print. Through Naxos online, there is a recording by Juergen Sonnentheil on the Gerald Woehl Organ at St. Petrus Canisius in Friedrichshafen, Germany. According to the CD, released in 2007 by Presto Classical, this was a world premiere recording of an arrangement made by Wilhelm Middelschulte (1863-1943). Please see a description of this CD: www.allmusic.com/album/wilhelm-middelschulte-organ-works-vol-4-goldberg-variations-mw0001418811 In the recording, the tempi are very slow from a pianist's point of view, and given the nature of the large organ used, the huge sounds of air rushing through the pipes make it seem like a completely different piece. Too different, it seems, to get the clear articulation that is the standard on harpsichord and piano.*

Although any performance of the Goldberg Variations on organ would probably sound new and unfamiliar, I believe that ASU's Fritts Organ is a great choice for this ambitious endeavor. I also believe that Bach would be open to the playing of his works on keyboard instruments other than the original intended one, an idea that I discuss in more detail later. My main purpose, then, was to come up with an arrangement that is effective musically and true to the spirit of each variation.

There are four notable organ recordings, all produced in the last decade or so. In addition to Sonnentheil's recording of Middelschulte's arrangement, Stephen Tharp also

* The internet links provided in this document were accessible in 2017 while the author was working on this project.

made a recording playing the Fritts Organ at St. Joseph Cathedral in Columbus, Ohio.

pipe-organ-recordings.com/shop-now/fritts-organ-saint-joseph-cathedral-stephen-tharp-organist-goldberg-variations-detail

The Fritts Organ at St. Joseph Cathedral, also designed and built by Paul Fritts and his company in Tacoma, WA, is very similar in style to ASU's, but it is larger, has considerably more pipes and stops, and has three manuals. For a comparison, here is an online description of ASU's Fritts Organ:

http://music.asu.edu/about/venues-facilities/organ-hall

The instrument at ASU is more intimate, and more suitable for a medium-sized organ hall at a music conservatory than for a large cathedral. A third recording was made by Hansjörg Albrecht in 2007 in Bad Gandersheim, Germany, on a prize-winning Mühleisen organ. For photos, see:

http://www.muhleisen.fr/dynamic/frontoffice_uk/realisations_details.php?LNG=uk&GET_ID_REA=17

According to Kimberly Marshall, in her review of Albrecht's CD, this Mühleisen organ was "inspired by Classical (Andreas and Gottfried Silbermann) and Romantic (Aristide Cavaillé-Coll) models," making it a more modern organ in construction style than the Baroque-style organ at ASU. (664) The Mühleisen organ also has three manuals. After an exhaustive internet search I was able to find one more recording, of Daniel Sullivan playing an Aeolian-Skinner organ, yet another type of organ:

http://ravencd.com/merchantmanager/product_info.php?products_id=119

This webpage provides some personal commentary by Sullivan about adapting the piece to be played on this instrument. In addition, French organist and composer Jean Guillou made a transcription for organ in 1987. Guillou's recording of his transcription is available, but unfortunately he did not publish the score:

www.amazon.com/Goldberg-Variations-Johann-Sebastian-Bach/dp/B000001Q7T

Guillou has transcribed over twenty works for organ, from other Baroque masterpieces to works by Mozart, such as the Adagio and Fugue in C Minor, K. 546, originally for string orchestra, to Mussorgsky's Pictures at an Exhibition. However, with the exception of the Musical Offering BWV 1079, his Bach transcriptions remain unpublished. For a list of Guillou's compositions, see:

http://en.wikipedia.org/wiki/Jean_Guillou

Recently I also discovered music print files uploaded to IMSLP by German organist Thomas A. Schneider, of eleven of the thirty variations:

http://imslp.org/wiki/Goldberg-Variationen,_BWV_988_(Bach,_Johann_Sebastian)

Under "Sheet Music," in the category "Arrangements and Transcriptions—Selections," Schneider's score appears alone in the section "For Organ." From his faculty profile, it appears he is also a pianist:

http://www.musikschule-buchen.de/html/body_thomas_schneider.html

Notably, his arrangement is for three manuals and includes very difficult pedal playing. On Youtube, there is also a very beautiful recording of organist Elena Barshai performing the work at the Metzler Organ in the St. Peter and Paul Cathedral in Villmergen, Switzerland. Barshai's performance is very virtuosic and shows a full command of the instrument, and hearing her recording allowed me to realize how this piece may take on a completely new and meaningful life when performed on an organ in a large church setting. The music was intended for keyboard practice (as specified by Bach in the original, elaborate title page) and some of the source material came from popular song

(for the Quodlibet), but who is to say that this music may not be heard in a more spiritual manner, to have implications beyond its original identity?

Also, take for instance the famous transcription of the Goldberg Variations for string orchestra by Dmitry Sitkovetsky. This was recorded in 1993 by the NES Chamber Orchestra, made up of leading stringed-instrument players from all over Europe, and produced by Nonesuch records in 1995. Compared with the organ recordings, Sitkovetsky's transcription removes the work from its liturgical setting and concept and takes it back to the concert hall, yielding a fascinating result. Some of the variations are particularly suitable for legato playing as well as pizzicato plucking by strings, and imagine the creative ways that the canon variations can be orchestrated for the different stringed instruments. However, Sitkovetsky stays true to the original source, and does not re-arrange or add any music material. Contrast this with jazz versions of the Goldberg Variations, which have also been popular lately. Dan Tepfer, for instance, plays the aria and a few of the variations exactly as printed in Bach's score, but intersperses these portions with original improvisations built from the source material:

www.youtube.com/watch?v=V8WGcjB6ryI

The Jacques Loussier Trio plays just enough of the variations for the listener to recognize the melodies, but most of their performance is free improvisation:

www.youtube.com/watch?v=CL5_DIPpNvg

SOME FUNDAMENTAL QUESTIONS

In the liner notes to the CD recording of Sitkovetsky's string orchestra adaptation, the composer John Adams writes:

> This version of the *Goldberg Variations* by Dmitry Sitkovetsky is what Bach would have called a *Bearbeitung*: an arrangement or reworking of a preexisting piece of music. Such adaptations by one composer or performer of another's work or, for that matter, of one's own, were common in Bach's time. Sometimes they were the product of necessity, i.e. the required instruments were not at hand. At other times an arrangement or orchestration was done out of a desire to extend the expressive possibilities of a piece of music by recasting the players on the stage. Bach himself was a frequent and enthusiastic practitioner of this art as witnessed in his treatments of Vivaldi, Buxtehude and many other composers whose work he admired and loved. (1)

Adams's comment about Bach is definitely very encouraging for my purposes here, but what would Bach think of such an organ adaptation? During the compositional process Bach would definitely have played the piece himself on harpsichord, but it is unlikely Bach ever played through the Goldberg Variations on any of his organs. He would have needed Kalkanten to pump the bellows, and, in general, the organ during Bach's time was not used nearly as widely as it is today, when we have the convenience of electric blowers.

There are many instances where it is musically appropriate for the performer to play from one variation right on to the next one without pause, which on the organ leaves the performer little time to change the registration. Also, in m. 15 and m. 23 of Var. 6, m. 22 of Var. 14, and m. 15 of Var. 18, the bass line goes too low to be played on organ, and I needed to arrange certain bass notes an octave higher. These notes could not have been played on any of Bach's organs. It is very clear that Bach intended the Goldberg Variations to be played on a two-manual harpsichord, and Williams has a chapter devoted

to discussing the average harpsichord available during Bach's life, with pictures provided. (Williams 9-13) Bach's organs have been widely studied as well, and there are numerous books that provide details about the organs along with suggested registrations, such as *The Registration of J. S. Bach's Organ Works: A Study of German Organ-Building and Registration Practices of the Late Baroque Era*, by Thomas Fredric Harmon, published 1978.

Though Bach and his contemporaries may not have played the Goldberg Variations on organ, performing on organ can give this monumental work a newfound significance. An important difference is the ability to transform sound at the organist's discretion to express the music. The stop choices that I made for my adaptation are just a few of an amazingly large number of registration possibilities on the many organs available throughout the world. The adaptation also takes the work from its modern role as a virtuosic showpiece for the concert hall and brings it back to its origins as a composition by a church musician. Sections of the variations could be played as the prelude to a church service. The opening aria and closing aria might be heard as evoking prayerful contemplation.

What are some of the challenges of adapting the Goldberg Variations for organ? Harpsichords from Bach's time had two manuals, in contrast to the single-keyboard harpsichord for which Domenico Scarlatti composed his sonatas. With two keyboards at his disposal, Bach makes use of them in a thoroughly virtuosic way. A tremendous amount of technical facility as well as the ability to control tempo are demanded of the harpsichordist. For a number of the variations, the composer allows the performer to decide on his own whether to use a single manual or both manuals. With two manuals the

harpsichordist is able to avoid the overlapping hand issues that trouble pianists, but he still needs to play crossed hands for Vars. 20 and 26, just like the pianist. Another element to consider is the visual aspect of having a passage played in an independent manner on two separate keyboards versus combined together in a difficult way on a single one. It could be an enlightening experience, then, for pianists and concertgoers, who are used to witnessing the unwieldy sections performed on piano, to attend a performance on a two-manual harpsichord.

Bach's keyboard music came to be performed more on piano and relatively less on harpsichord due to advancing technology. As the modern piano improved, the number of proficient pianists also increased. The modern piano is a much stronger instrument than any that Bach came into contact with during his lifetime. It is capable of large dynamic contrasts, and fine nuances of expression and voicing. Naturally, this treasured work from the Baroque would be explored by generations of concert pianists. Glenn Gould's recording from 1955 not only popularized the piece with the greater public but also with pianists at all levels, so it took on a new identity as a cornerstone of Bach's great keyboard works.

We also have to consider the nature of the harpsichord in relation to the piano. The harpsichord action is a plucking action, which is clearly different from the modern piano in that the performer cannot control how the mechanism of the instrument produces sound. The key is pressed, and the sound is produced. Harpsichordists cannot control dynamics, and it takes specialized training for them to articulate the sound in different ways. It seems logical, then, that Baroque keyboard works have limited performance markings, since these were not necessary or relevant for the performer. On the other

hand, the nature of the harpsichord led to some interesting results in terms of composition. Intensity is controlled by texture and length of notes. Lots of moving or repeated notes, as well as both hands playing many notes at the same time, would produce a "forte" effect on this instrument. Slow, lyrical passages are naturally softer and more contemplative. This tradition has lent itself to the modern piano, in that music is often interpreted in the same general manner, with complicated textures being played loudly and single-voice homophonic passages being played lyrically at a lower volume.

Sometimes the performer chooses to do what is counterintuitive, and this creates a great deal of interest. For example, in his organ recording Juergen Sonnentheil plays the chorale-like opening of the final variation at a very slow tempo. The overall feeling this creates makes the Quodlibet sound foreign, yet beautiful in an entirely new way. Bach the father is not so much at a happy gathering with his whole family in front of him, but rather alone at his organ in a one-on-one conversation with his Creator. This is an example of why adapting this piece for organ allows the music to take on a completely new life. With the organ's ability to sustain sound and change timbre immediately, a variation such as No. 30 can be heard in a totally new light.

It is important to remember that my arrangement of the Goldberg Variations for this one particular organ is just one of an almost infinite number of possibilities available to the organist, based on his or her personal preferences. My adaptation is preserved in the notated score, which is included in Appendix A. Other organists who would like to make their own adaptations of the work could take my score into consideration.

Going back to the question of *Bearbeitung*, there is probably little doubt that Bach was open to the performance of his music on different instruments, not just the original

instrument for which he composed it. I thought about this question originally while studying the Preludes and Fugues of the Well-Tempered Clavier. It is obvious that certain of these Preludes and Fugues are better suited for clavichord, for harpsichord, and even a few for the organ, such as the first prelude in Book II. How would Bach react if he could witness the performance of his keyboard music on the modern piano, as well as its lasting impact on the world?

If Bach could witness the Goldberg Variations being performed on organ, would he view this as a big change? If the story behind the piece is true, the variations were intended to help Count von Keyserlingk fall asleep. Appropriately, the piece has an intimate character to it, from beginning to end, that a performance on a large organ in a cathedral could negate. Luckily, the ASU organ is just the right size for me to preserve some of the intimacy of the work, and I make sure the sound is never too powerful or overbearing.

Since the great revival of Bach scholarship in the 1950s, analysts and performers have commented on Bach's attitude toward instrumentation, with the general consensus being that Bach was quite open towards playing his works on different instruments. For example, in the foreword to Norman Carrell's book *Bach the Borrower*, the early music scholar Basil Lam explains Mr. Carrell's motivation for the study: "Bach, with certain exceptions, reworked and adapted his own compositions and his seeming indifference to the medium employed can now be fully explored…." (9) If the composer himself applied a variety of instrumentation to his works, modern performers can follow Bach and continue this practice.

TECHNIQUE OF ARRANGEMENT

Before adapting the Goldberg Variations for organ, I learned and memorized the work on piano. I performed all of it, with most of the repeats, for a piano recital in which the Goldberg Variations was the only work on the program. The performance was on December 2, 2016, and lasted around 1 hour and 20 minutes.

During the summer of 2016 I started playing the variations on the ASU Fritts organ. I tried pulling certain stops while playing through the piece, then pushing some stops back and trying different combinations of them to hear which sounds I would prefer. There were certain variations, such as Var. 19 (only needing one stop, Gedackt 8, to produce a soft and sweet sound), for which the choice of stop was obvious from the beginning, and there were other ones, such as Var. 27 (the final canon), where there were many possibilities and I had to consider the characteristics of that variation, its role or purpose in relation to the entire work, and its position in the ordering of the variations. After several months of experimenting and editing, I arrived at a final decision. In my arrangement, no registration choice is repeated—the timbre is different for each variation. Sometimes there is only a slight change in sound color from one variation to the next. In several instances, however, neighboring variations are drastically different in terms of style and appropriate performance tempi. This juxtaposition of variations was done on purpose by Bach the good-natured and creative composer, though one could make the case that from a general compositional standpoint these large changes are required to keep the listener engaged in the performance.

To prevent the orchestration of the piece from becoming too much larger than its original version, using only one or two manuals of the harpsichord, I basically follow

what Bach indicates for the use of manuals. I do not use the organ pedal just because it is available, but rather sparingly, when its use really helps to bring out the character, as in the Aria and Var. 13. In the later variations, especially Vars. 27-29, the natural intensity of the music builds. I heighten this sense of increasing intensity by also having the organ registration gradually build up through these three variations. I arrived at the final version of the registration only after significant help from Dr. Kimberly Marshall. She listened to me play from the back of the hall, and I also listened to her play from the back of the hall, to try to make good decisions about what would work best for the instrument, taking into account the acoustic effects of this particular hall. Of course, the sound is completely different from the performer's perspective sitting on the bench, versus an audience member sitting in the middle of the hall. Ultimately, there can be no right or wrong answer for the registration, as it depends on each individual's artistic interpretation. In my study of the organ recordings available, I heard many different registrations, and I learned that many different choices can produce a satisfying overall result.

When I transferred the music to a two-manual organ, a lot of it remained the same. Though I was tempted to rearrange which hand some of the passages are to be played by, I was reminded to keep Bach's original intentions. Bach specifies which variations are for one and which are for two manuals. It is useful to refer back to the first edition, which can be seen here:

http://www.imslp.org/wiki/File:PMLP02982-Goldberg_Variations_(facsimile).pdf

As is apparent there, Bach uses the movable C clef, so it is good that we have the modern edited versions. As a pianist playing on organ, I chose not to shift too much material to the pedal, but I do use it when I feel a particular need for the pedal stops, as in the Aria

(for the bass line), Var. 4, and Var. 13. One of the major issues is when to double a particular passage. Though doubling may seem a requirement for playing on organ, after some consideration I decided that it would not be appropriate. Another decision was needed for choosing stops when a following voice enters in the canonic variations, and for the piece in general. I made an effort to change to a variety of new stops at the beginning of each variation. This variety allows a full use of the organ, and gives the audience a clear sense of the different flavor of each variation. For variations that are similar in style, I use similar types of stops, such as flutes, reeds, or principals, allowing the listener also to feel a sense of return and to have timbral reference points. For example, Vars. 8 and 17 have the same tempo and should be similar, and so I changed the registration only slightly. Though both variations begin with the right hand on Positive and the left on Great, I use a reed in Var. 8 vs. a flute in Var. 17.

My personal choice of tempi is somewhere between the positions of Gould and Hewitt. Like Gould, I believe that some of the variations should have similar tempi, to give the audience a rhythmic reference point. (See the article by Martens.) However, these tempi should not be so analytically derived that they do not feel natural. To allow this piece to exist in the full spectrum of the imagination, we should choose tempi that convey easily the musical character of each variation. In such a way, they do not have to be mathematically proportioned to each other, much as Angela Hewitt explains in an interview. (Distler 46)

A VARIATION-BY-VARIATION DISCUSSION

Aria

Bach did not specify how many manuals should be used for the Aria and its return at the end. After significant experimentation, I decided to give some of the bass notes to pedal. In mm. 1-24 both hands play on Great, and then from m. 25 to the end, the right hand plays on Positive while the left hand remains on Great, to provide added color to this final phrase of the binary form. In order to create an effective bass line on the organ, I used the pedal Principal 16 for long notes, melding into the left hand for the more figurative parts of the bass. The slow moving bass line of the Aria—G-F#-E-D-B-C-D-G, G-F#-E-A-F#-G-A-D in the first section, and D-B-C-B-G-A-B-E, C-B-A-D-G-C-D-G in the second section—provides the musical content from which Bach creates the variations. Each variation retains and varies this bass line to some degree, while the melody of the Aria is not used directly again. In the Aria, using Hohlflöte 8 for both the soprano and tenor lines can produce an effective blending with the bass line so that all the voices can be heard clearly and in a gentle manner. I was trying to present the sweet melodic line from the Aria in the most beautiful way as an opening for the piece.

Var. 1

In contrast to the Aria, this first variation is very active and full of running 16^{th}-notes. From a compositional standpoint, the large shift in tempo and style from the Aria to Var. 1 heightens the listener's interest. The registration choice has to match this change in style, but the difference in timbre comes mostly from the music itself. This variation is also a duet between bass and treble voices. A brighter sound using a reed on Positive is

very appropriate. Playing detached is an essential technique to create short and clear articulations.

Var. 2

The soprano and alto voices are given a more lyrical line with an emphasis on 16th-note scale figures. The bass voice, on the other hand, is slower and more disjunct. Many performers have interpreted this variation to be played legato in the right hand (the duet) and detached in the left hand (the "walking" bass), and I definitely agree with this choice for performance on the piano. On the organ one must articulate slightly for clarity in the right hand and not play too short with the left hand, to ensure that the low pipes speak properly. This variation mimics a trio sonata. Using Principal stops such as Octav 8, 2 and Principal 16 will generate a confident character for this variation.

Var. 3

This is a very special variation, where I take artistic license to arrange it for two manuals on organ even though Bach indicated *1 Clav*. Because I use Gedackt 8 on Positive and Hohlflöte 8 on Great, the sound produced by the two hands is very similar yet slightly different in quality. During the first section the right hand is on Hauptwerk and the left hand is on Unterwerk, and then they are switched around for the second section. This way the listener can hear more clearly the canonic lines and the exchanging of voices.

Var. 4

This is in 3/8 meter with a dance-like feeling. I put the bass line on pedal with a reed to emphasize the downbeats for most measures. In the first and second endings, all the 16th-

notes are arranged for Great instead of for pedal, while in m. 17, the D and the C are played on both Great and pedal. The purpose of this choice is to allow for good voicing and sound exchange while having the bass line in the pedal. There is a significantly brighter and stronger sound to this variation.

Var. 5

Bach indicated that either one or two manuals would be fine for this variation. On piano this variation famously involves crossed-hand playing, so it is obvious for me to choose two manuals to make those passages easier to play on organ. I switched manuals for the second part of this variation because the 16th-notes begin in the left hand instead of the right hand. The most challenging thing to perform is the jumping left hand between bass clef and treble clef. Flute stops will work well for the running 16th-notes, being gentle and not too loud especially since the tempo is quite fast.

Var. 6

This is the second canon, at the interval of a second. I think the articulation for this variation should be more on the legato side. I placed the sparse 8th-notes of the bass line on pedal (mm. 14-15, m.18, mm. 24-25, mm. 28-33, and m. 36) to emphasize the large intervals between these 8th-notes, and also to provide some rest for the left hand while the organist uses feet instead.

Var. 7

This variation is marked “al Tempo di Giga.” The meter is 6/8, and again there is a dance-like feeling. The left hand plays on Positive with Gedackt 8 and Blockflöte 4,

while the right hand is on Great with Viola da Gamba 8 only. The Viola da Gamba stop really brings out the character of the dotted rhythm, long-short-long etc. On the Fritts organ the Viola da Gamba stop is a reed, not a string stop, modeled on that of the Schnitger organ in Alkmaar, Netherlands. Also, the left-hand registration on Positive creates an interesting tone quality using Gedackt and Flute. We can clearly hear both voices at the same time. They don't cover each other, and instead we hear them in a duet.

Var. 8

This has the same energetic character as Var. 1. It is important that Bach indicates two manuals. I found it very difficult to play this variation on one keyboard on the piano, so I would definitely take advantage of having both manuals on the organ. Reed stops such as the Trompet 8 and Trichterregal 8 would work well to produce a confident sound and march-like effect. In addition, the tempo I chose for this variation is about the same as the tempo for Var. 1.

Var. 9

As the only variation so far employing the Tremulant stop, my purpose is to have this stop suggest the sound of the human voice and singing. Another accompanied canon, the melodic lines in the soprano and alto are very cantabile and smooth. Using Octav 8 and adding some Tremulant on top seems like an appropriate and expressive choice. The result is very beautiful and magnificent.

Var. 10

This is the only Fugue in the entire work. The meter is alla breve and the subject is only four measures long. For the registration I selected the Positive with Gedackt 8, Principal 4, and Trichterregal 8. With this combination the performer is really able to bring out a strong sense of the cut time rhythms as well as emphasize the longer notes such as half and quarter notes to give them strength and to keep up the intensity throughout the variation. With the purely percussive action of the piano, once a note is played, the sound starts to decay and disappear. Because this is one of the few variations with numerous longer notes, many created by ties, as well as half and quarter notes, this variation is particularly well suited to performance on organ.

Var. 11

The descending 16^{th}-note triplets of the opening make this variation very distinctive. Another technique that Bach uses to create interest is at the beginning of the second part, where left-hand 16^{th}-note triplets ascend along with the right-hand descending triplets. Although neither the harmonic progression nor the key has changed, the many different gestures and combinations make each of the variations sound new and different, an accomplishment that is especially apparent in this variation. Bach's ability to compose so many variations while keeping to a rather restrictive framework is extremely impressive. For this variation, I make sure to perform all of the triplets slightly detached, so that they have a delicate and sparkling sound for each note and for the music as a whole.

Var. 12

This variation features a canon by inversion, and I use the registration of Positive with Gedackt 8, Principal 4, and Blockflöte 4. This straightforward registration of flutes and principals allows the music to speak for itself. Initially I was planning to give the bass line to the pedal, because I really like its repeating three-quarter-note pattern, and the two upper voices to the two manuals. However, it is almost impossible to split the musical material into three different voices when Bach wrote all of it for one manual only. Therefore, I changed my mind and went back to one manual using Positive only.

Var. 13

I decided to play this variation at a slower tempo because of the varieties of articulation in mm. 13 and 16. I was successful at separating the music into three parts. The bass line is on pedal, the tenor line is on Great, and the soprano line is on Positive. This is also one of the variations for which I add Tremulant. In many ways this variation is like an aria. There is an elaborate melodic line with 32^{nd}-notes and ornamentation accompanied by slow-moving bass and tenor lines. This nature requires the performer to take time during the melody, using rubato as well as a flexible tempo to shape the phrases in a beautiful manner. I use only flute stops on both of the manuals and Principal 16 for the pedal part. The feeling is tranquil and exquisite.

Var. 14

Rapid and intense, the character of this variation is a complete change from the previous Var. 13. Although the variations overall are often viewed, rather undeservedly, as being repetitive, Bach often creates some huge and immediate contrasts when going from one

variation to the next. Perhaps Bach wanted the listener to wake up, not fall asleep too soon! Bach biographers such as Klaus Eidam frequently comment on Bach's humorous side (Eidam 41), and so in some of these instances the image of Bach as a worldly, joking man comes to the forefront, versus his identity as a pious composer and music director in numerous religious settings. It is not always appropriate for the keyboardist to play the fast passages of the Goldberg Variations in the utmost serious and intense manner, but to have fun! The performer is even more successful if she can share with her audience that she is indeed having fun, and not struggling just to play the variation accurately. For Var. 14, I don't change the manual for the second part and just keep it the same, with right hand on Positive and left hand on Great. Having the two manuals is convenient because it solves the problem of overlapping and crossing hands, which occur throughout this variation on piano. There is also the issue that during the crossing of hands, sometimes the distance between the two hands becomes uncomfortably far, making long arms and fingers as well as a flexible upper body a requirement for even attempting to play this variation. On organ there are many ways around this problem, and so the attention is brought back to the interesting characteristics of the music itself, rather than the feats of strength and flexibility that this variation has become known for through the many years of famous pianists performing it.

Var. 15

Andante is the tempo marking, so this is another one of the slow variations. It begins with a descending two-note slur figure in the alto part and then an ascending soprano line comes in on the next measure. This variation is in G minor, not G major! It is the first of

the three variations in the whole set that are in G minor. I add Tremulant to enhance the contrast between this variation and the preceding Var. 14 and subsequent Var. 16. Because the intervals in this variation are mostly small and include descending half-step patterns, a soft dynamic is appropriate.

Var. 16

We are now at the middle of the entire set, and accordingly, this variation is in the style of a French Overture. Often, directly in the middle of Bach's keyboard works there is an Overture that is a landmark for the structure of the work as a whole. The French Overture here begins with many 32nd-notes in a running fashion along with a dotted rhythm. The Overture begins with the traditional slow dotted rhythm alla breve. Then the second part of the binary form is in a faster tempo, with a meter of 3/8. However, this is not a conventional French Overture that returns to the slow tempo, though the time signature does come back on the last chord. The variation just finishes at the end of the second part. After consulting with Dr. Kimberly Marshall, I use the French Overture registration called Grands jeux, which features the reed and cornet timbres of the organ, as documented in French registration sources from the late 17th and 18th centuries. Everything is put on Great for the first part, and then Positive for the 3/8 section except the stop of Gemshorn 2. On piano, I decided to play all the dotted rhythms as if there were a double dot, and for organ I do the same.

Var. 17

The tempo and rhythm of this variation are very similar to that of Vars. 1 and 8. There are lots of running 16th notes for both hands. To play these running notes at low volume

produces a very pleasing effect, and so for the registration I use Gedackt 8 and Blockflöte 4 on Positive and Hohlflöte 8 and Spitzflöte 4 on Great. Played on two manuals for the whole time, the two voices are clearly heard and delicate. Detached articulation seems appropriate to this variation.

Var. 18

This is quite a cheerful variation with a very sweet sound. The canon proceeds in cut time with lots of tied notes, including half notes tied together across the bar line. All the notes can be played on one manual. I play it in a moderate tempo. I play all of the eighth and quarter notes detached to highlight the clarity of the sound in this variation. Although I play them short, I am careful not to play too short. This variation shows some more of Bach's humor.

Var. 19

I would say that Vars. 18 and 19 are perfect to play next to each other. Var. 19 is another dance in 3/8 meter. The touch for this one is slightly more detached on organ than on piano. I like it very soft so I only use Gedackt 8 on Positive to create a peaceful mood and distinguish it from the other variations.

Var. 20

In contrast to the previous two variations, this one is toccata-like and virtuosic. Organists would play this variation on two manuals and in a very fast tempo. The most challenging thing on the piano is that in quite a few instances the left hand and the right hand will both have to play the same key while alternating between the hands. It does not even

matter whether the hands are crossed or not, the same issue occurs. These passages are easier when using two manuals, but a pianist must adapt to playing with one hand in a higher position than the other.

Var. 21

For this, the second variation in G minor, I initially wanted to couple both Positive and Great on Great (I+II on Gr). This coupling would make it too powerful in relation to the later variations, however, so I revised the registration to just Great. I still wanted the sound to be very rich, dark, and deep, so I ended up using Principal 16, Octav 8,4, Trompet 8 and Tremulant. This registration sounds strong enough from the back of the organ hall or church.

Var. 22

This variation is very similar in many aspects to Var. 18. To be played on one manual, it is in ricercar style, alla breve, in four voices. There are plenty of long notes such as whole, half, and tied notes. The openings of both variations involve chains of suspensions during the initial step descent in the bass line. The range of Var. 22 is lower than that of Var. 18, and I used completely different registrations in the two variations. However, I try to play both Var. 18 and 22 in the same tempo, to further emphasize for the listener the connection between them.

Var. 23

The tempo I chose for this variation is almost the same as for Vars. 1, 8, 17, and 20. Again, the meter is 3/4 and the rhythm is constantly in 16^{th}- and 32^{nd}-notes. The variation

begins with parallel descending 16th-note scales and then moves into toccata style with rapid exchanges between the hands. I prefer a louder sound on the organ for this one, so I use stops such as Scharff, Gemshorn, Trichterregal, Mixture and Viola da Gamba. These are some of the strong stops on the ASU Fritts organ.

Var. 24

We are presented with yet another canon, and this one is set in 9/8 meter. After a loud and forceful variation, I would like to juxtapose a softer and sweeter registration for this. Blockflöte 4 on Positive and Hohlflöte 4 on Great. The first section is played on Positive and the second is played on Great to have slightly different tonal colors. Because of the swinging rhythms so I suggest playing this variation at a moderate tempo.

Var. 25

This is the final variation in G minor and is a particularly lengthy and significant variation. Marked *Adagio*, it takes so much time to play this one through that it compares to all the five variations that followed. It evokes the aria, similar to Var. 13, but with much chromaticism, a meandering treble line, and a variety of color changes. The mood is very private and contemplative. One defining feature of this variation is the contour of a large upward leap followed by a step descent, which appears in mm. 1 and 2 (D to B-flat, C to A-flat) and mm. 5 and 6 (D to D, E-flat to E-flat). These and other large leaps balanced by steps create a sprawling melodic line that is very sorrowful. The more one plays this variation, the more one wants to keep playing. The effect is almost like stopping time, of taking a pause before returning to the things of this world. On organ and in a religious setting, the effect would be even more pronounced than when performed on

piano in a concert hall. Also, it is important to note that Bach indicates the tempo for this variation, *Adagio*. Subsequent piano variation sets by Mozart and Beethoven continue this tradition of having a slow long variation before the fast finish. Consider the Twelve Variations in C Major, K. 265, in which Mozart indicates tempo markings only for Vars. 11 and 12, which are *Adagio* and *Allegro*, respectively. In the Diabelli Variations, Op. 120, Beethoven gives the indication *Largo, molto espressivo* for Var. 31, followed by a powerful triple fugue at fast tempo in Var. 32, reaching the grand climax of the piece. Interestingly, Var. 33, the final variation, is marked *Tempo di Menuetto moderato*, for a gentle denouement. Donald Tovey discusses the direct link between the Diabelli Variations and Bach's variations:

> It is profoundly characteristic of the way in which (as Diabelli himself seems partly to have grasped) this work develops and enlarges the great aesthetic principles of balance and climax embodied in the 'Goldberg' Variations, that it ends quietly. The freedom necessary for an ordinary climax on modern lines was secured already in the great fugue, placed, as it was, in a foreign key; and now Beethoven, like Bach, rounds off the work by a peaceful return home—a home that seems far removed from these stormy experiences through which alone such ethereal calm can be attained. (Tovey 133)

Var. 26

After Var. 25's respite, we are now presented with the original spirit of the piece in full force. This variation is very virtuosic and allows the performer to show off facility with rapid lines. In the right hand we have 18/16 while in the left hand it is 3/4. The variation begins with running sextuplets in the treble. The rapid line moves from hand to hand in different places throughout. The sextuplets and the slower rhythm in the other hand are often in three-against-two relationship. The dotted rhythm can be made to fit with the

sextuplets. This variation is very demanding on piano or organ and must be practiced patiently to reach a fast tempo with steadiness.

Var. 27

Finally we have reached the last canon, this one for two voices, unaccompanied. The second voice enters at the interval of a ninth. It feels disconcerting to play this canon due to the unusual interval. The only way to get more comfortable with it is to be flexible in mind and body and practice hands separately. Again we are reminded of the necessary ability to play with independent fingers in much of Bach's keyboard music. I use most of the stronger stops on the Fritts organ to produce a powerful sound for the final canon.

Var. 28

I call this variation the trill variation! Trills persist throughout the whole variation, first occurring in the alto, then the tenor, then in both alto and tenor, then in both soprano and tenor, back to just the tenor, moving to soprano again, then the alto, before arriving back to the soprano again. Trill technique must be studied and developed before one can play this variation successfully. Because of the abundant trills, I cannot use any loud stops. Therefore, I chose to use a flute instead, which is soft but still present.

Var. 29

This is the last virtuosic variation and should be played at a loud dynamic. There are big chords that alternate with fast 16^{th}-note passages throughout. The variation ends with a powerful G chord followed by the final single note on G. For this variation I used all of the loud stops: Positive - Gedackt 8, Principal 4, Quint, Gemshorn 2, Trichterregal 8,

Scharff; Great - Principal 16, Octav 8, 4, 2, Mixture, Trompet 8, Viola da Gamba 8. I couple the Positive and Great at the beginning and then play on Great or Positive one at a time. This is the climax of the work as a whole, before the Quodilbet.

Var. 30

An all-time favorite, everyone likes this variation. On piano, it elicits a warm and rich sound that is special to the piano, almost like depicting a joyous gathering of friends and family in front of a warm fireplace. To re-create this sound for organ, I use the Dulcian 16 which is for me an unfamiliar stop. For the entire variation I keep I+II on Great. There are two different melodic lines overlapping with each other and no matter how it is set, all of the voice-leading and harmonies are easily heard. This variation is the pinnacle of Bach's genius, and one cannot stop appreciating its wonderful results even after listening to it over and over. We can have some fun one last time in this variation before it is time for the final Aria.

Aria da capo

It is important to remember that this return was not written out. In the first edition Bach indicates *Aria da capo è Fine* at the end of Var. 30. Even though this is exactly the same music as the opening, it can create a directly contrasting feeling to that of the beginning. The same music can sound like a welcoming to all that is about to unfold, and then at the end of the piece it can sound like a final farewell. After thirty variations, this appearance of the aria is a reminiscence of a familiar melody we heard a long time before. The sound is more touching. On top of the registration for the opening aria, I add Principal 16 on Great and Octav. I also decided to add Tremulant as well. Another one of my artistic

preferences is to play at a slightly slower tempo than in the beginning. I don't want the piece to end, and instead I have it continue for a moment longer in the ears and minds of the audience.

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APPENDIX A

GOLDBERG VARIATIONS BWV 988 FOR ORGAN

Goldberg-Variations BWV 988

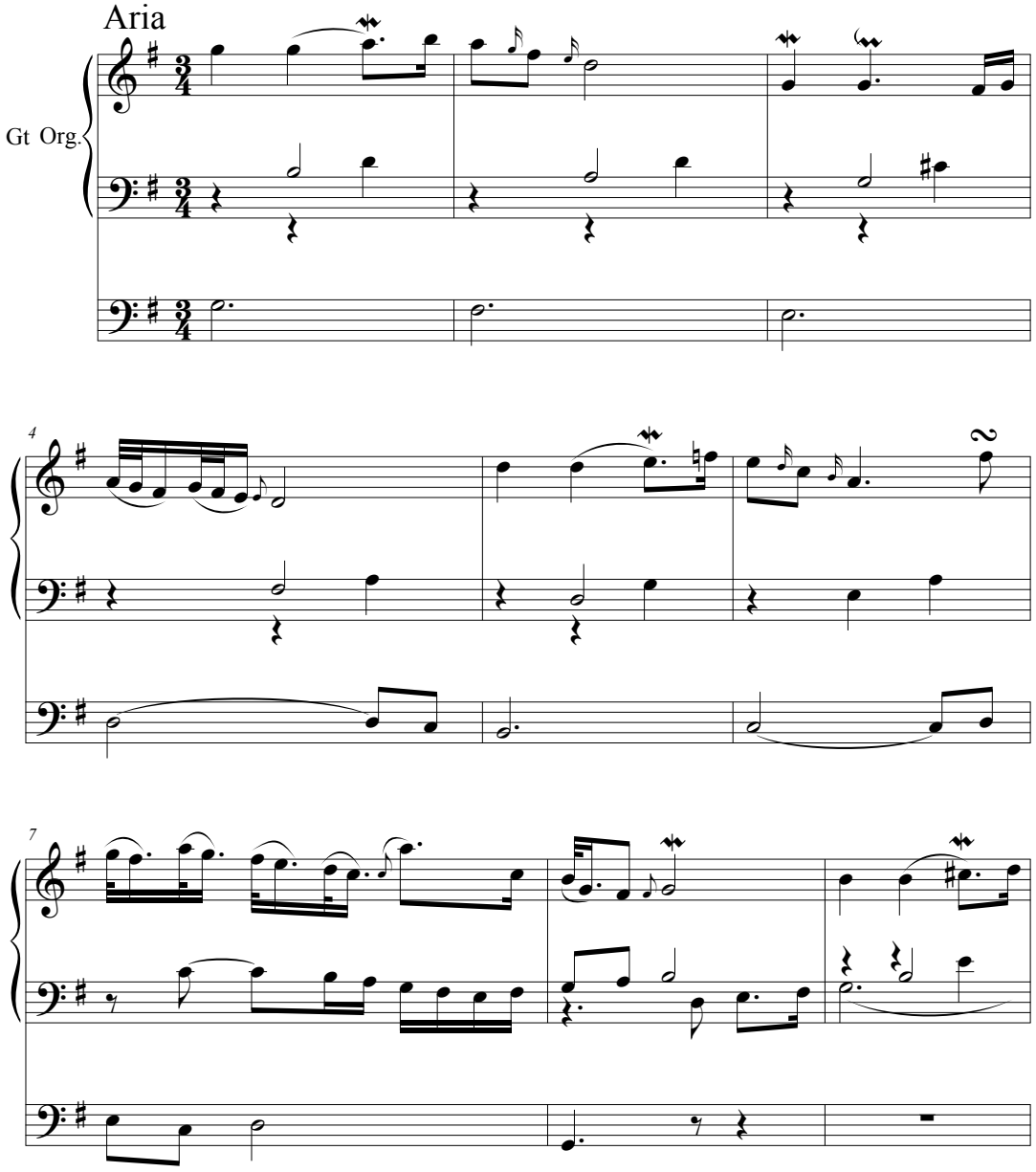
Gt - Hohlflöte 8
Pos - Gedackt 8
Ped - Principal 16

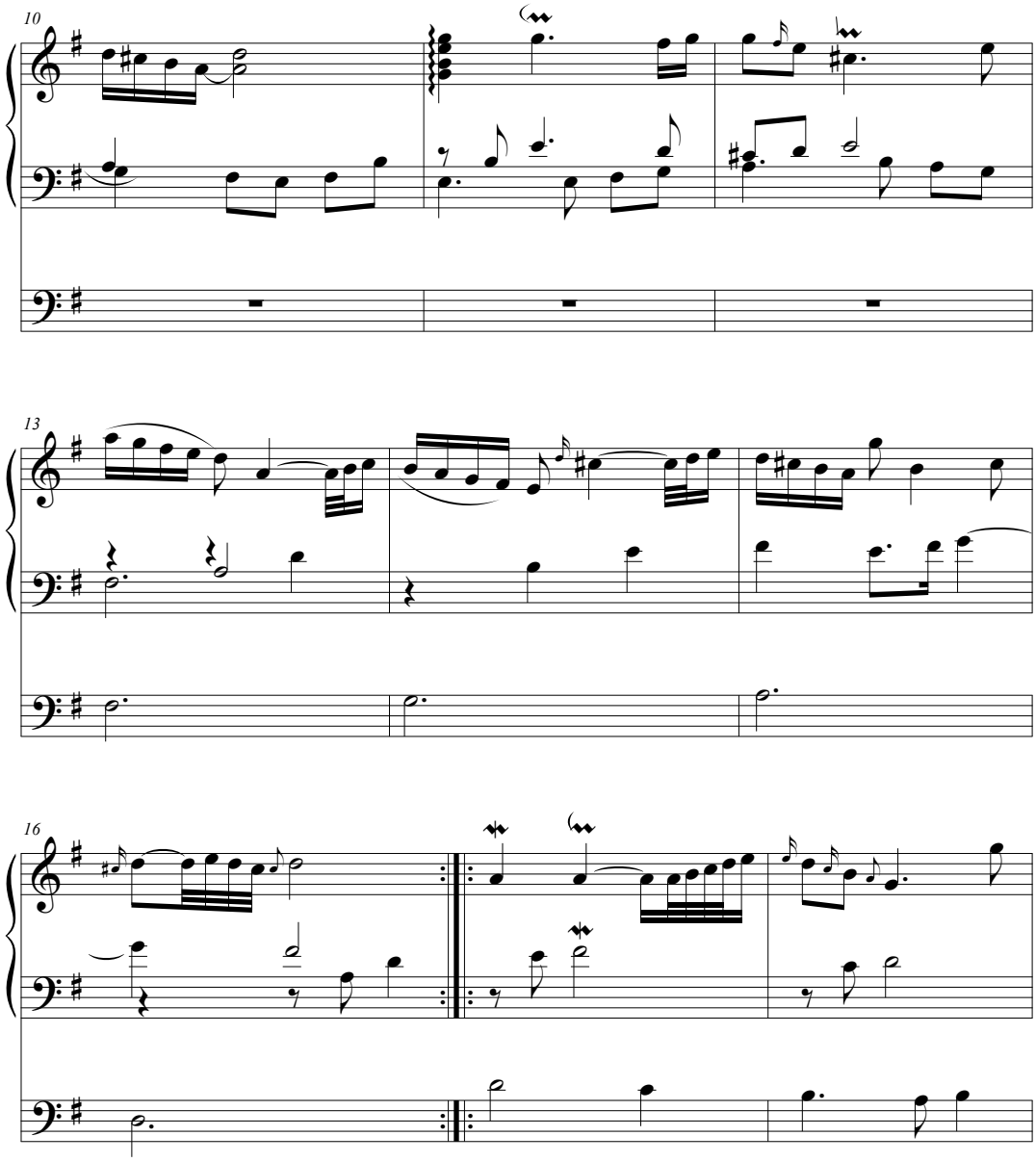
for organ

J.S. Bach
Arranged by Siu Yin Lai

Aria

Gt Org.

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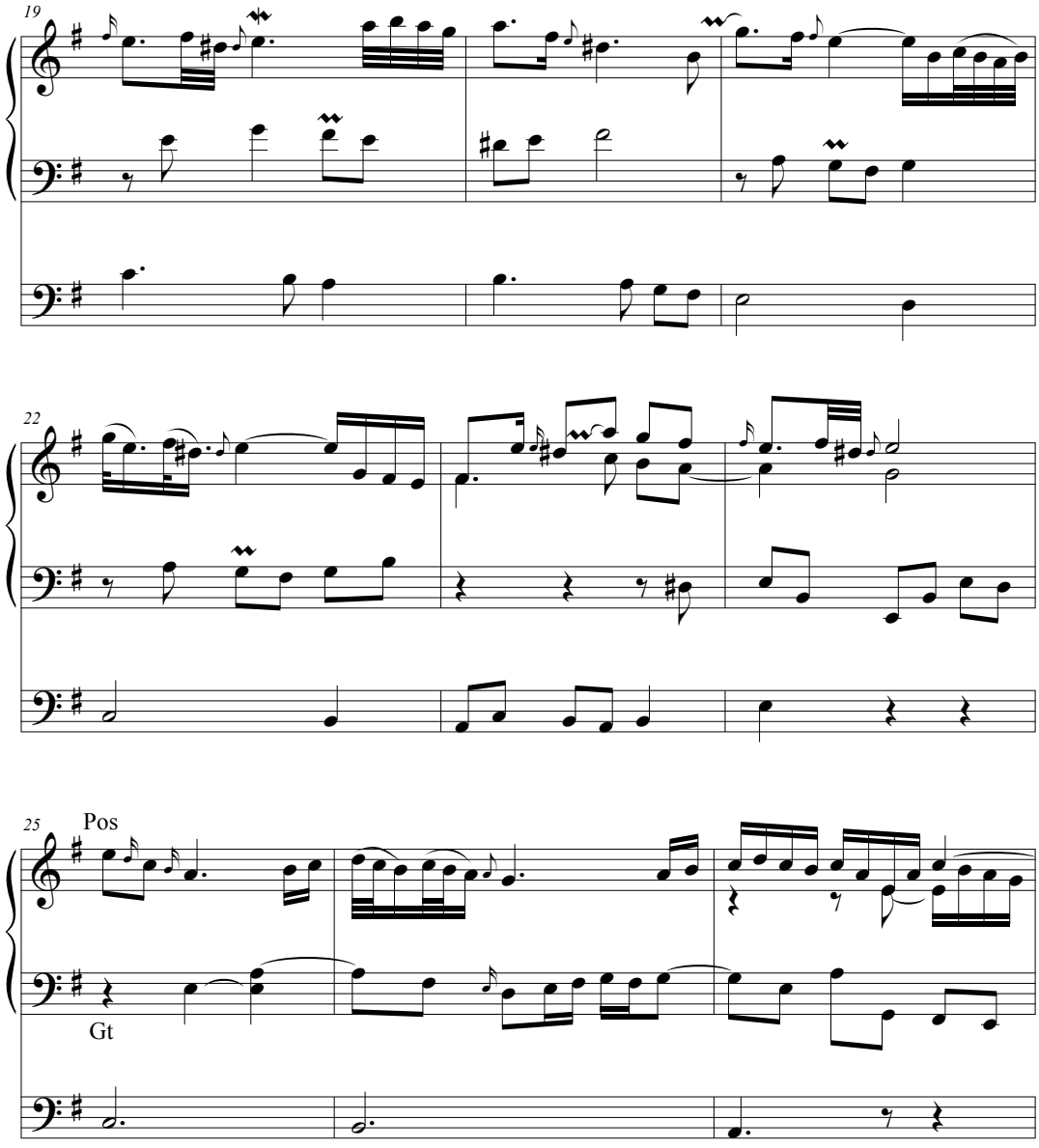
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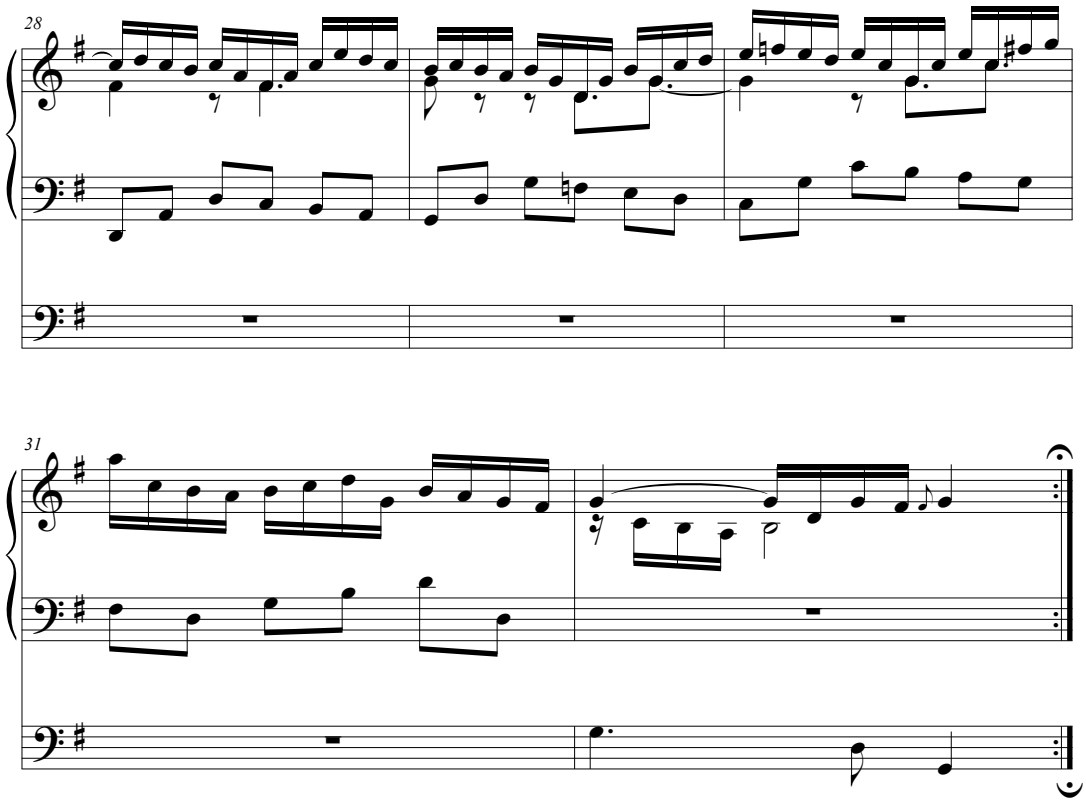
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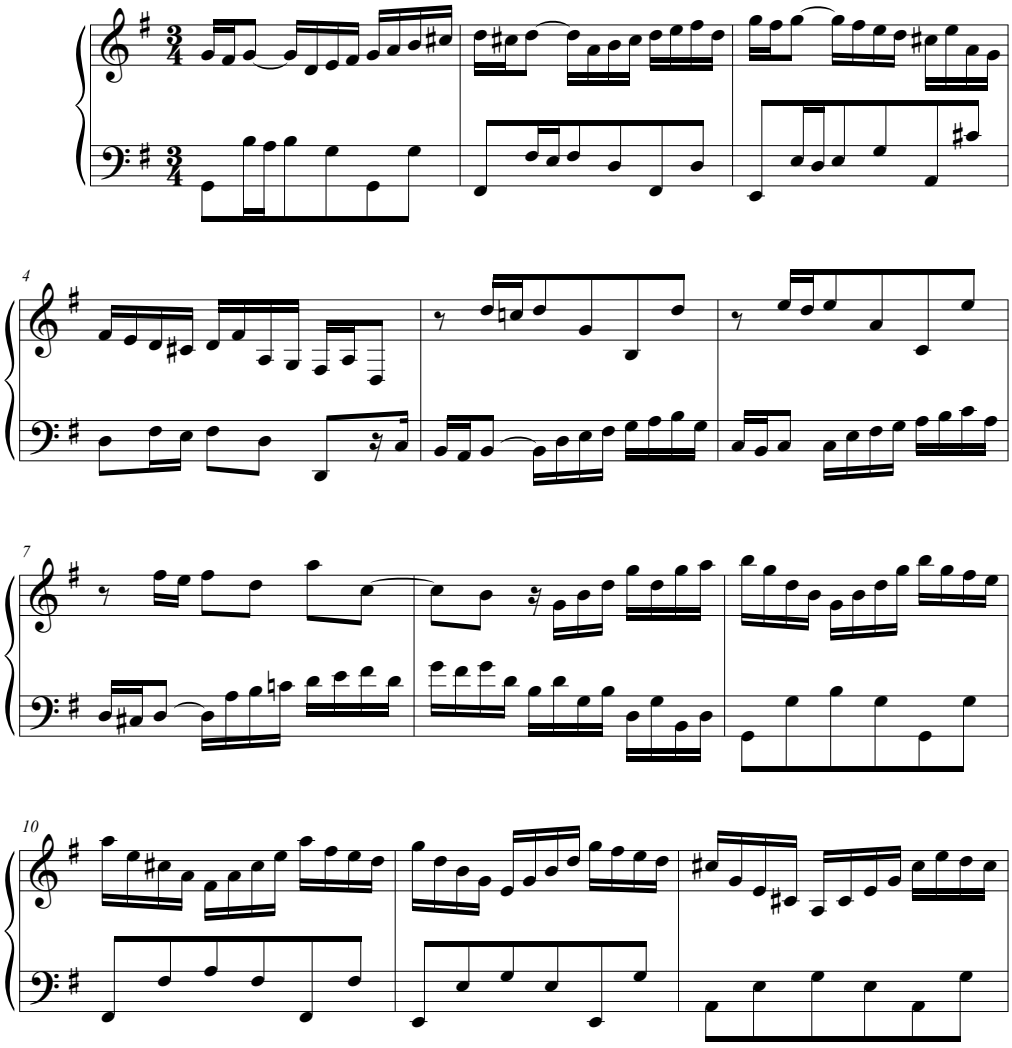
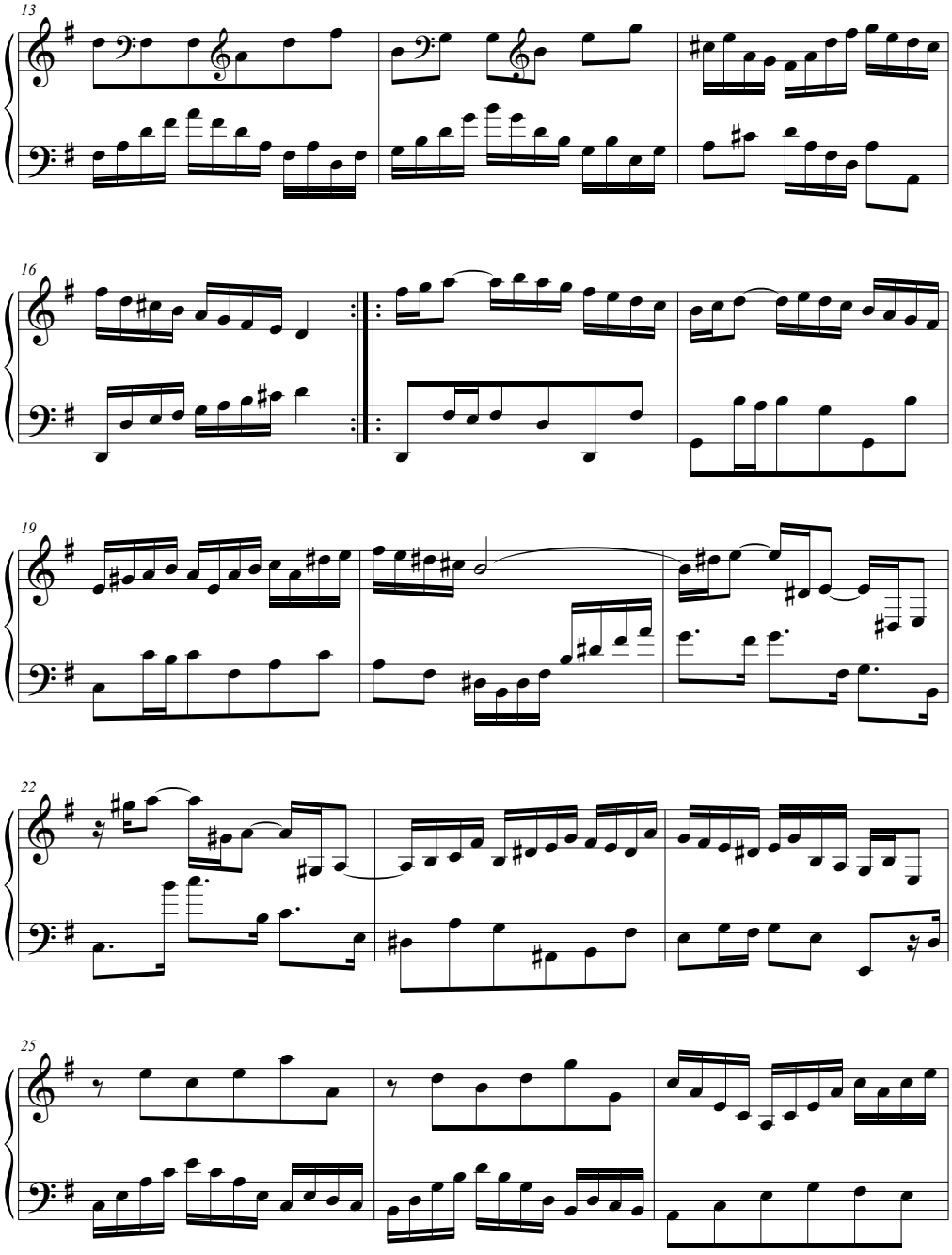
Pos - Gedackt 8, Principal 4, Trichterregal 8

VARIATIO 1. à 1 Clav.

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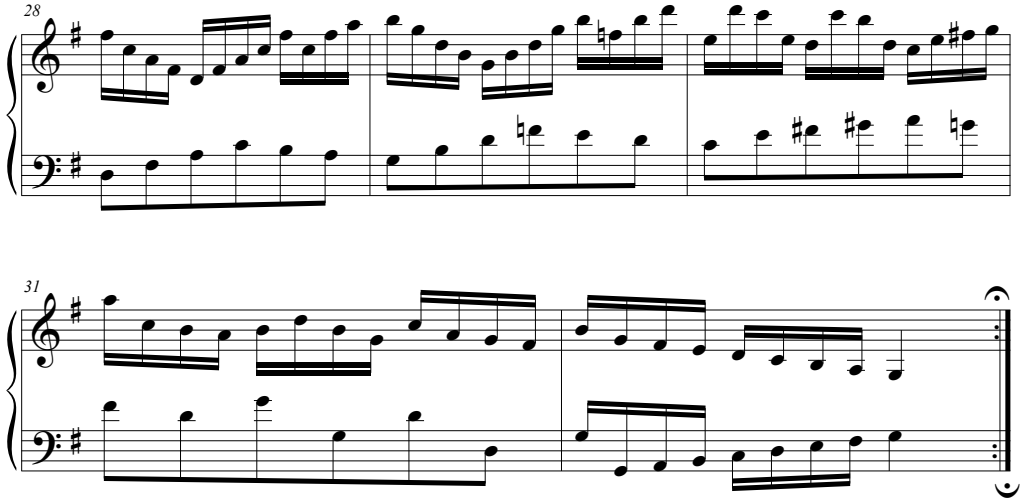
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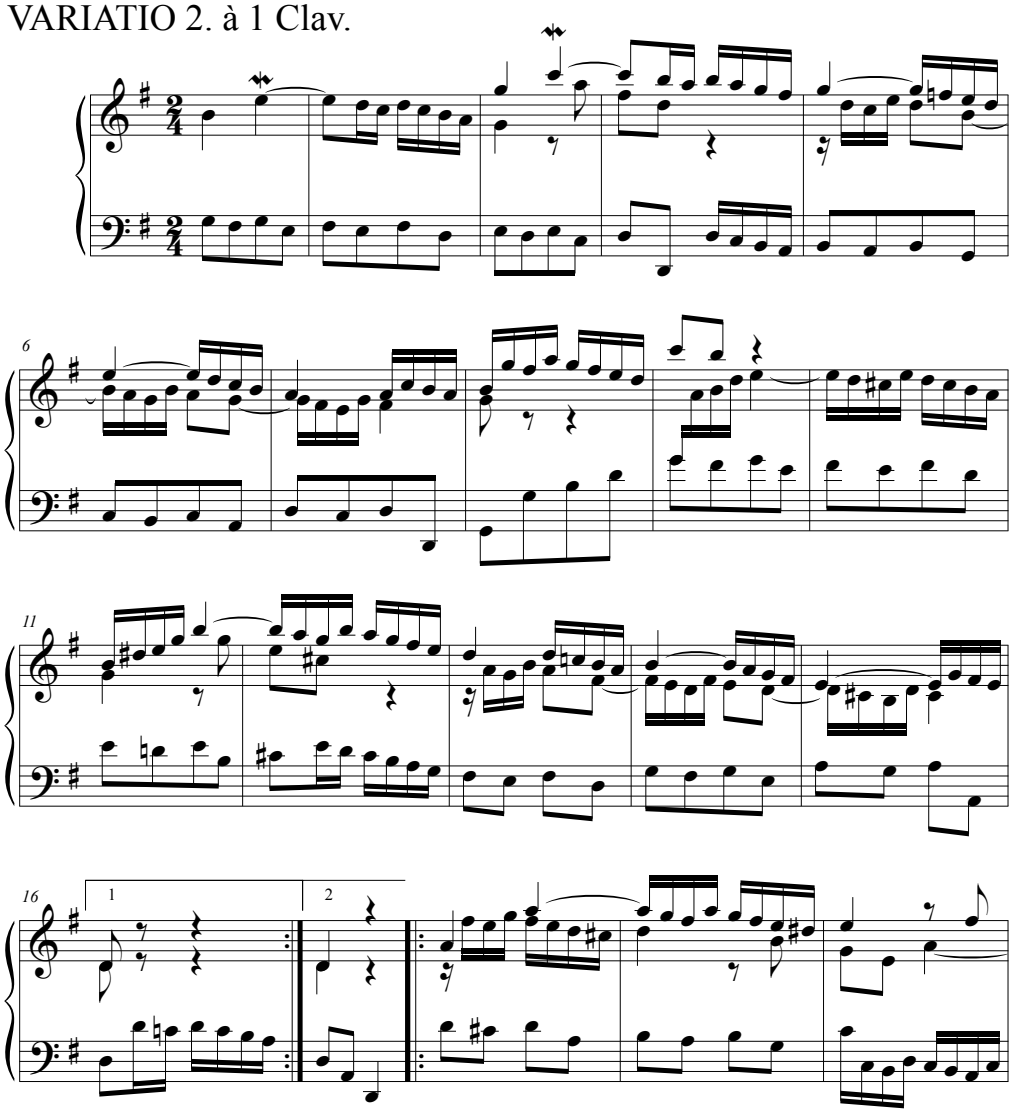

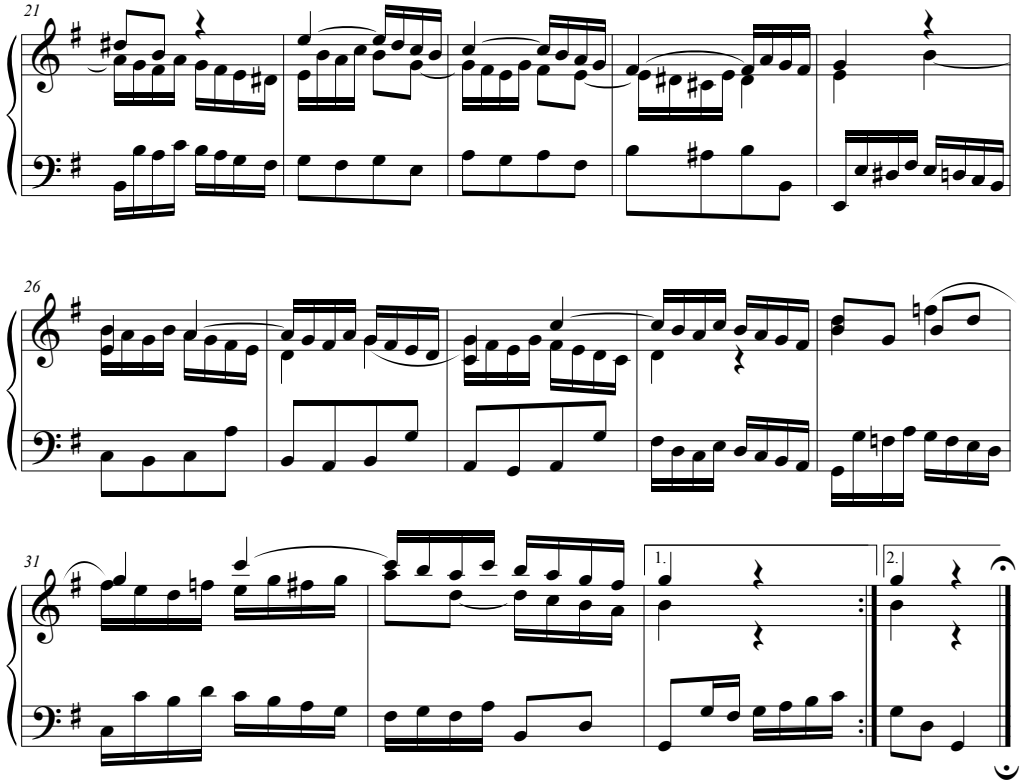
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1.
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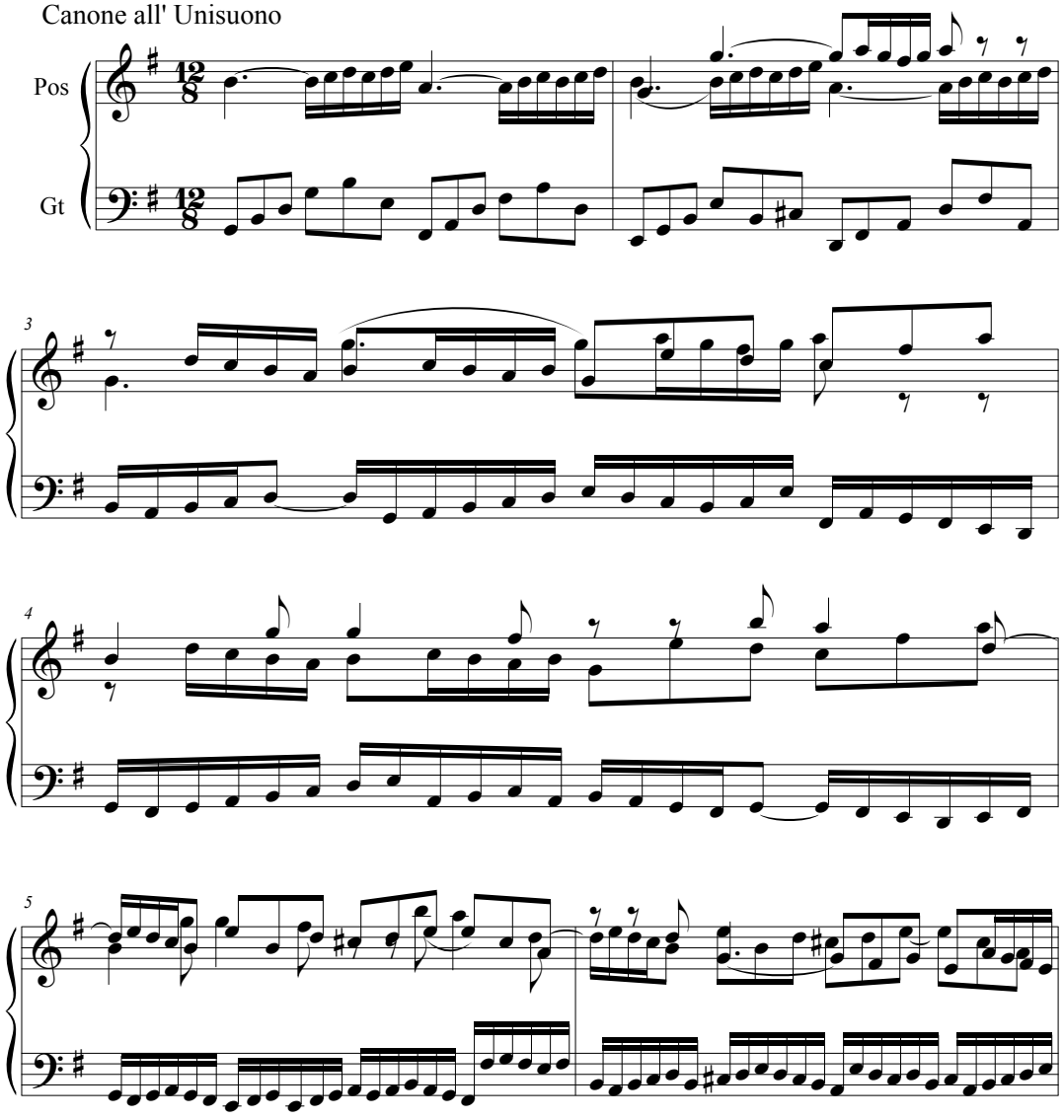
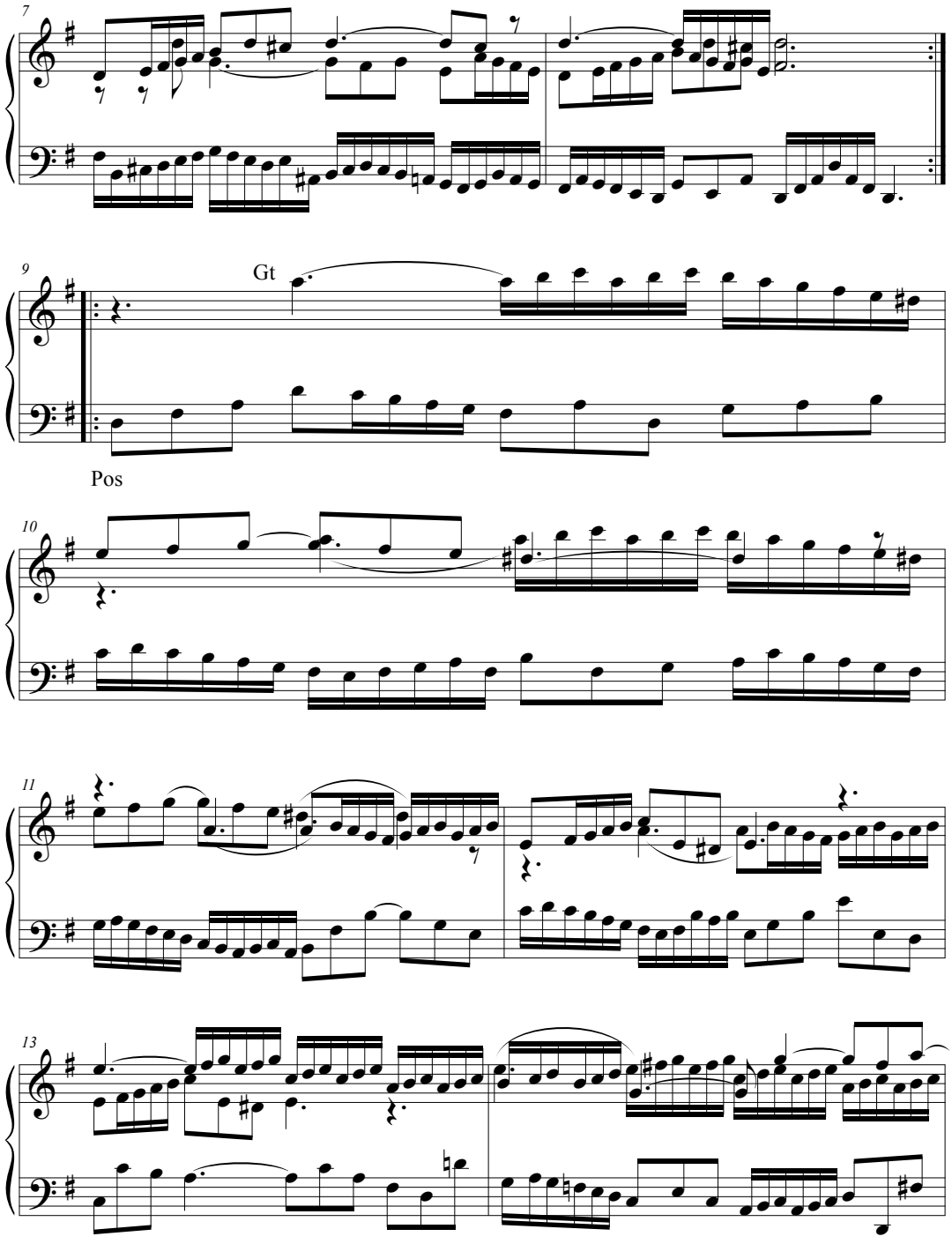
Pos - Gedackt 8
Gt - Hohlflöte 8

VARIATIO 3. à 2 Clav.

Canone all' Unisuono

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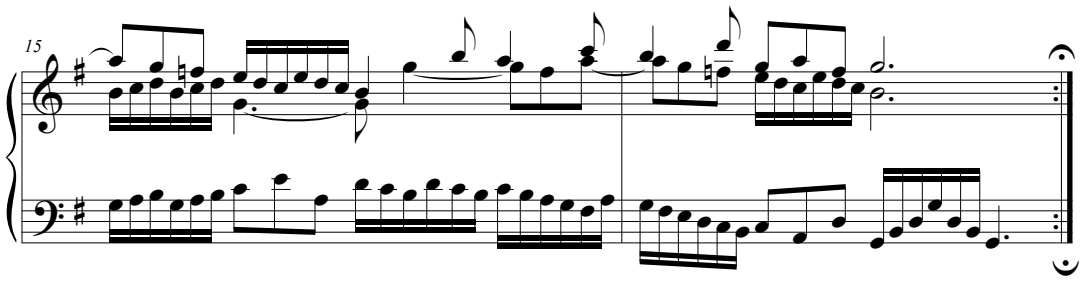
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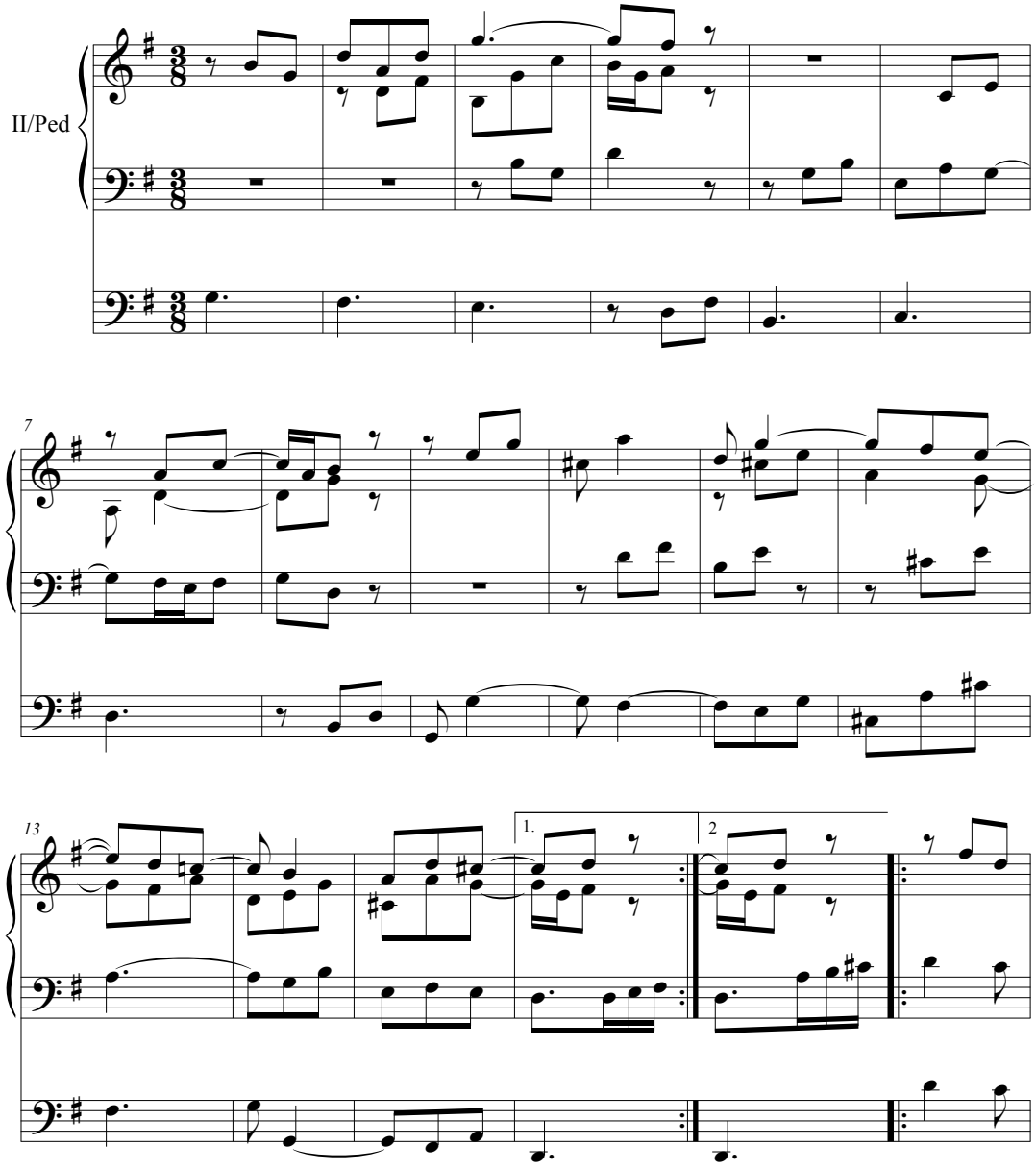
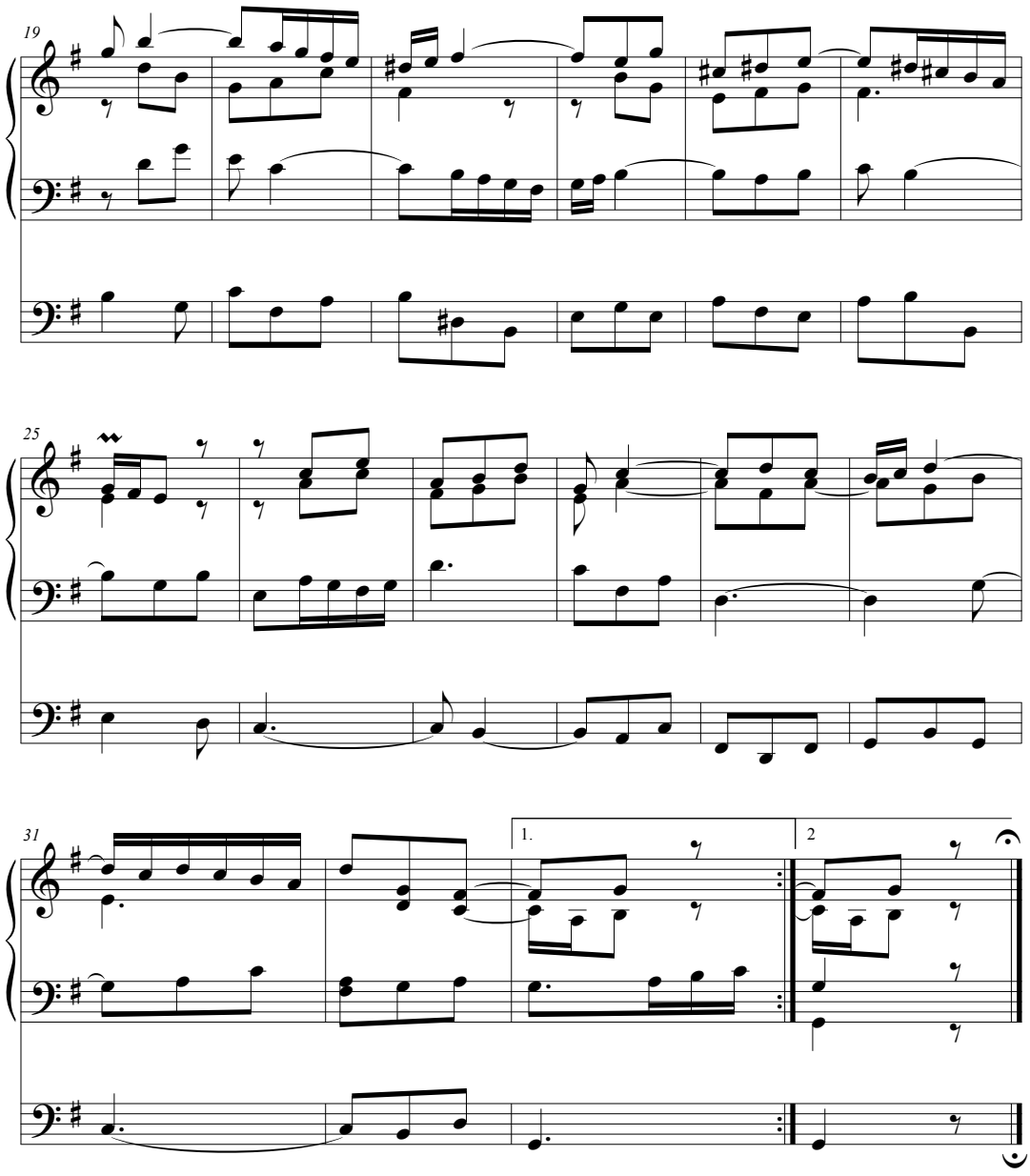
Gt - Spitzflöte 4, Nasat, Viola da Gamba 8
Pos - Trichterregal 8, Dulcian 16
Ped - Octav 8

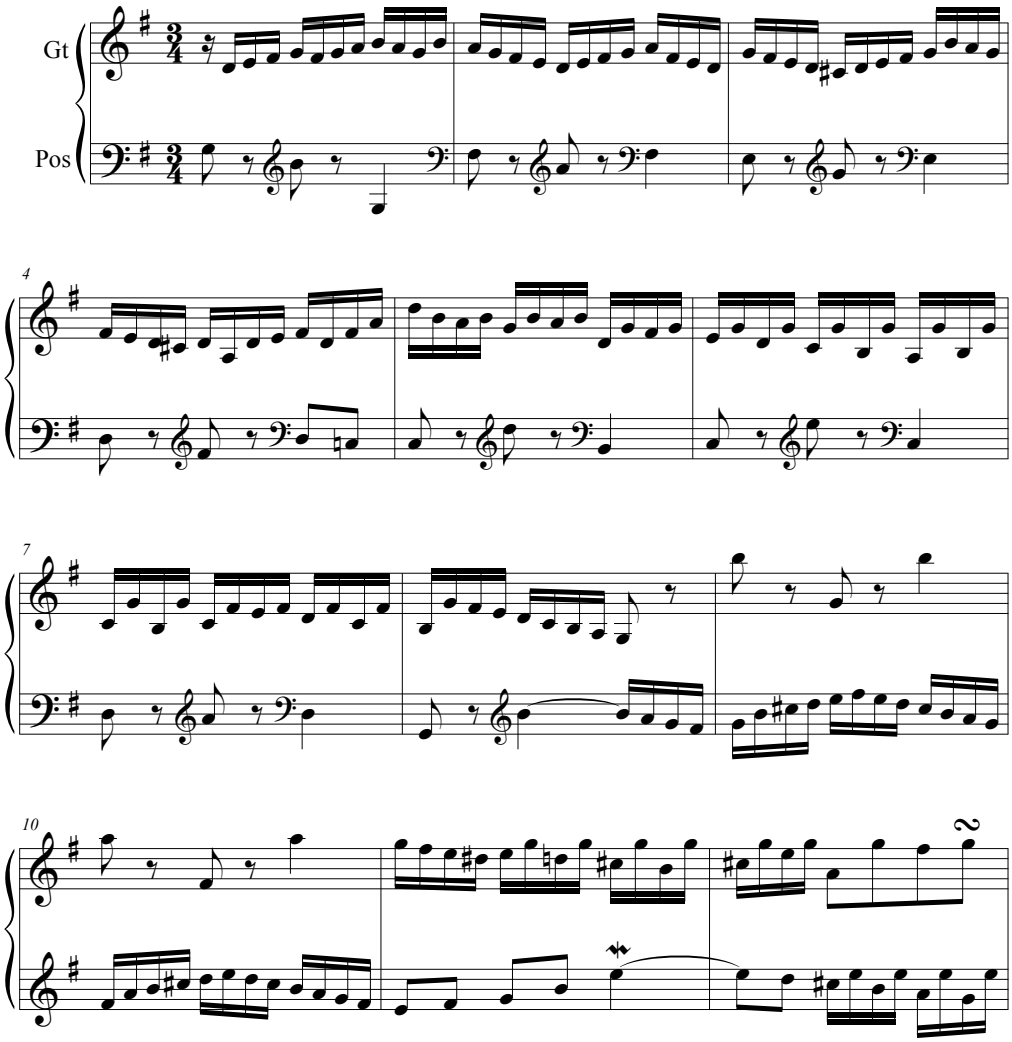
VARIATIO 4. à 1 Clav.

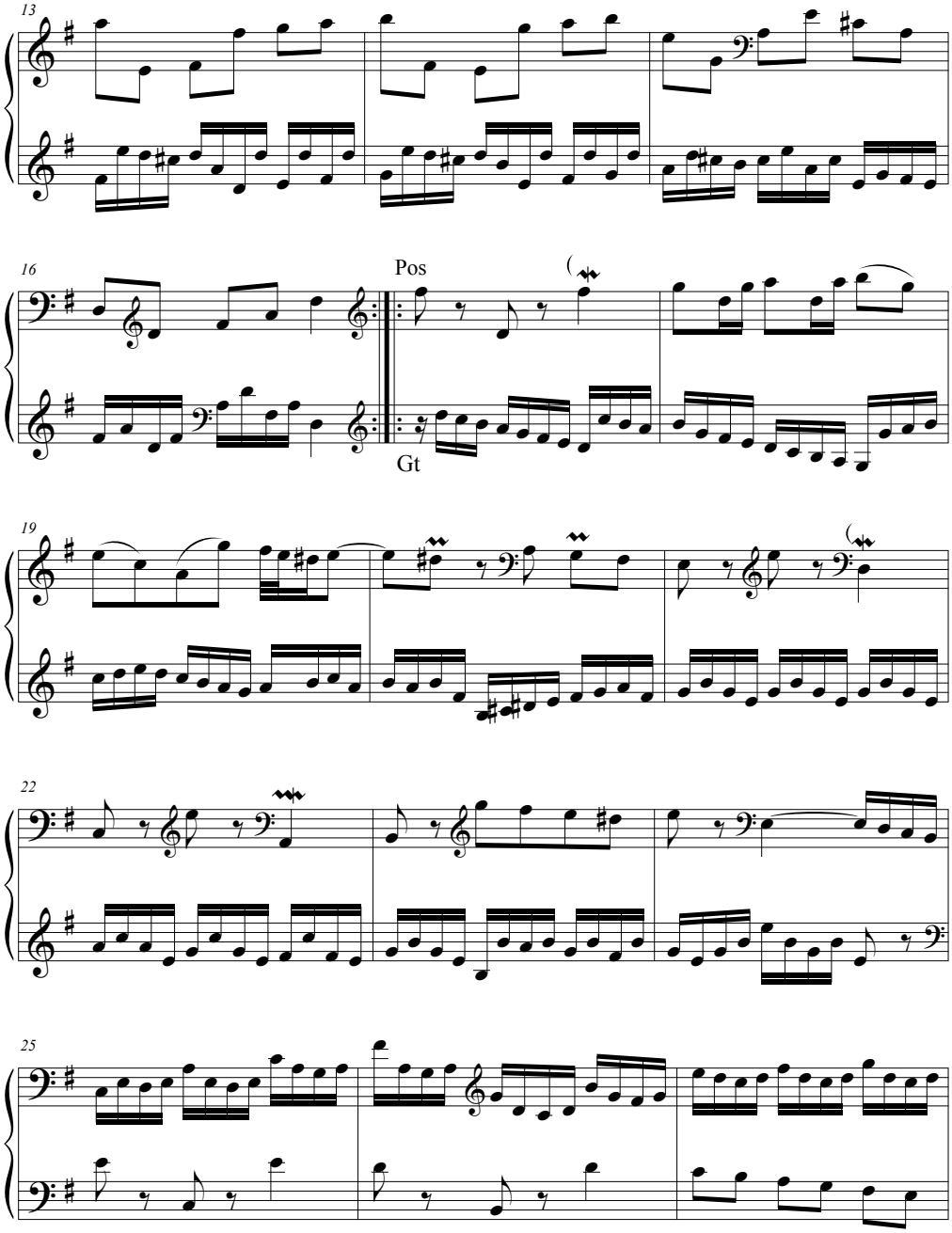


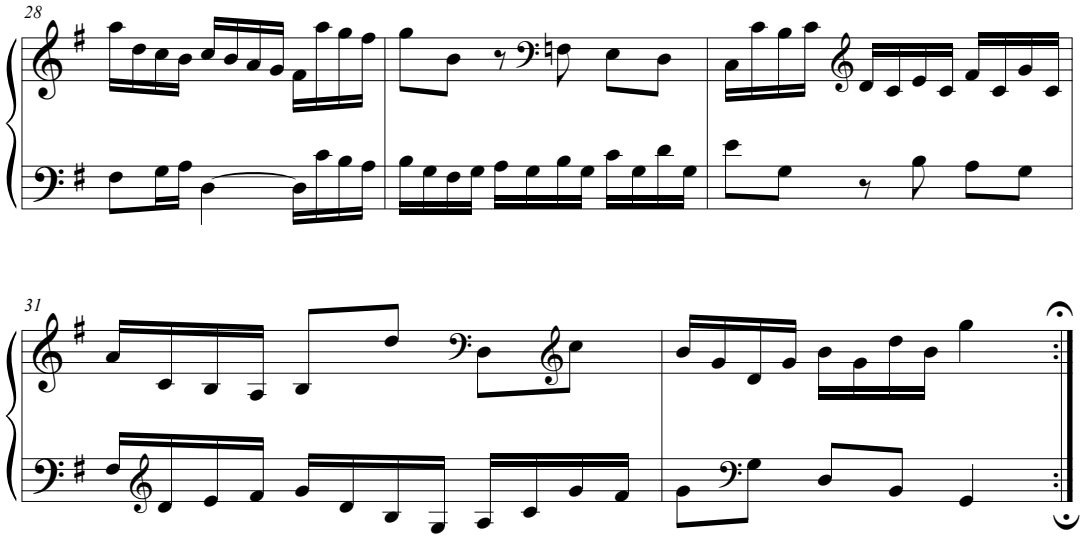

19
25
31
1.
2

Pos - Gedackt 8, Gemshorn 2
Gt - Hohlflöte 8, Spitzflöte 4

VARIATIO 5. à 2 Clav.



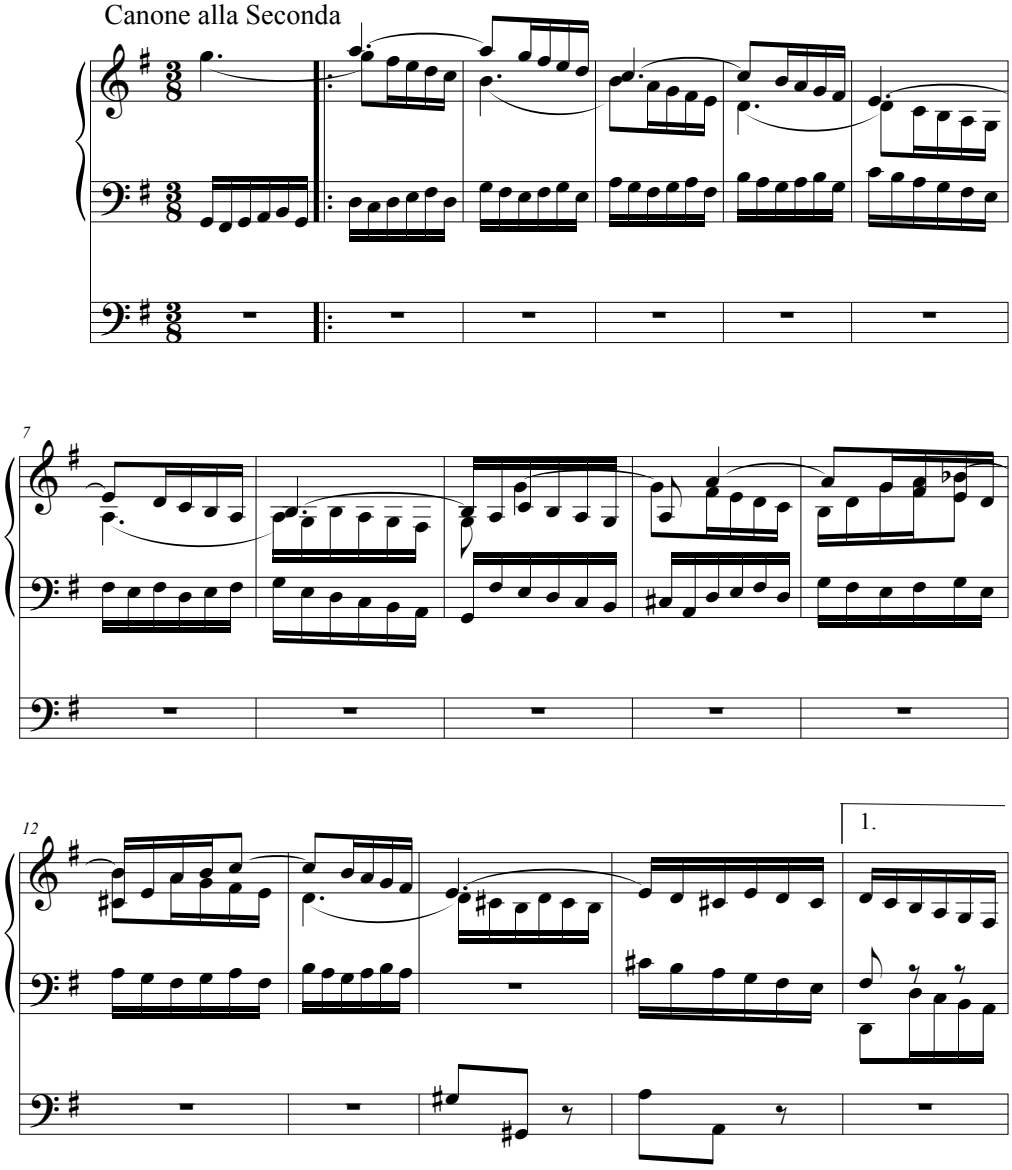

13
16
Pos
Gt
19
22
25

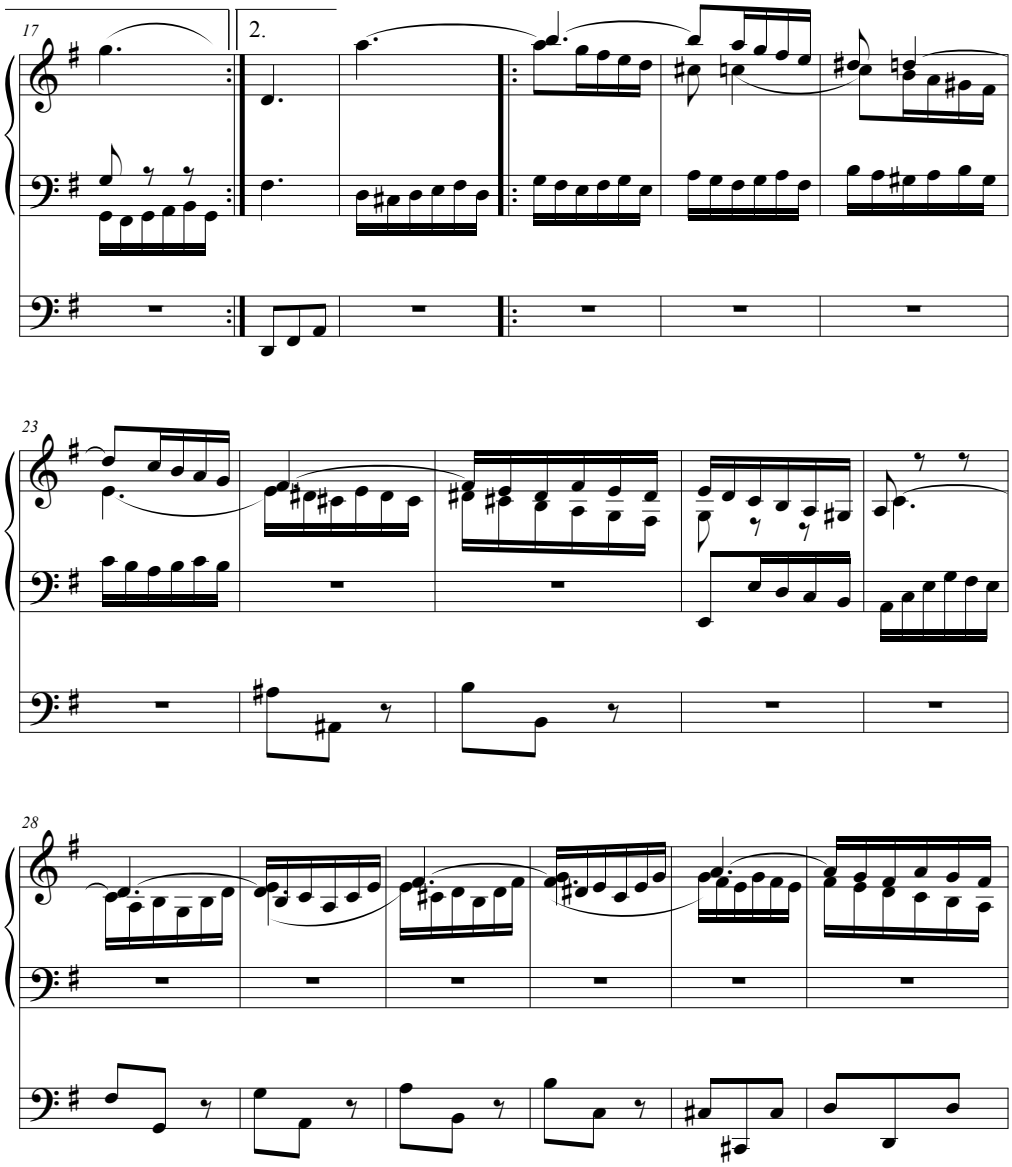

28
31

Gt - Principal 16, Octav 8, 4
Ped - Principal 16, Octav 8, 4

VARIATIO 6. à 1 Clav.

Canone alla Seconda

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2.
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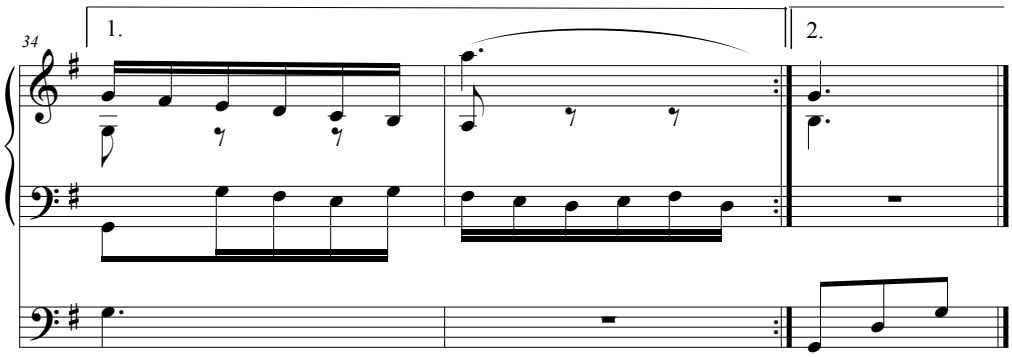
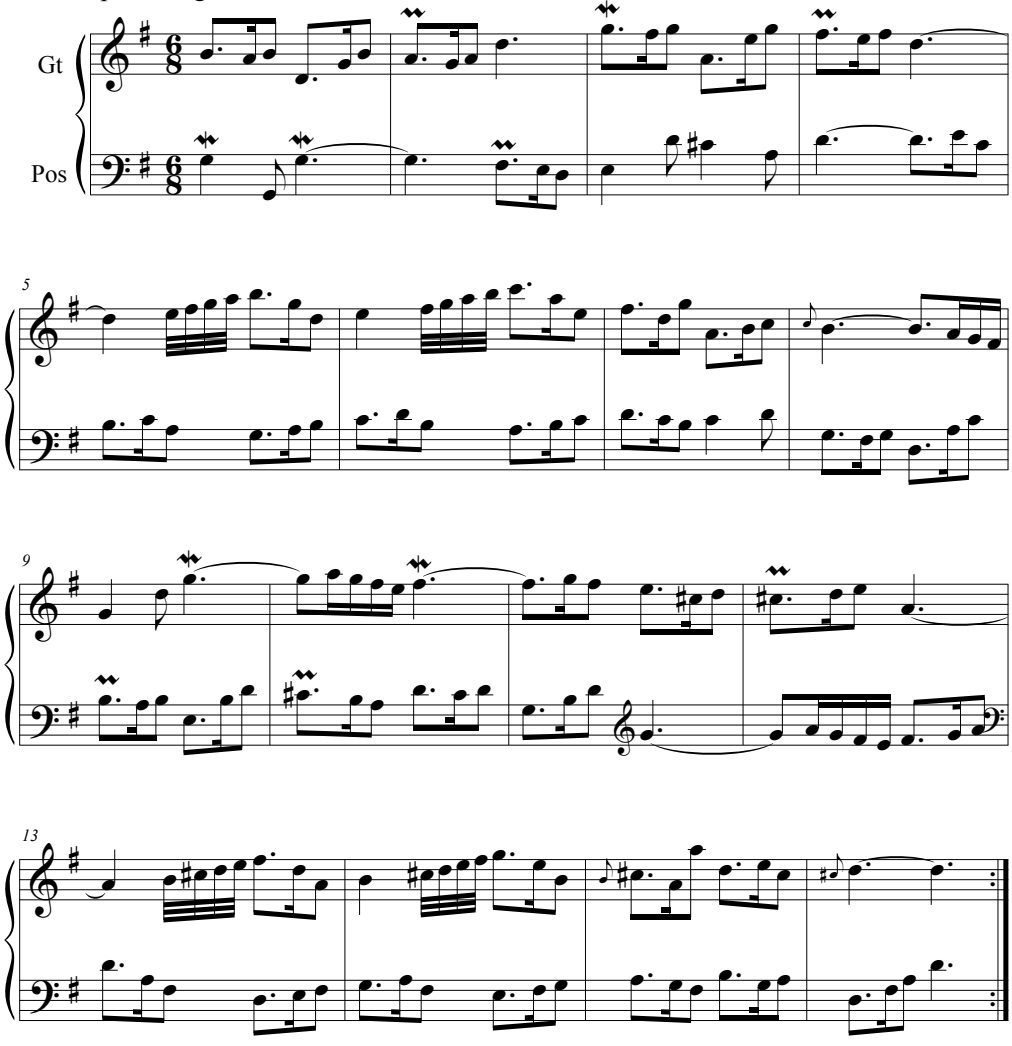
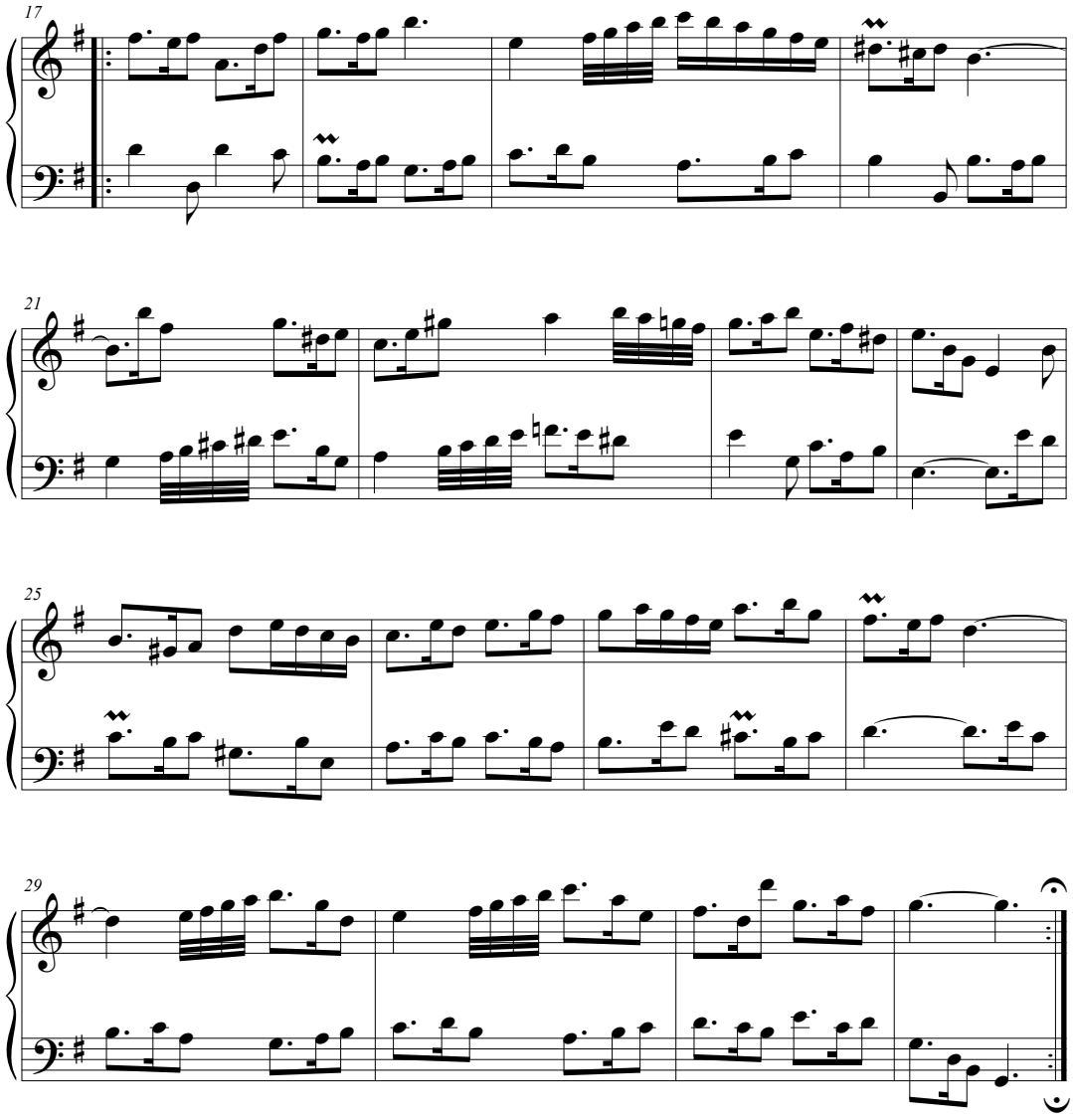

34
1.
2.

Pos - Gedackt 8, Blockflöte 4
Gt - Viola da Gamba 8

VARIATIO 7. à 2 Clav.

al tempo di Giga




17
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25
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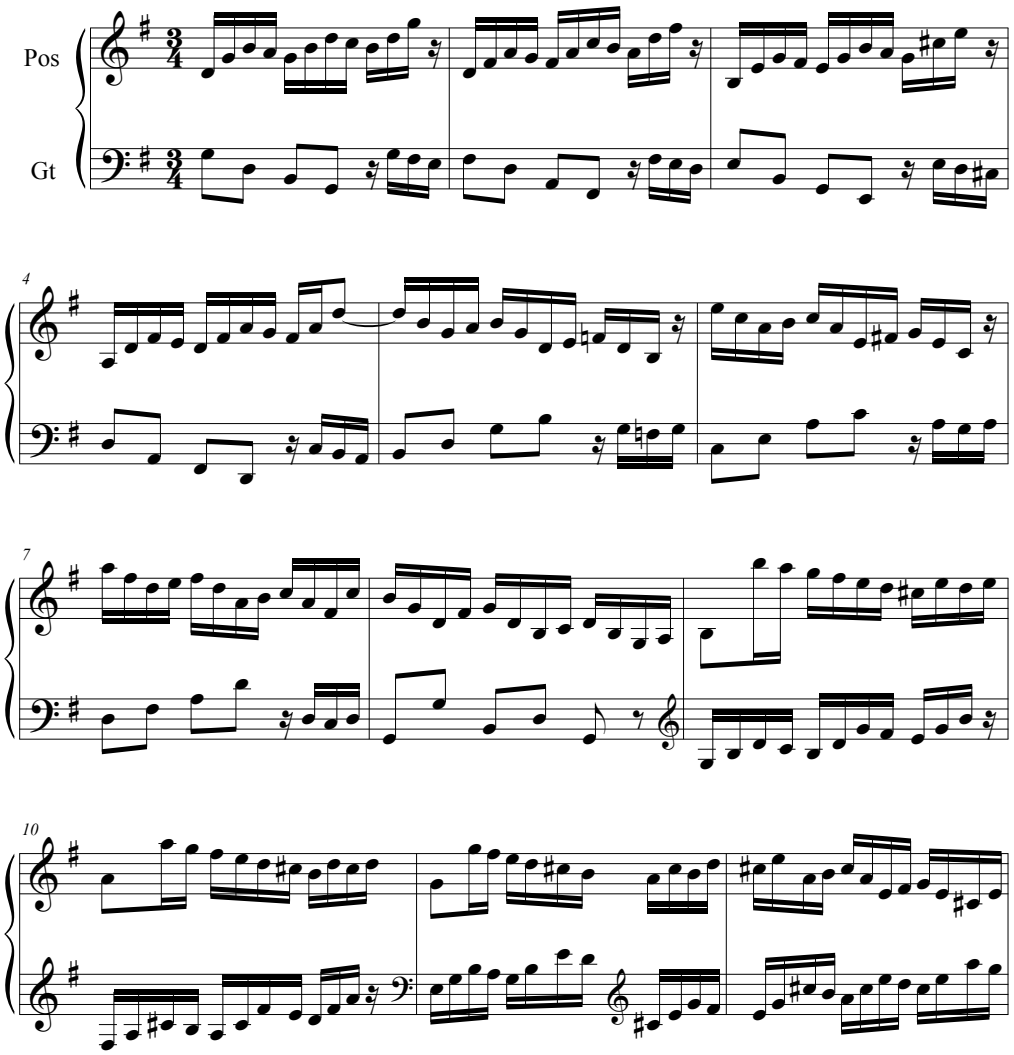
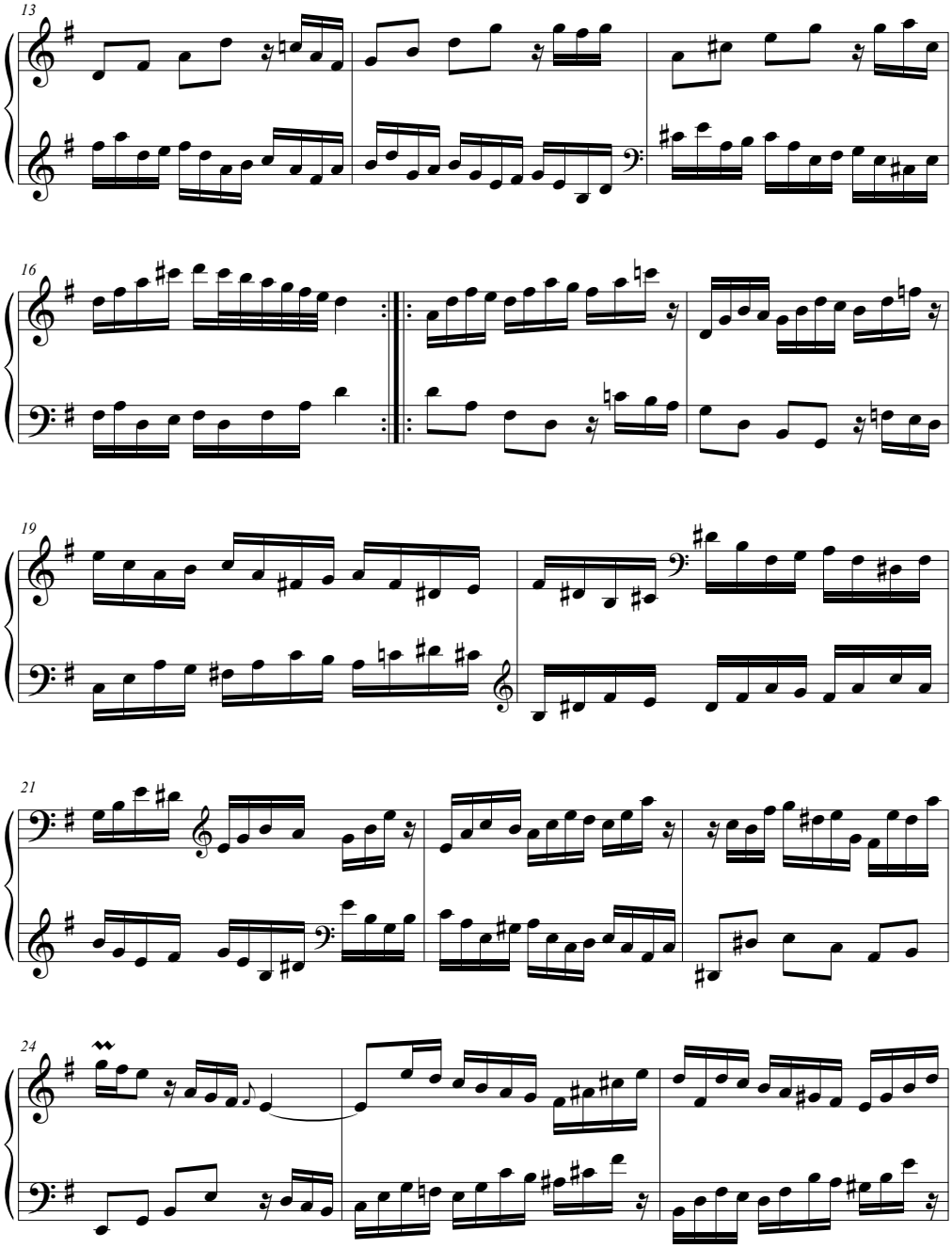
Pos - Gedackt 8, Principal 4, Sesquialtera, Gemshorn 2, Trichterregal 8
Gt - Trompet 8

VARIATIO 8. à 2 Clav.

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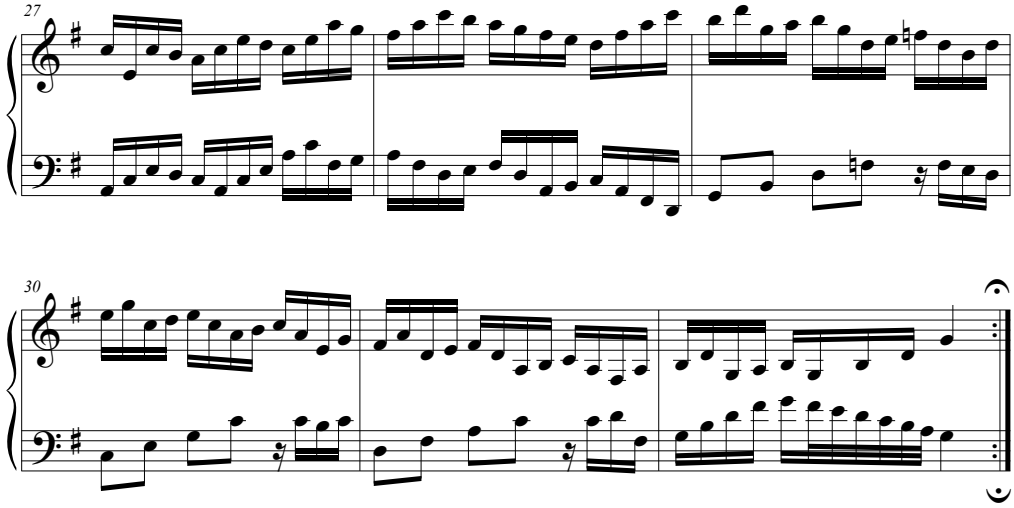
27
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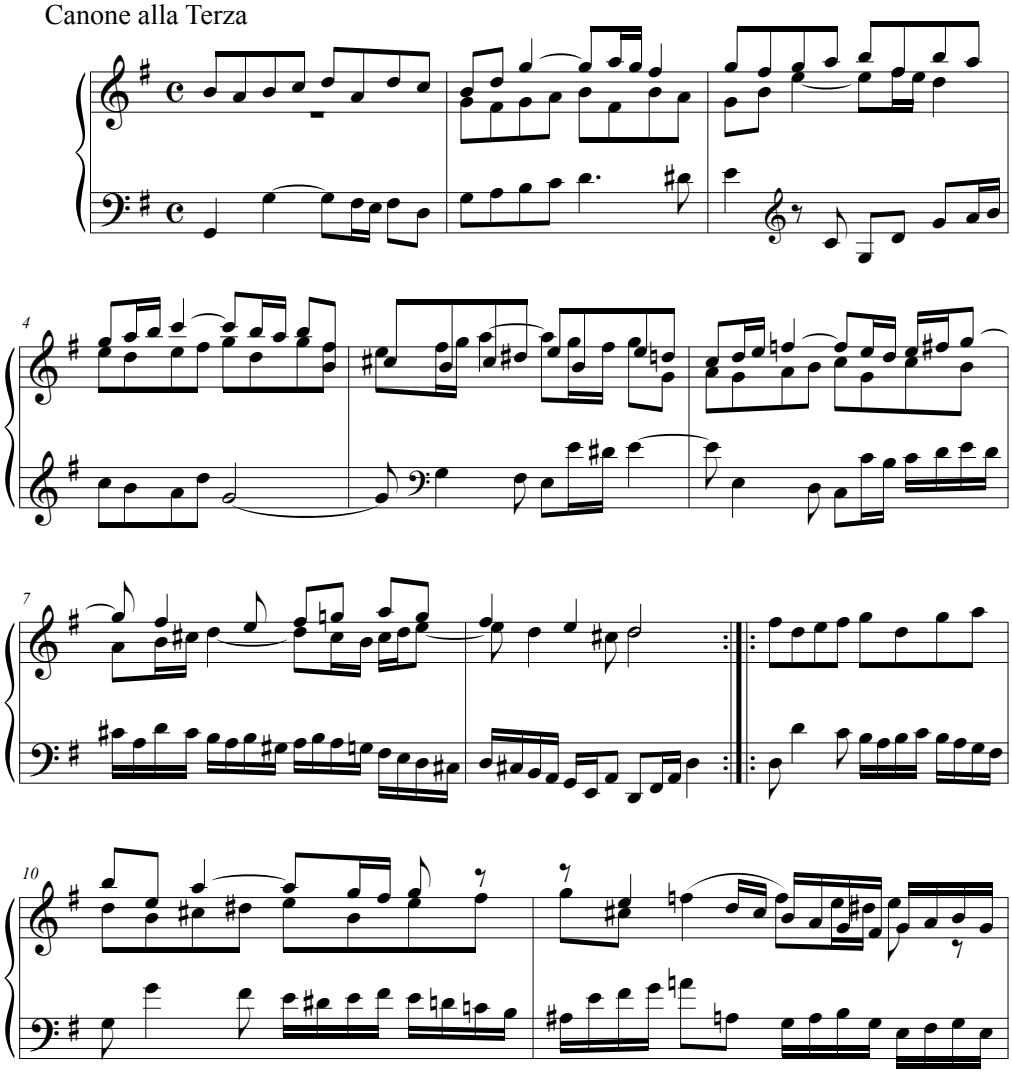
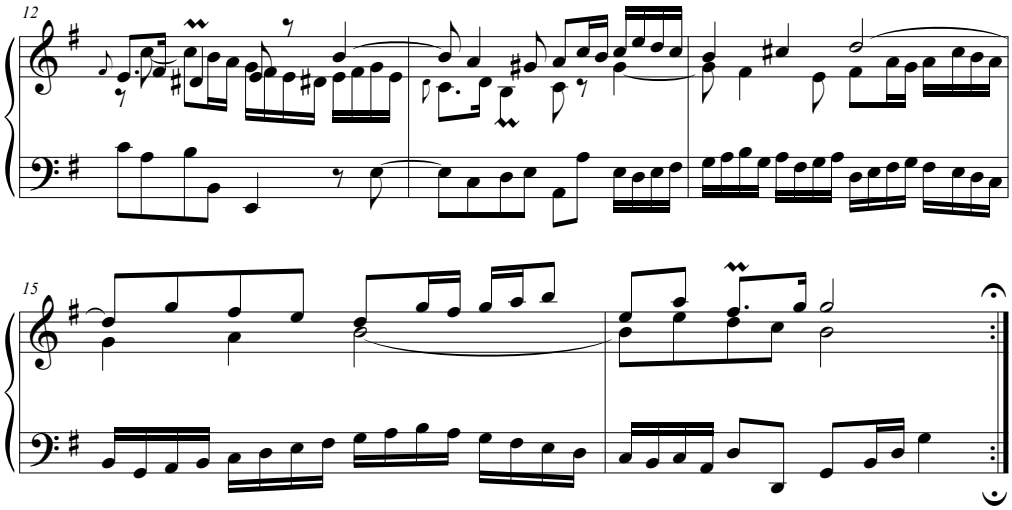
Gt - Octav 8, tremulant

VARIATIO 9. à 1 Clav.

Canone alla Terza

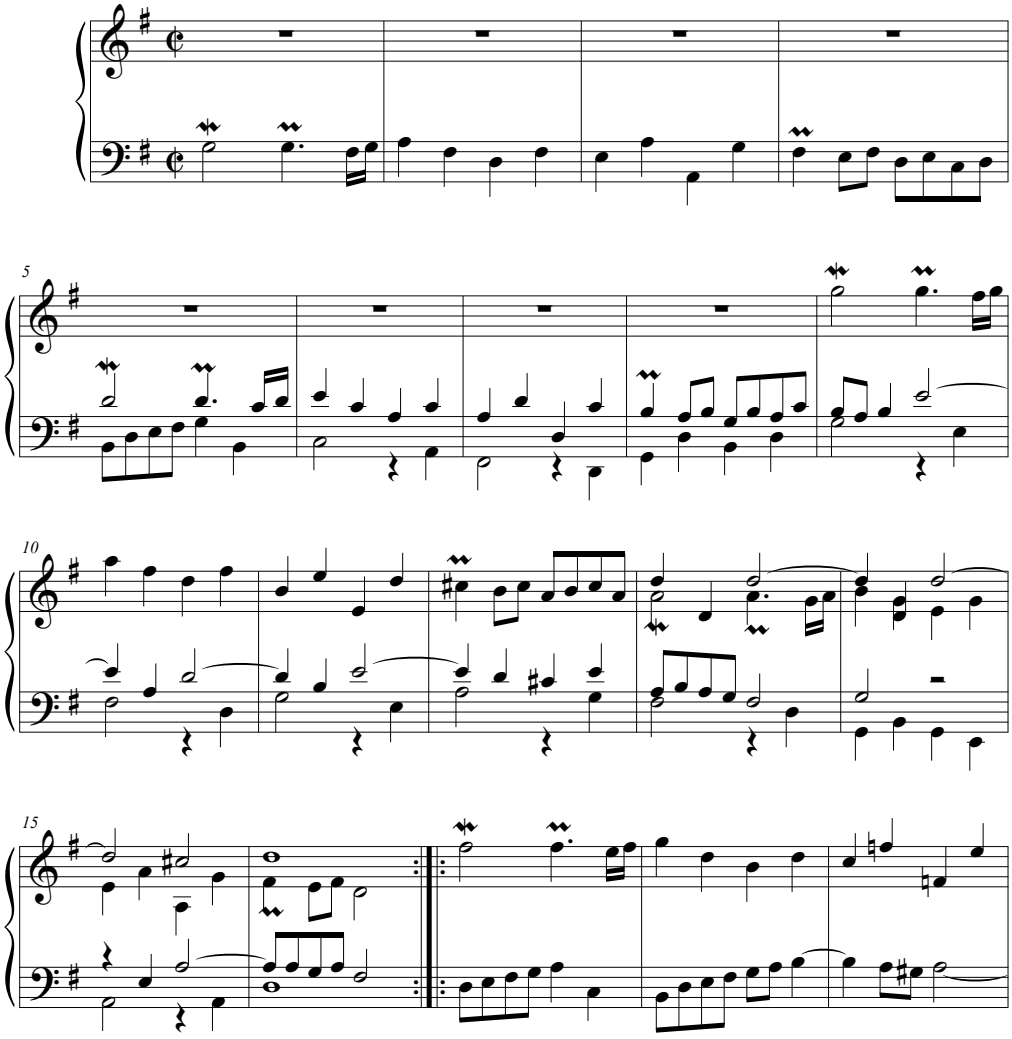


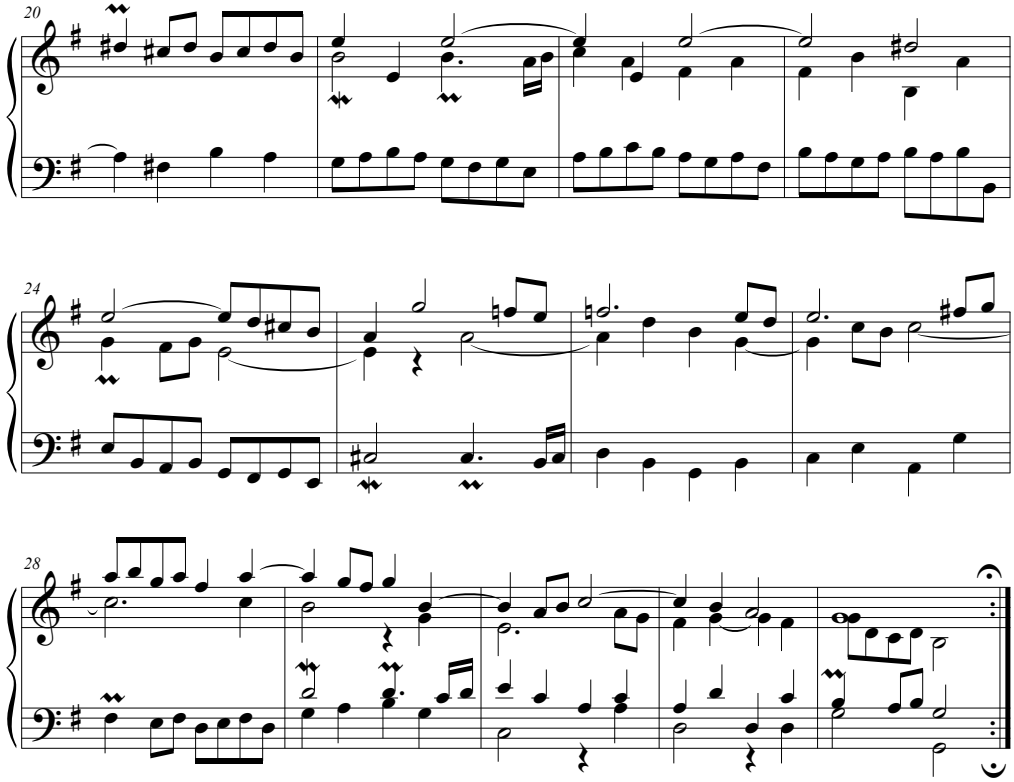

12
15

Pos - Gedackt 8, Principal 4, Trichterregal 8

VARIATIO 10. à 1 Clav.

Fughetta

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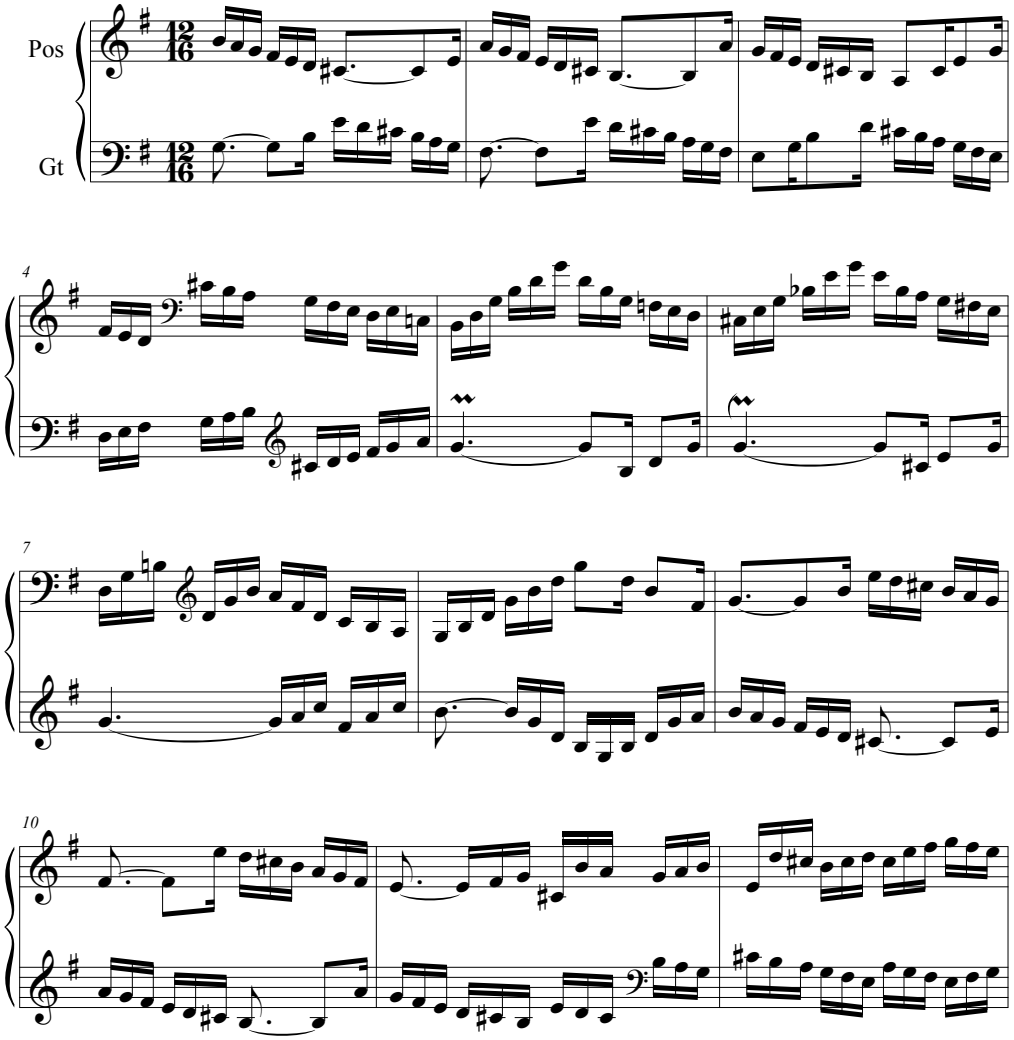
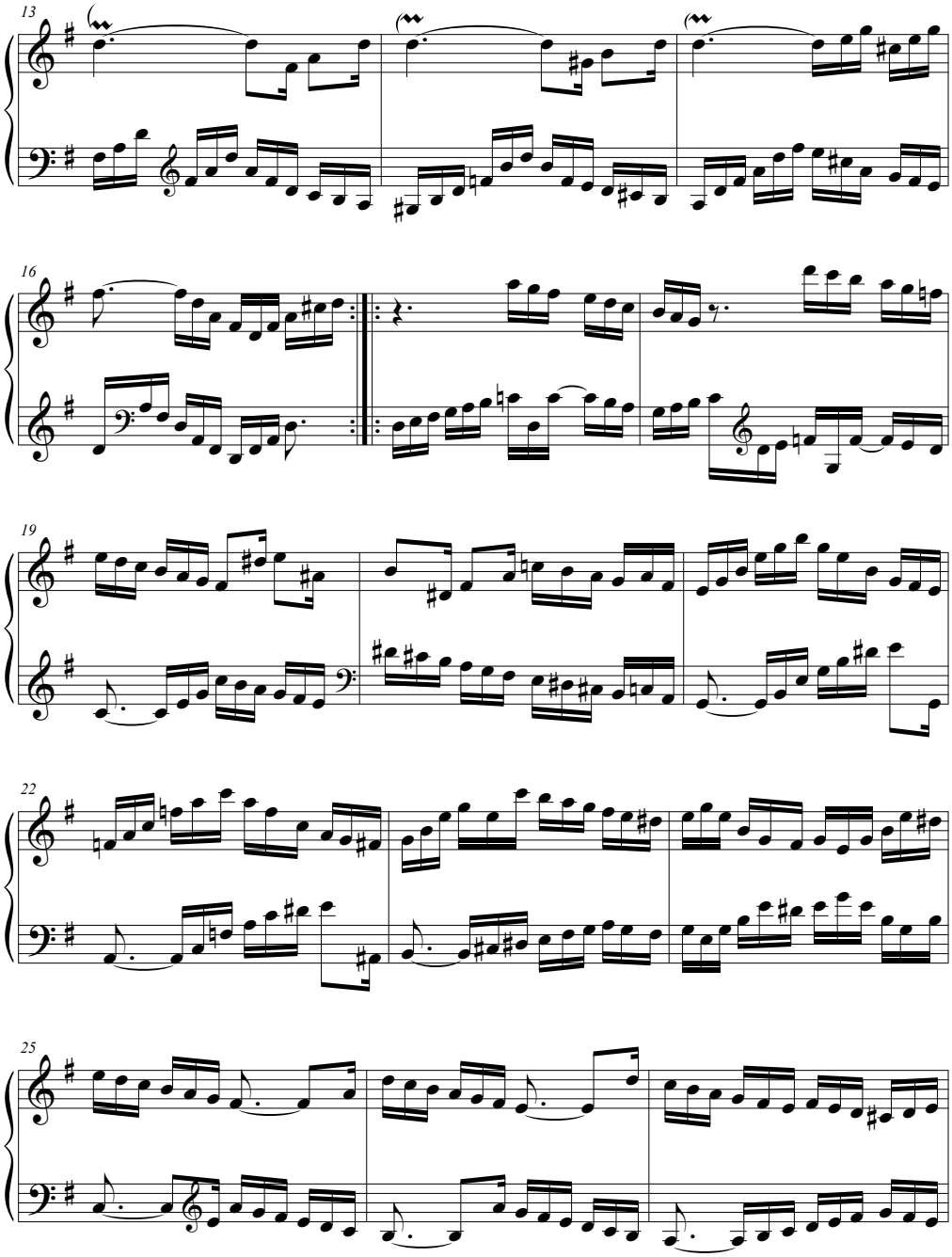
24
28

Pos - Gedackt 8, Principal 4, Quint, Blockflöte 4
Gt - Principal 16, Octav 4

VARIATIO 11. à 2 Clav.

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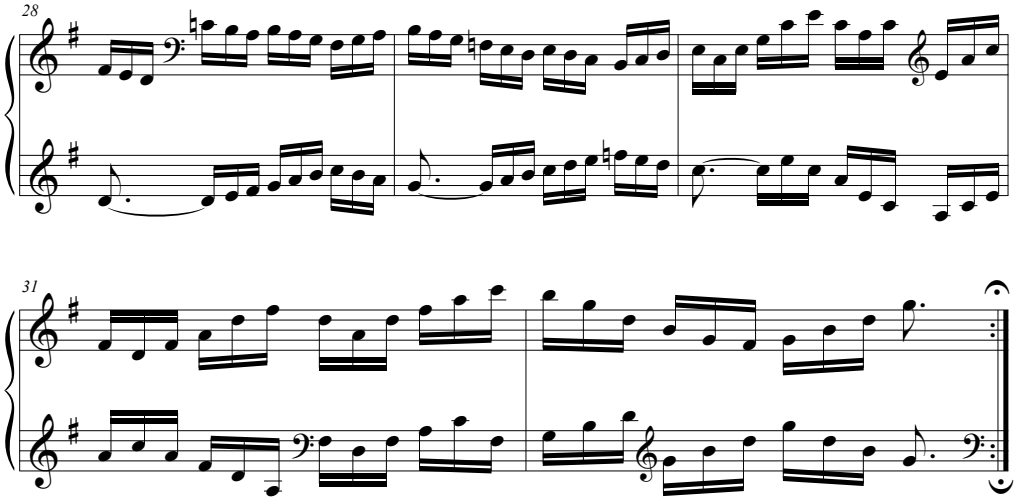
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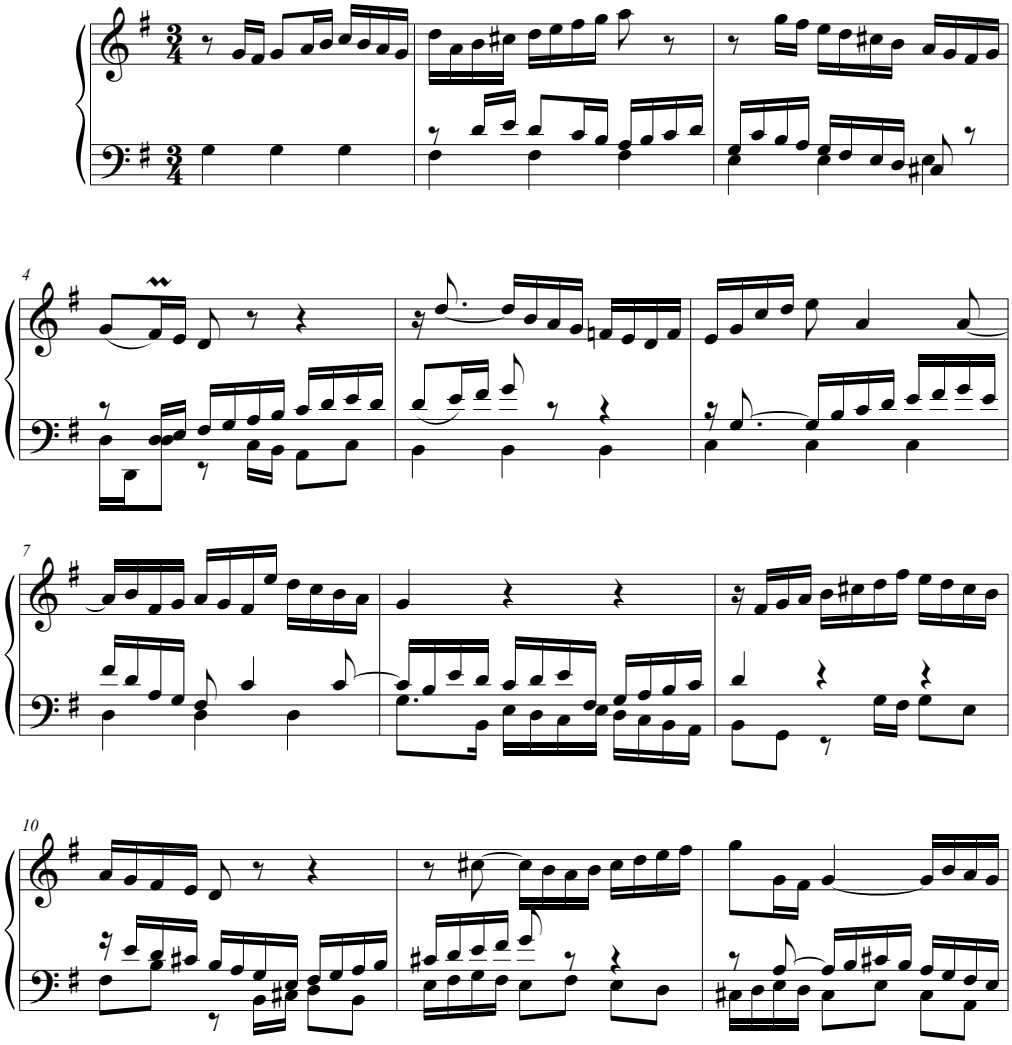
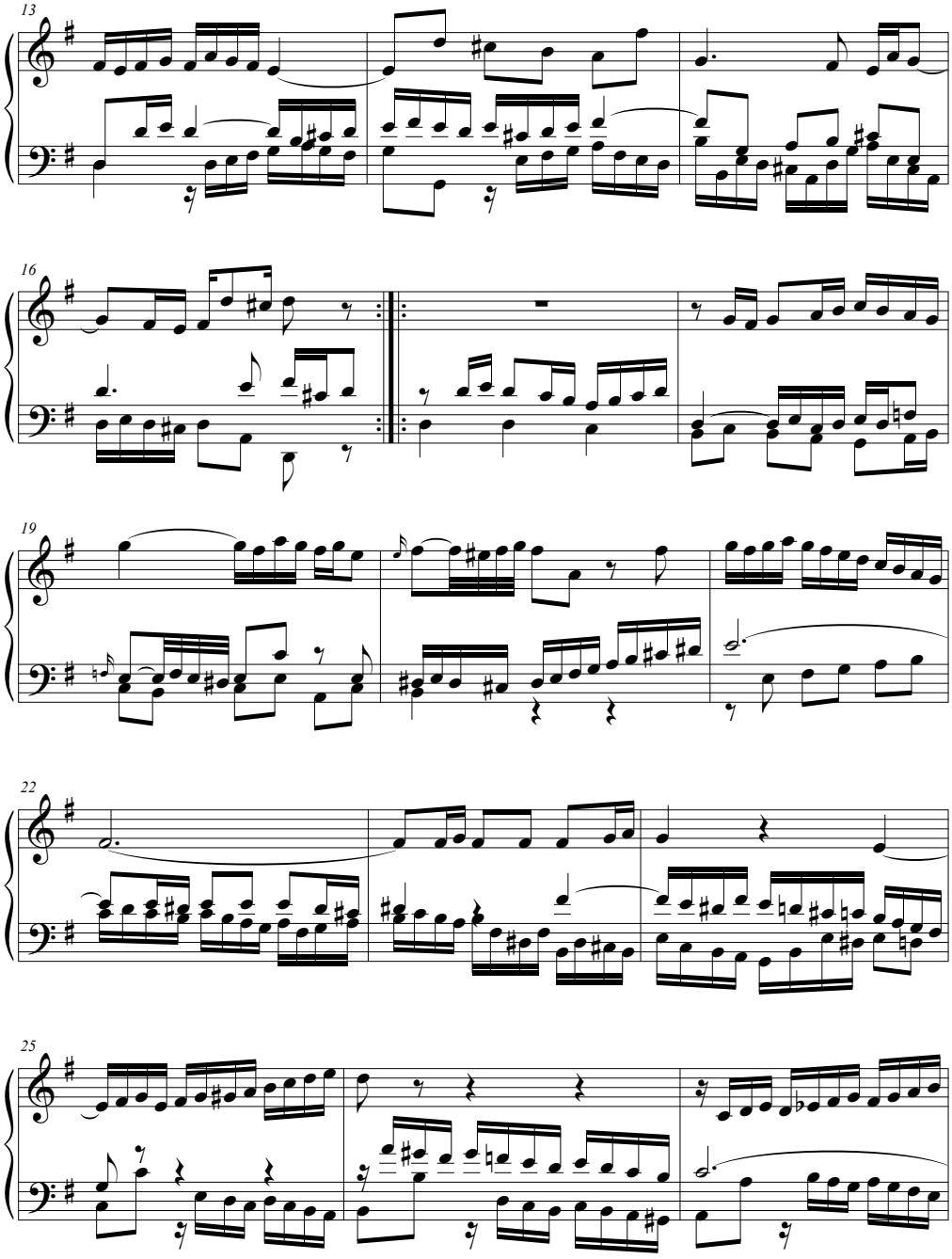
VARIATIO 12. à 2 Clav.

Canone alla Quarta

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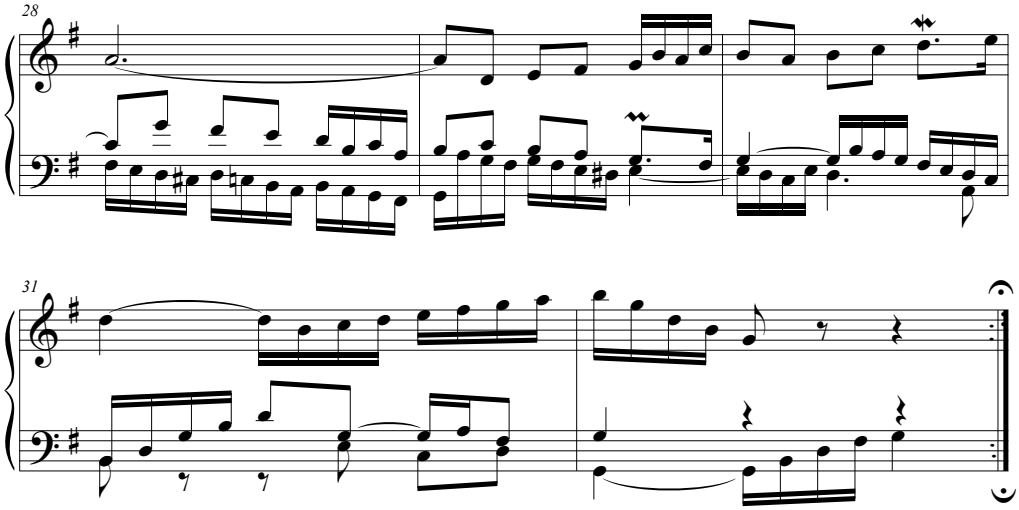
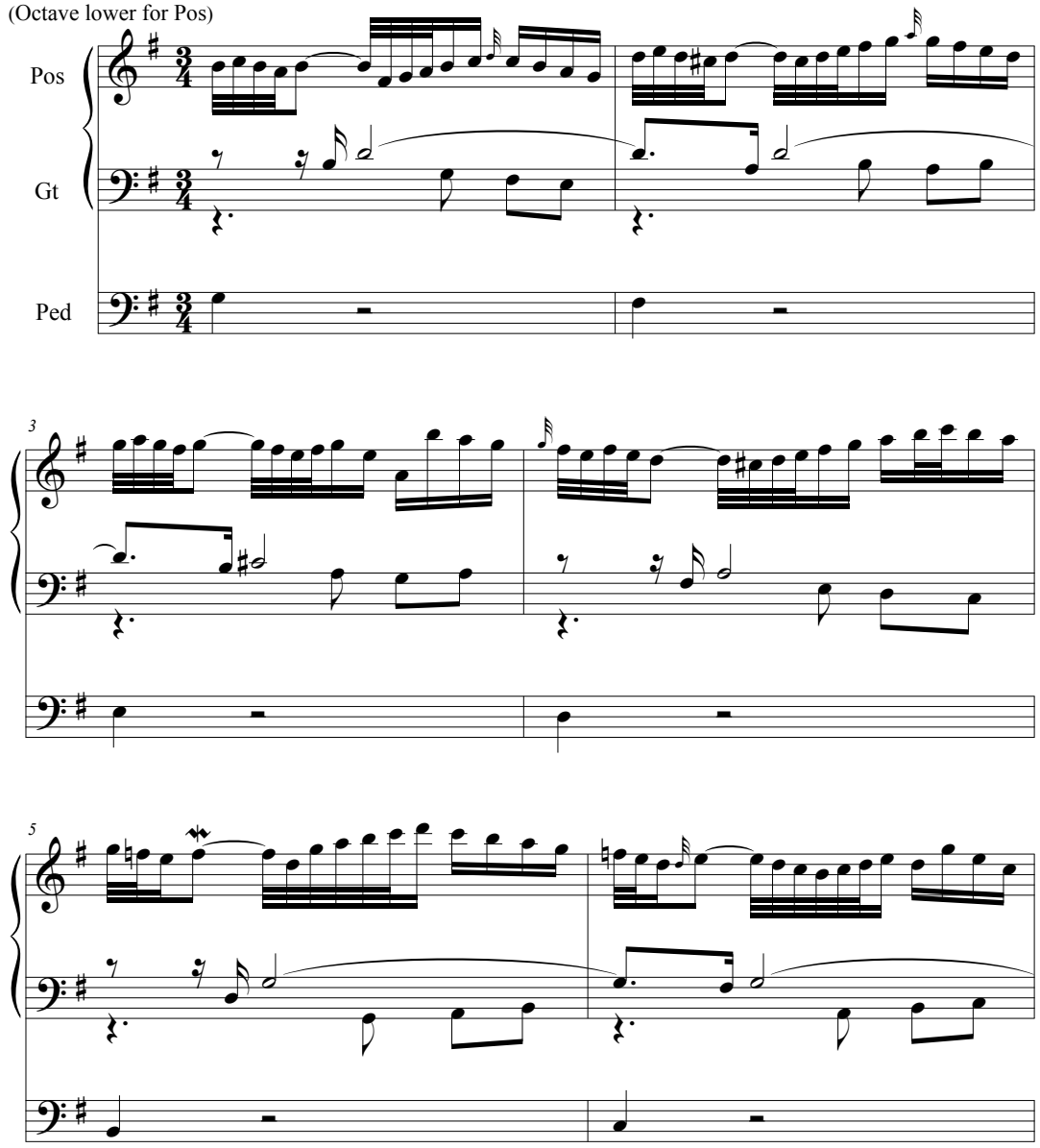
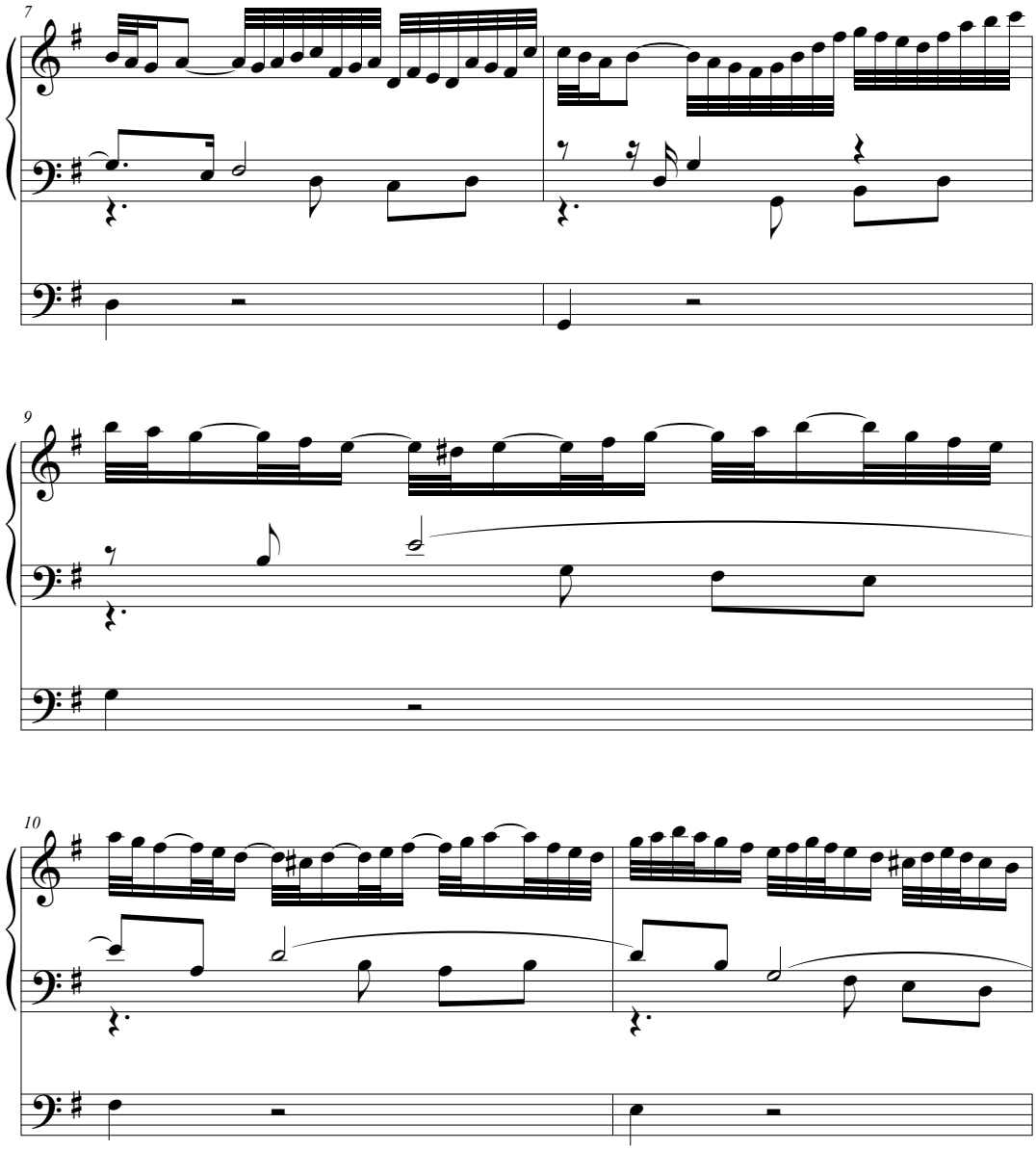

28
31

Pos - Blockflöte 4
Gt - Hohlflöte 8, Tremulant
Ped - Principal 16

VARIATIO 13. à 2 Clav.

(Octave lower for Pos)

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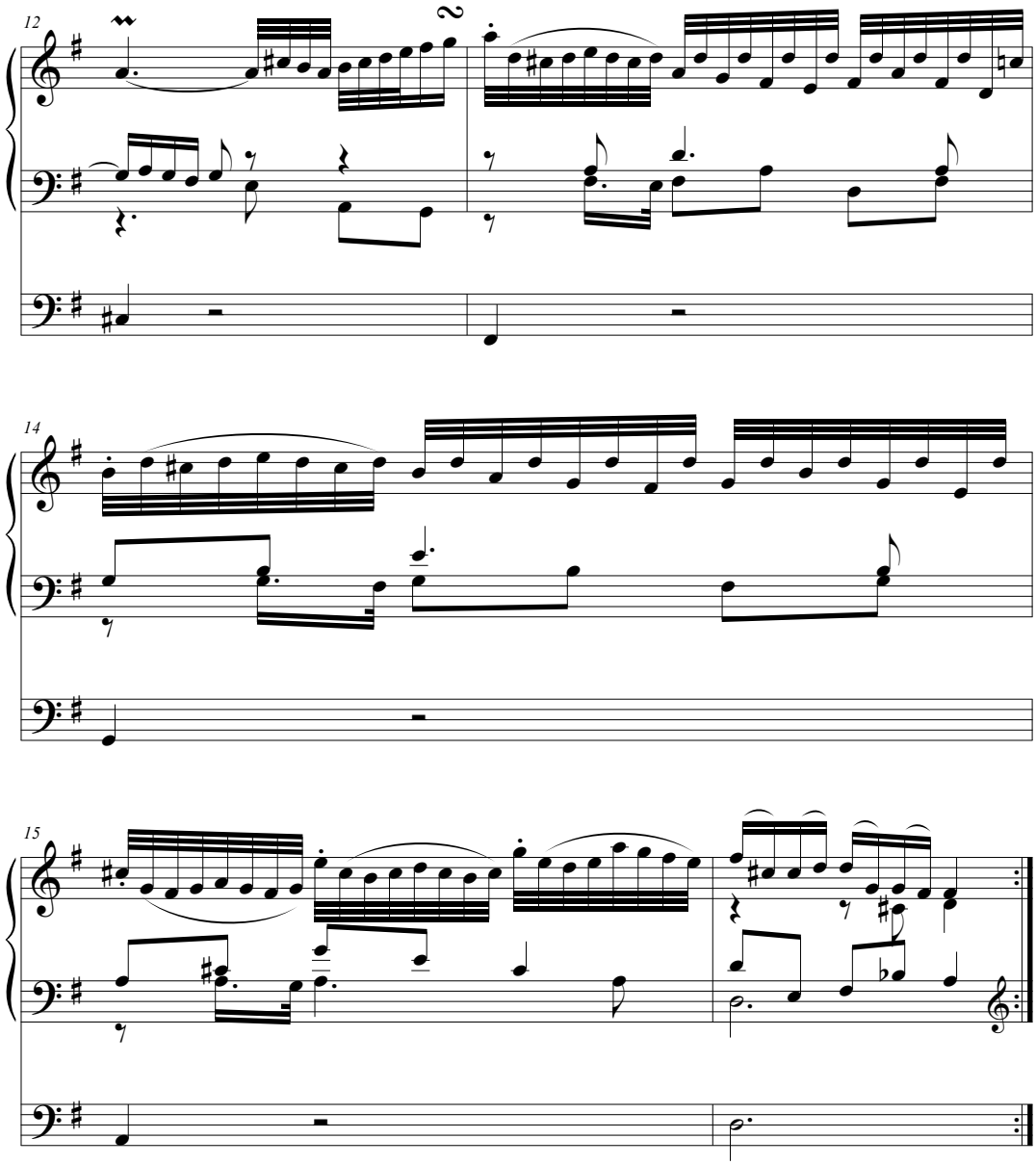
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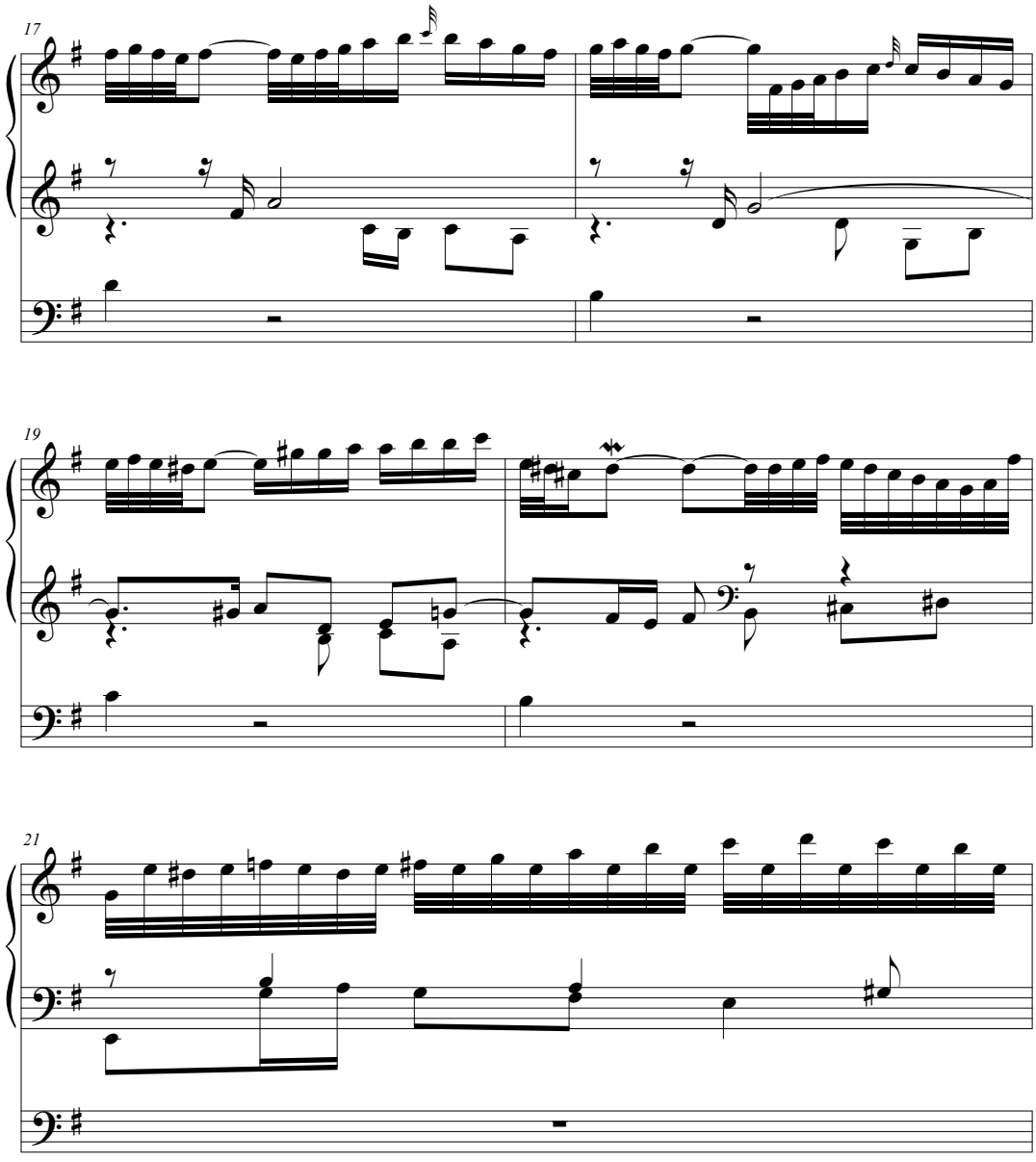
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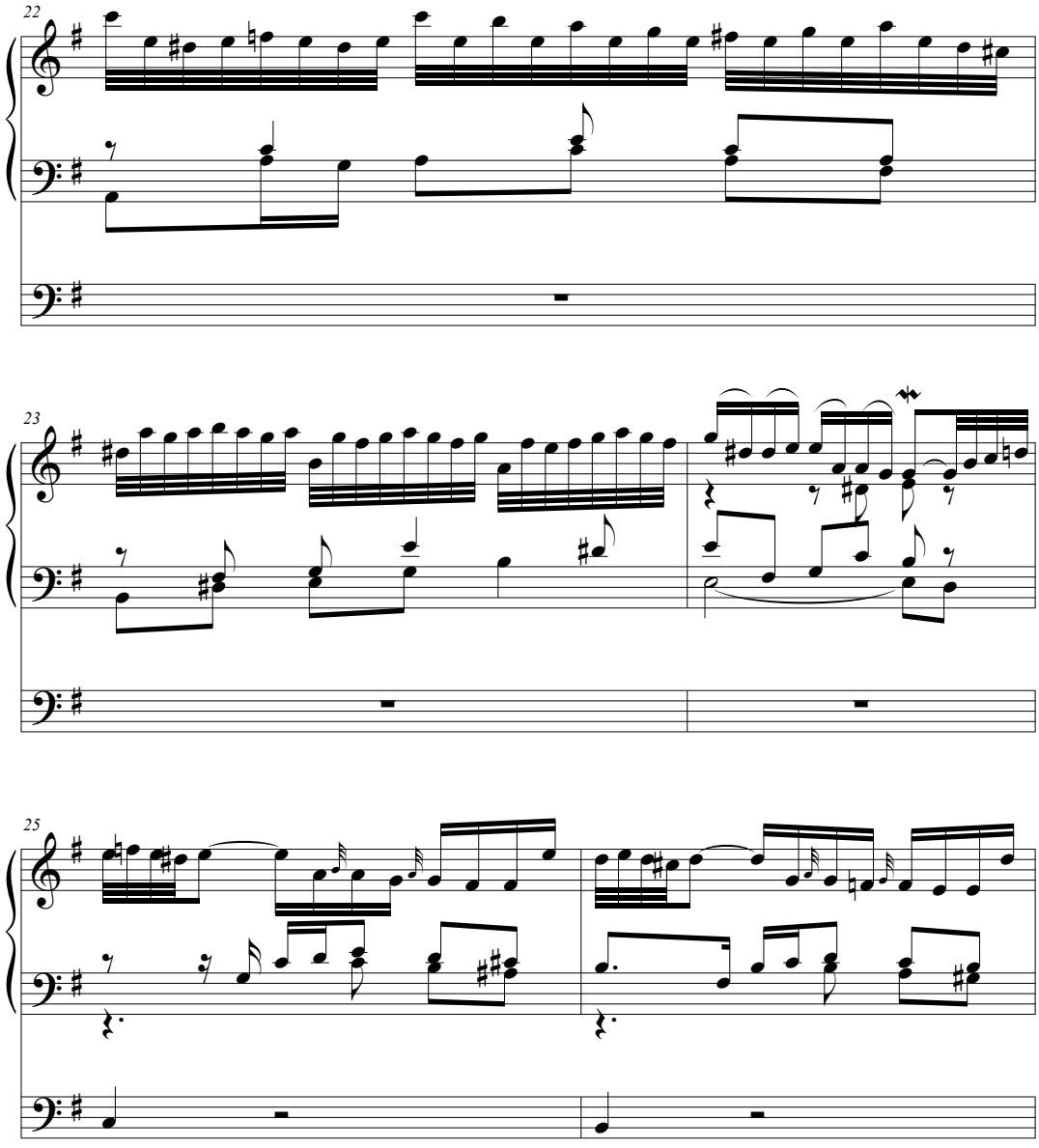
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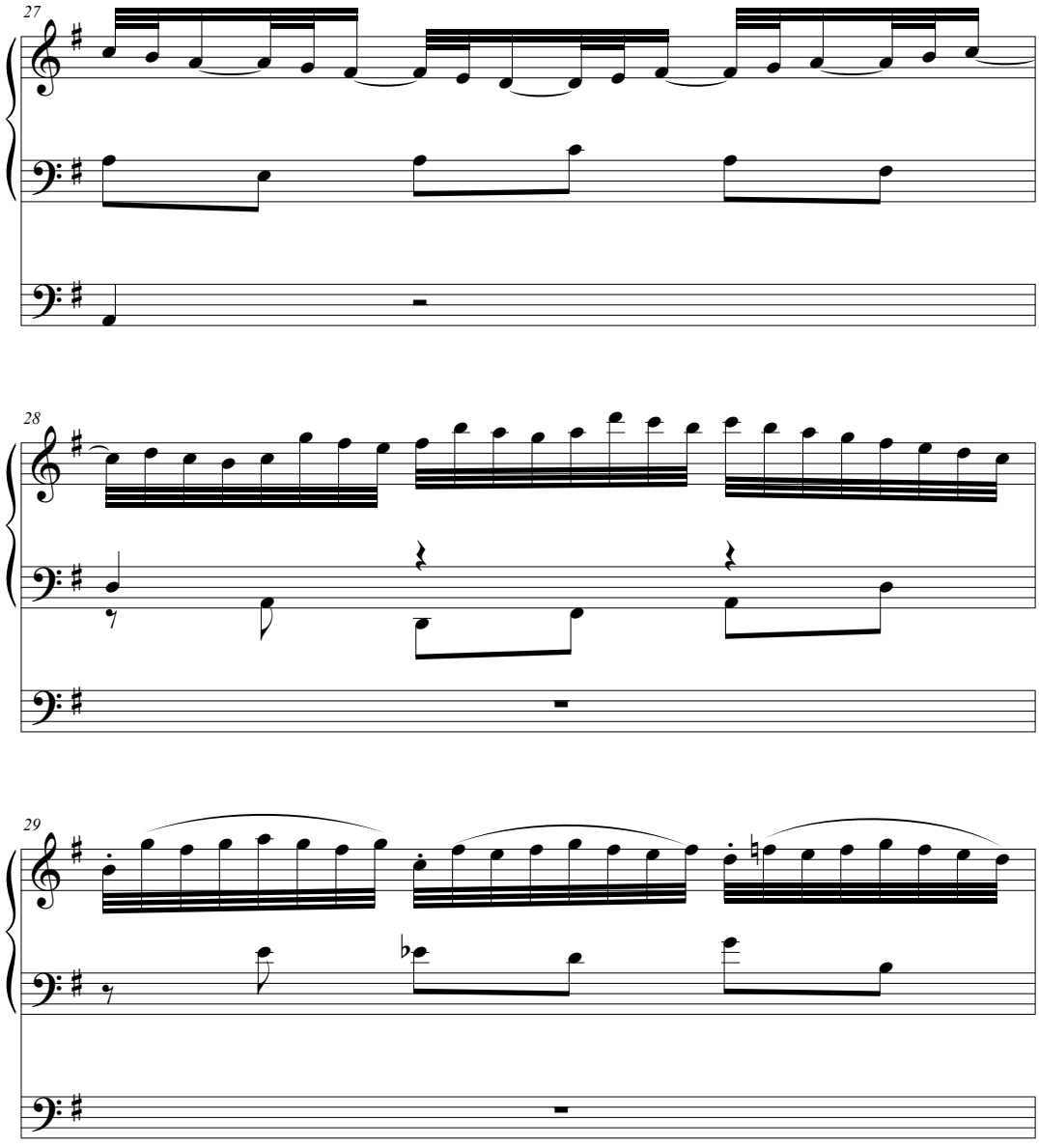
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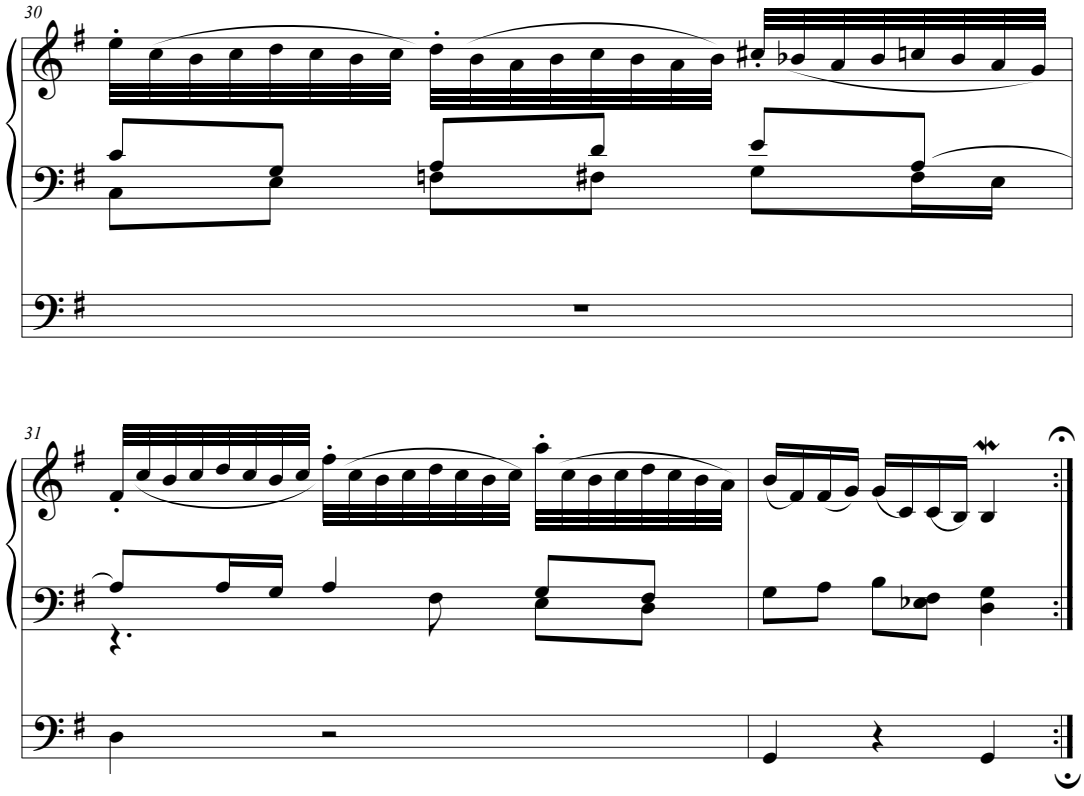
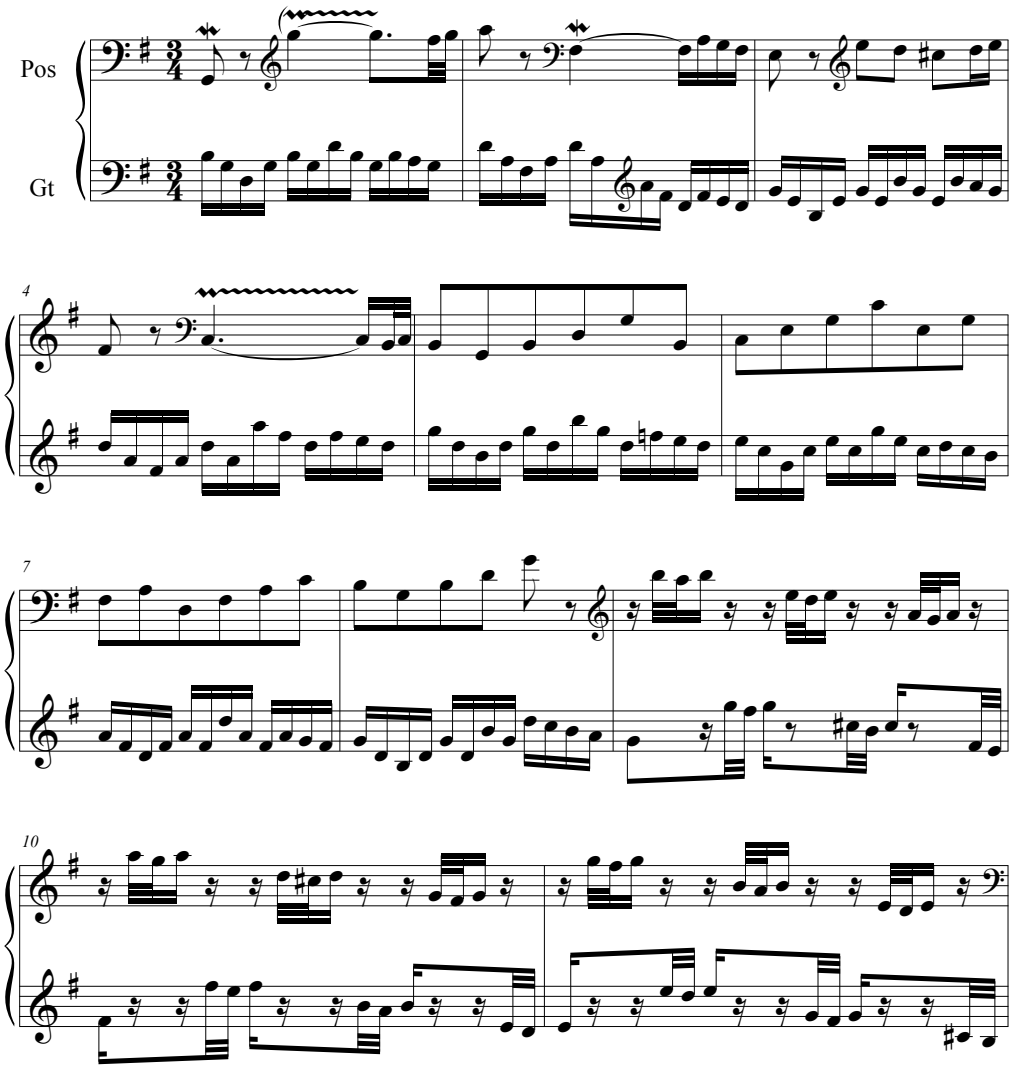
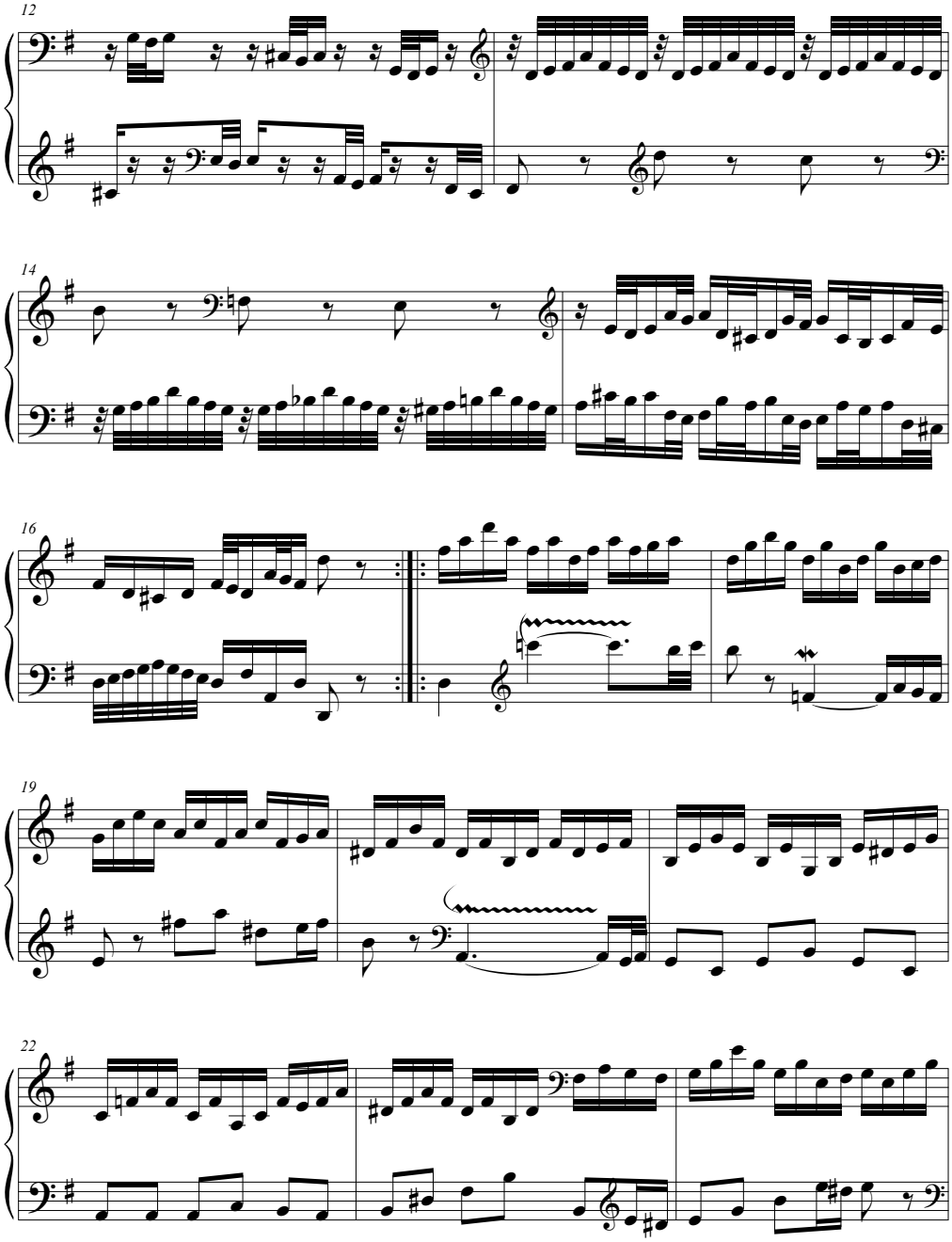

30
31

Pos - Gedackt 8, Blockflöte 4, Quint
Gt - Hohlflöte 8, Spitzflöte 4, Viola da Gamba 8

VARIATIO 14. à 2 Clav.

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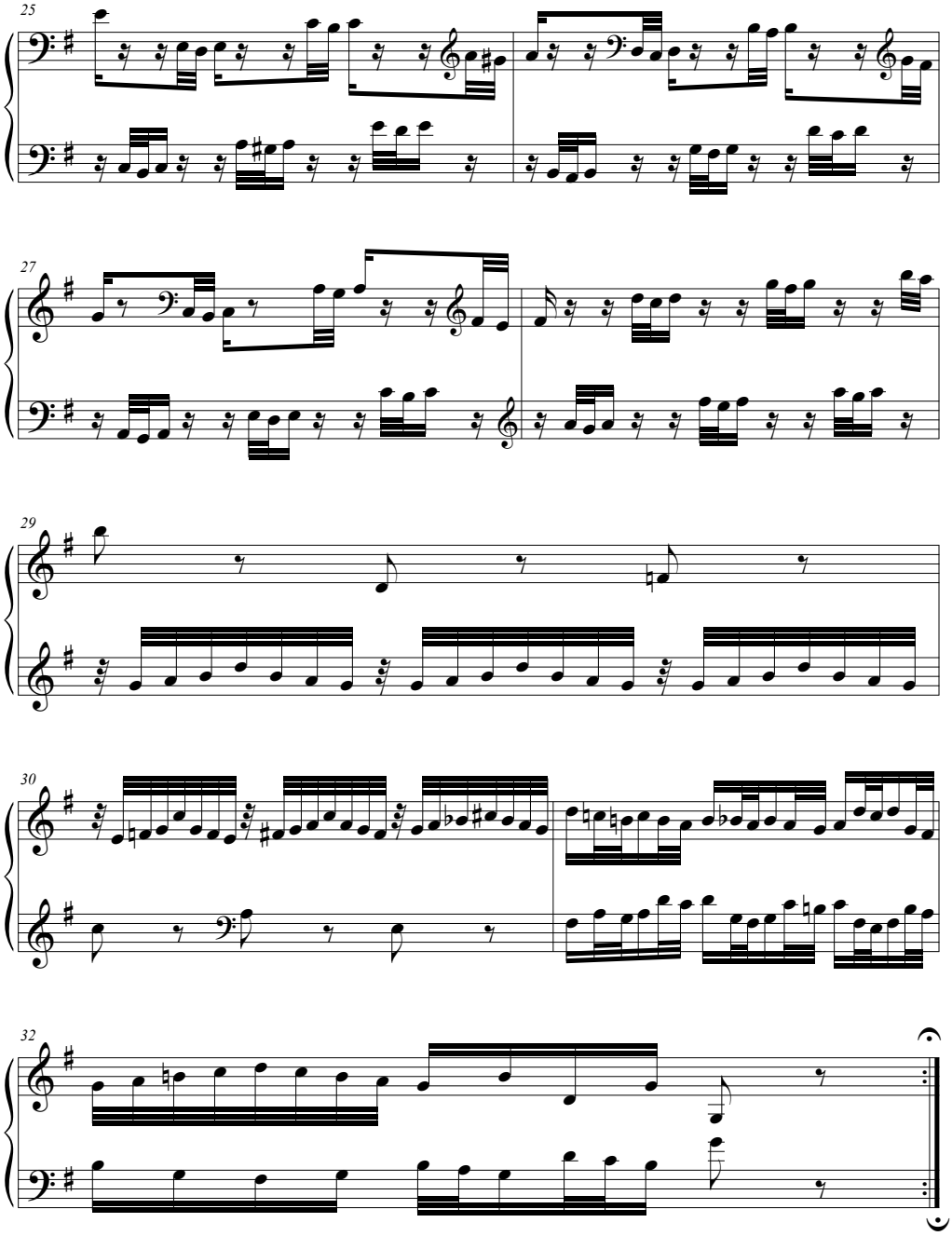
25
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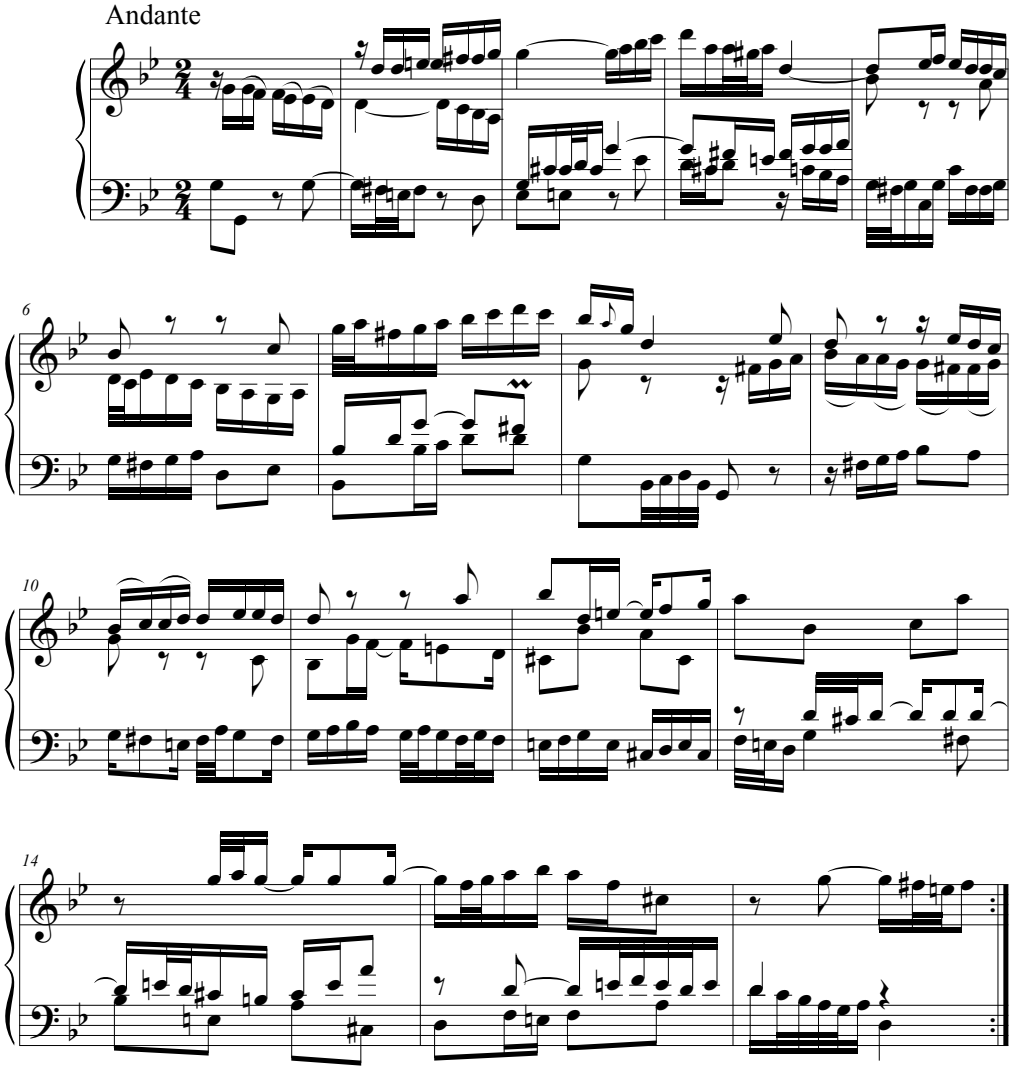
32

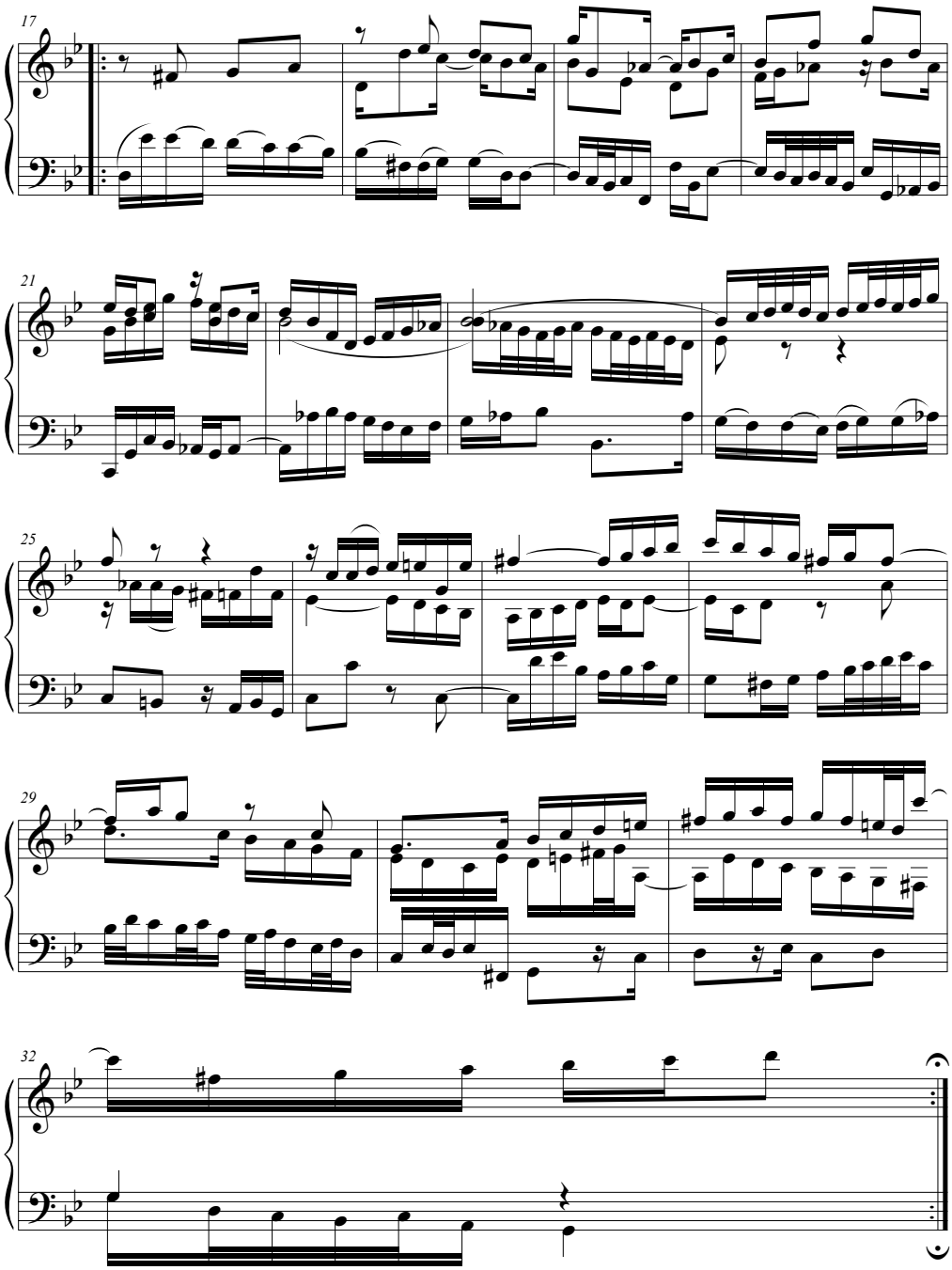
Gt - Principal 16, Hohlflöte 8, Tremulant

VARIATIO 15. à 1 Clav.

Canone alla Quinta

Andante

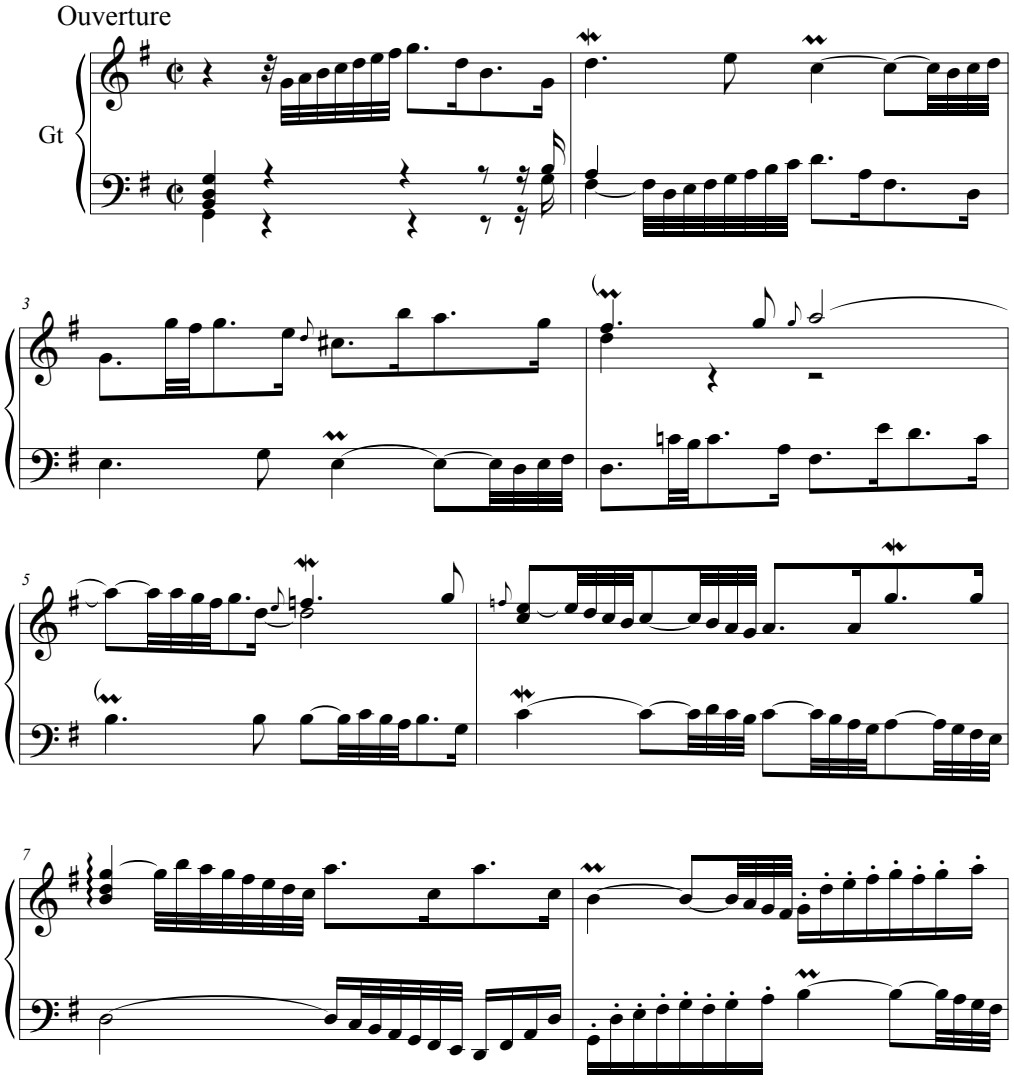


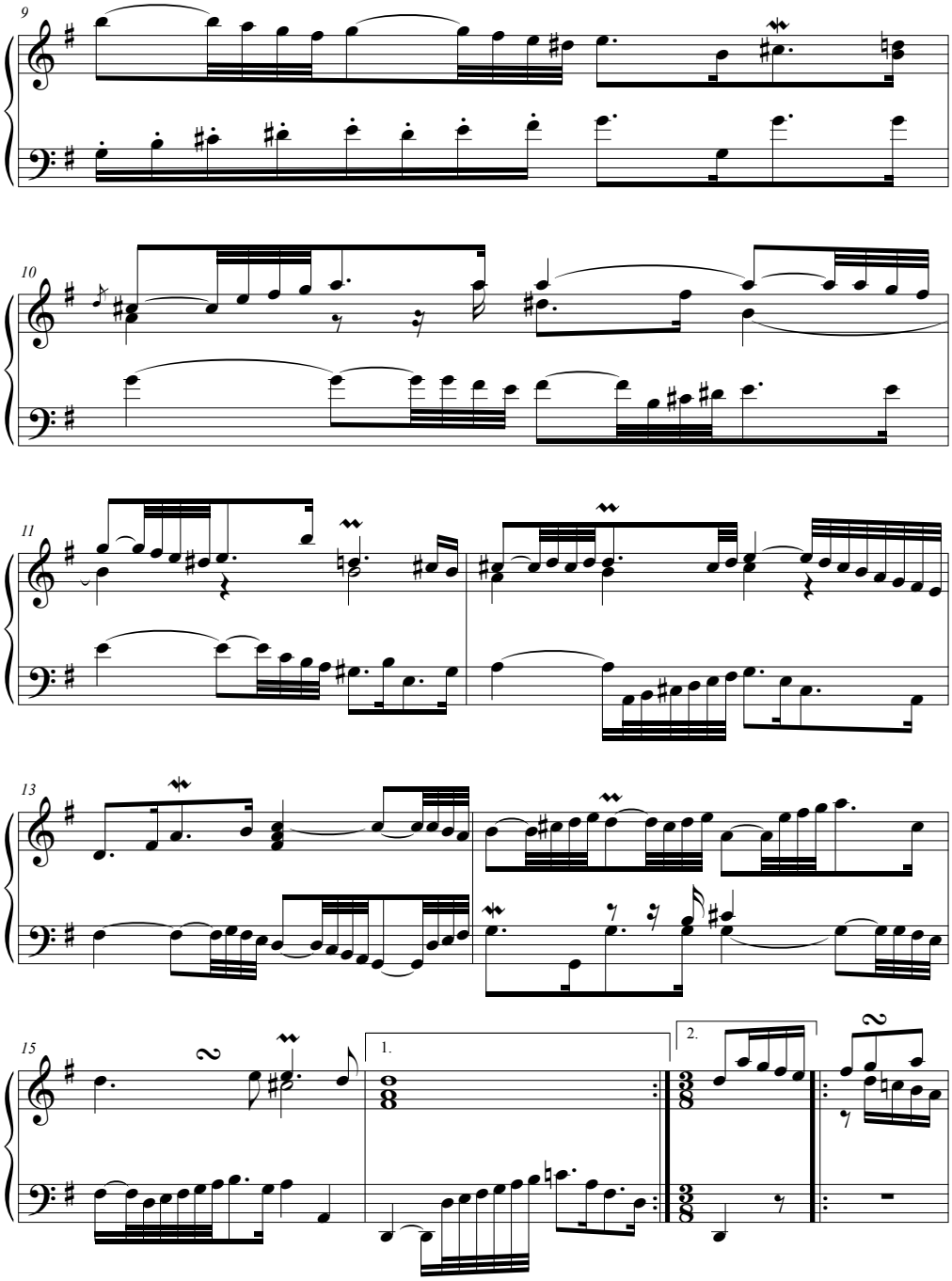

17
21
25
29
32

Gt - Hohlflöte 8, Spitzflöte 4, Cornet, Octav 4, Trompet 8
Pos - Gedackt 8, Principal 4, Quint, Trichterregal 8, Gemshorn 2

VARIATIO 16. à 1 Clav.

Ouverture

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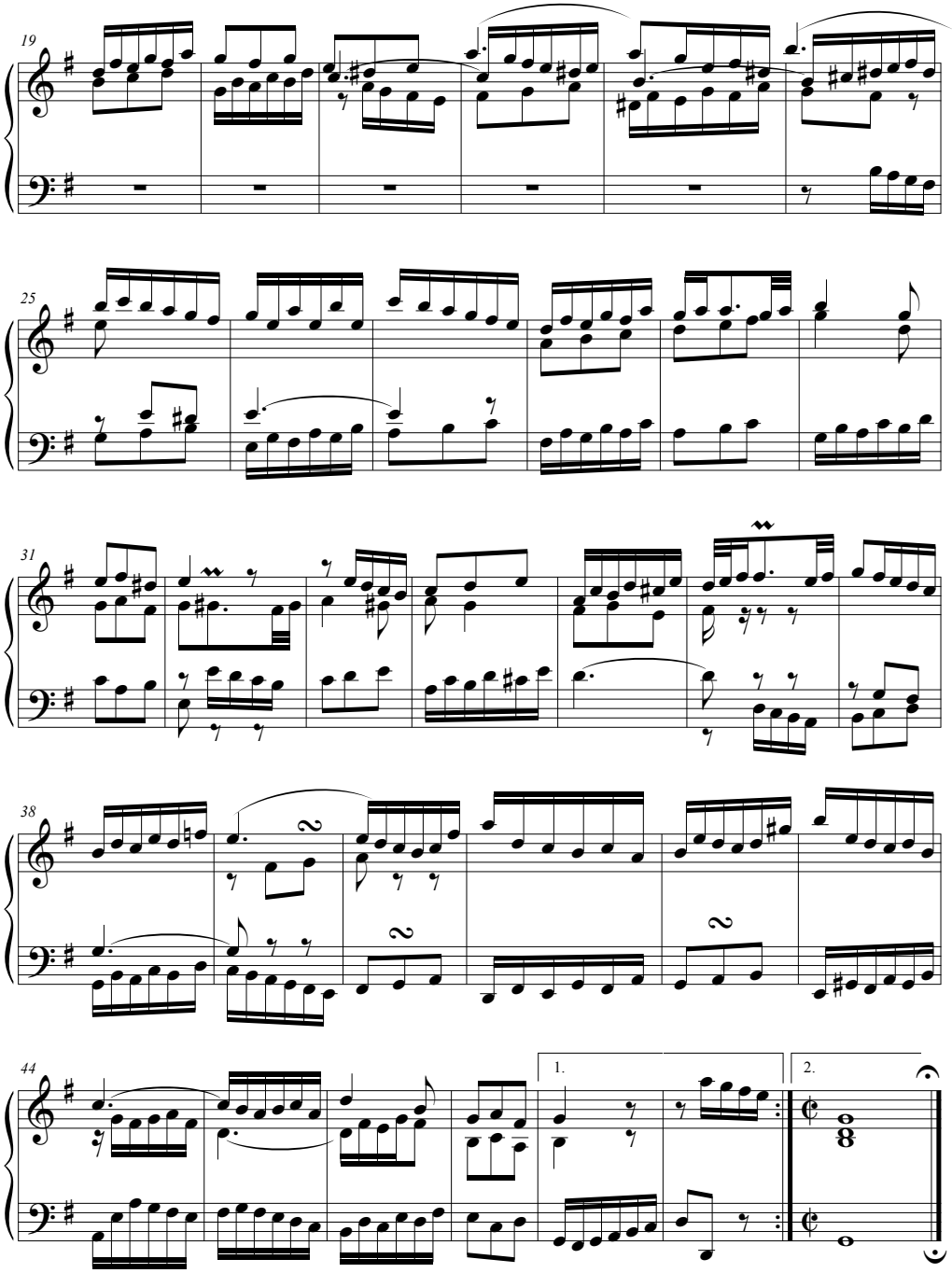
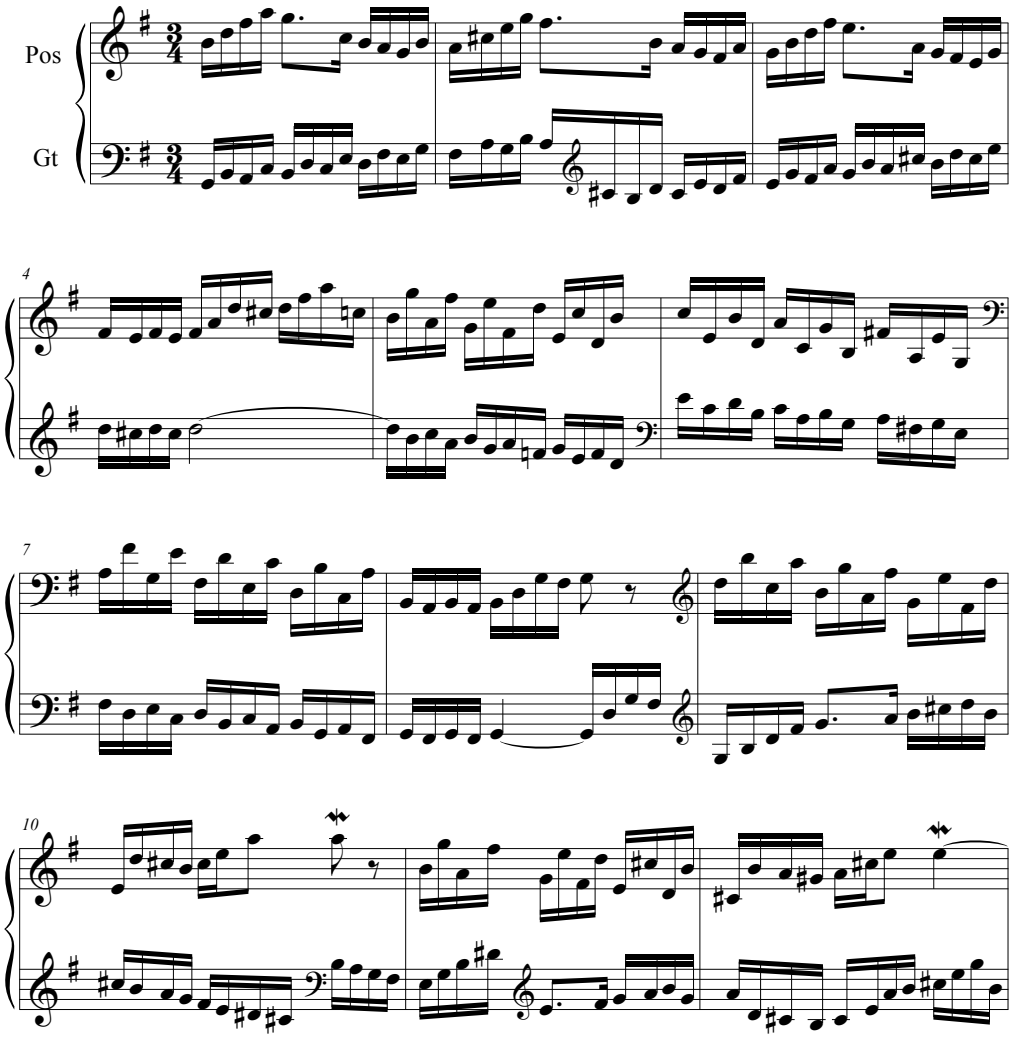
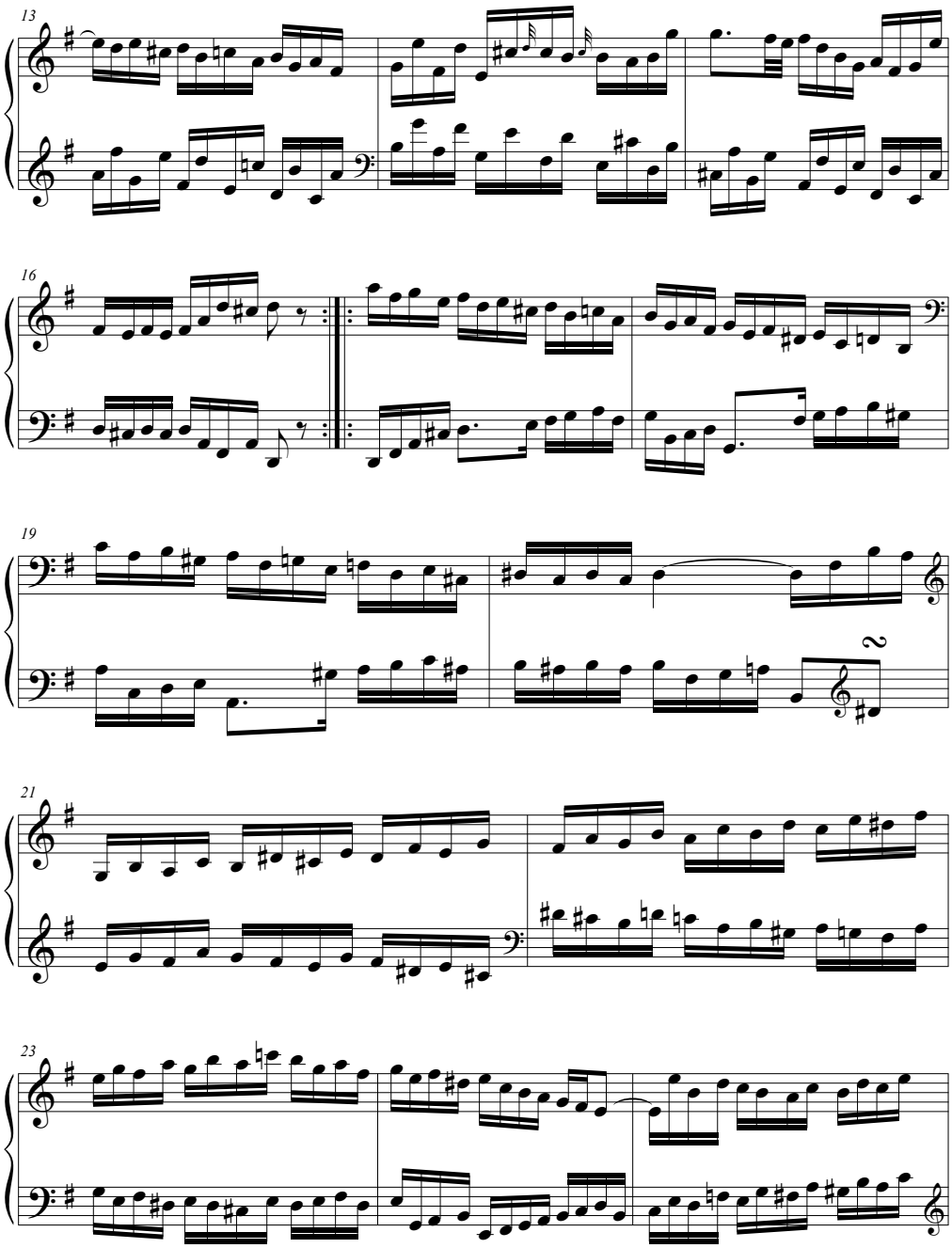
11
13
15
1.
2.


19
25
31
38
44
1.
2.

Pos - Gedackt 8, Blockflöte 4
Gt - Hohlflöte 8, Spitzflöte 4

VARIATIO 17. à 2 Clav.

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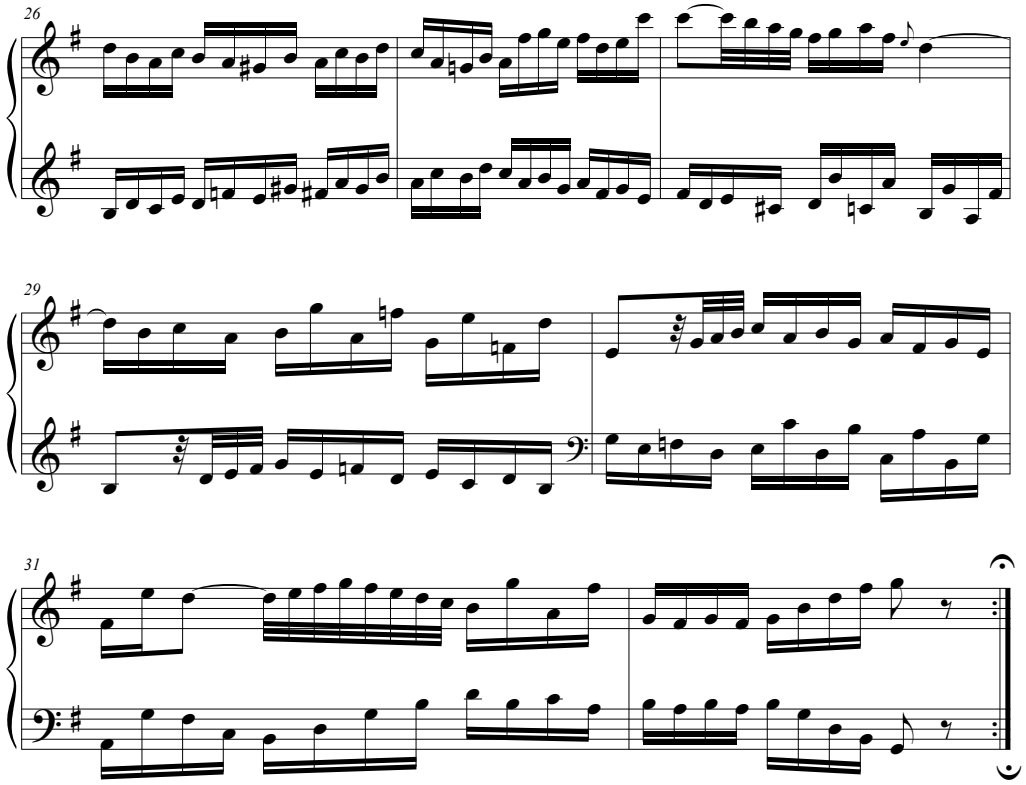
26
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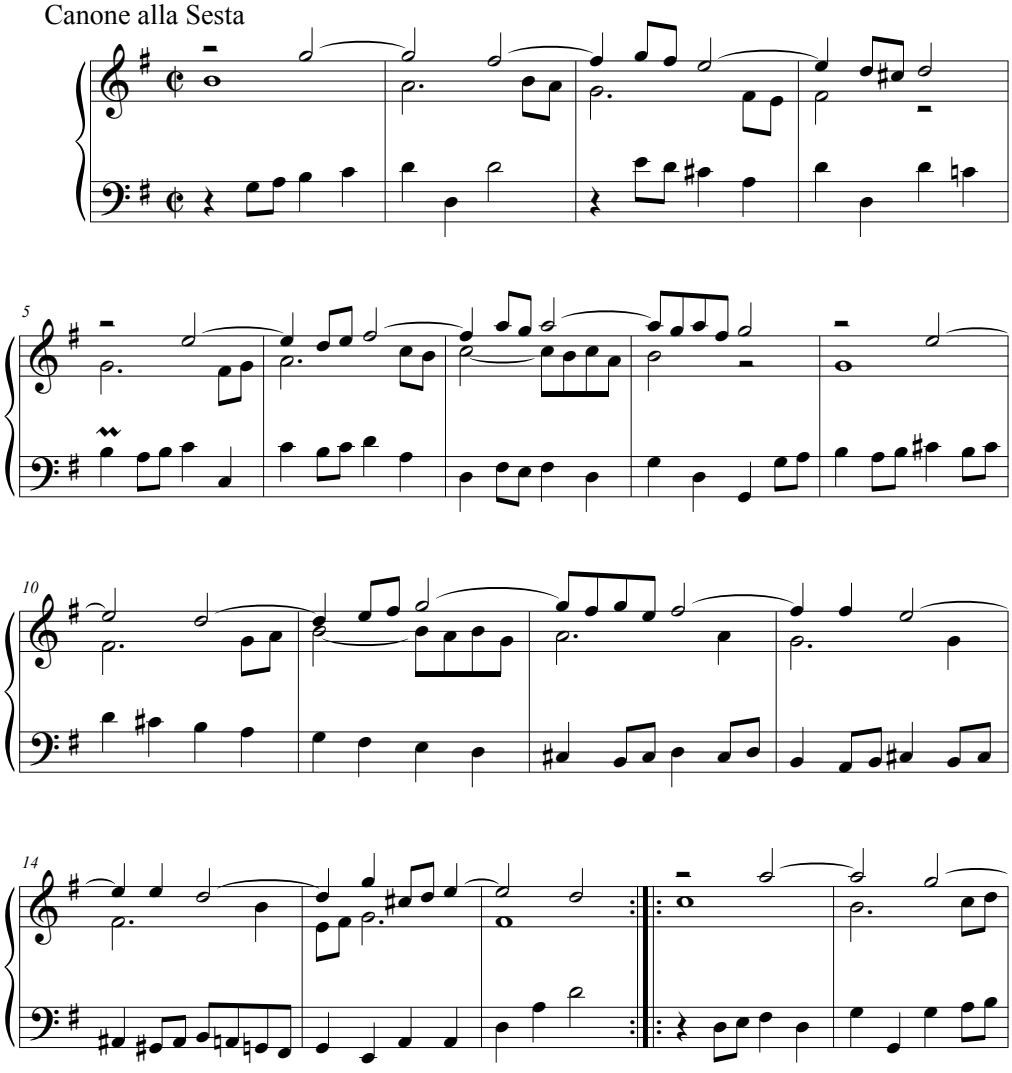
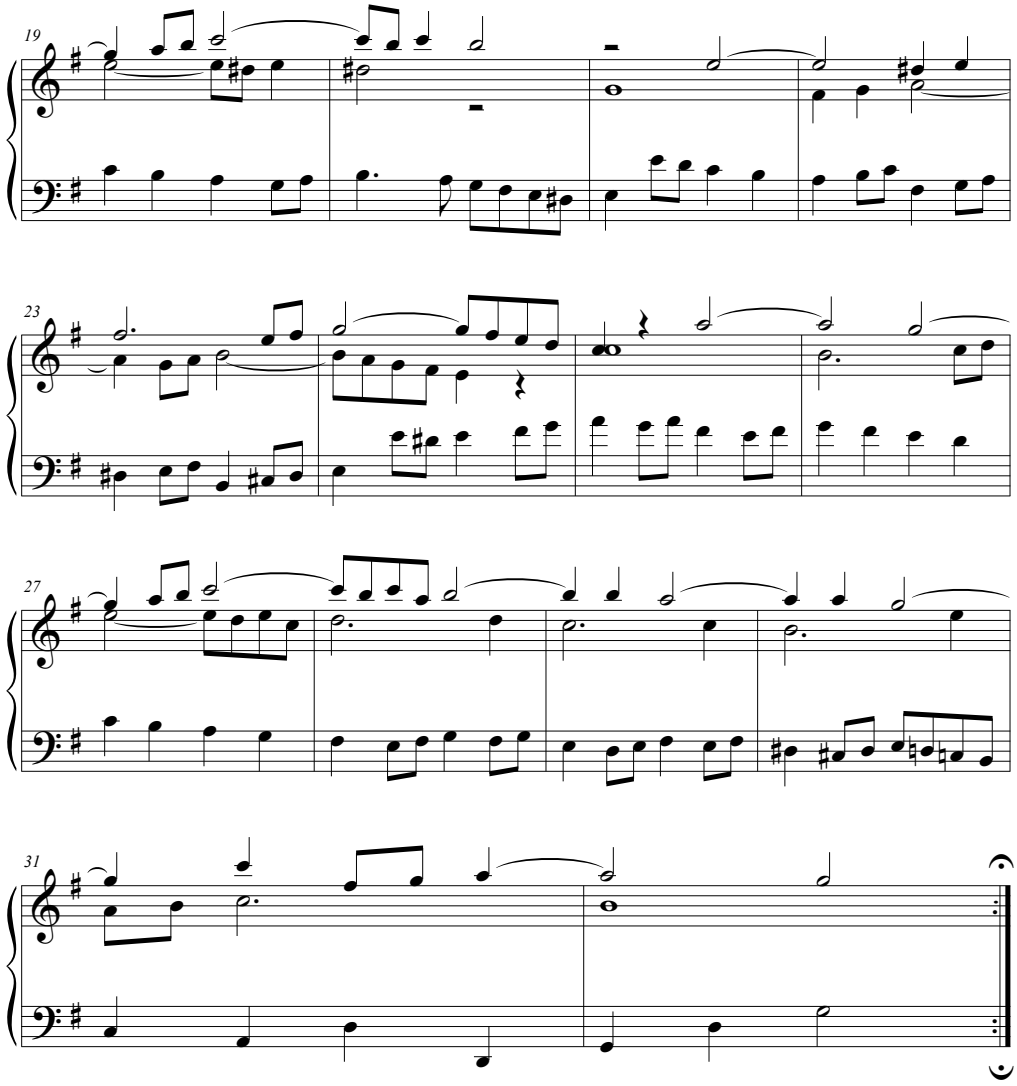
31

VARIATIO 18. à 1 Clav.

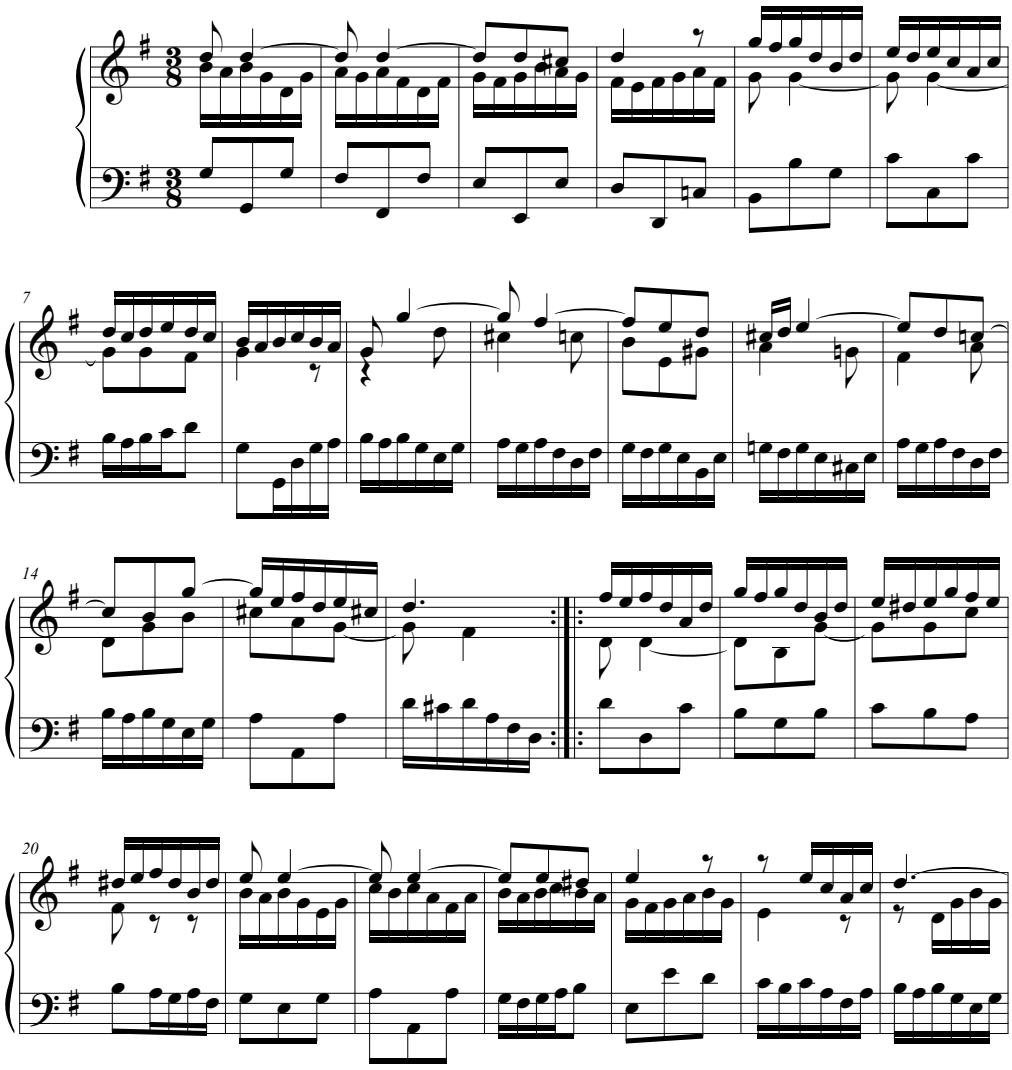
Canone alla Sesta

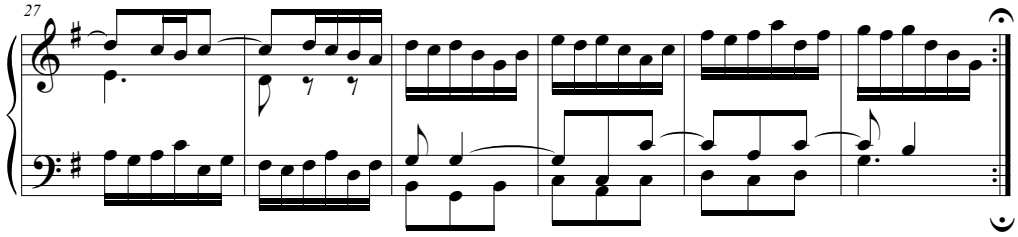



19
23
27
31

Pos - Gedackt 8

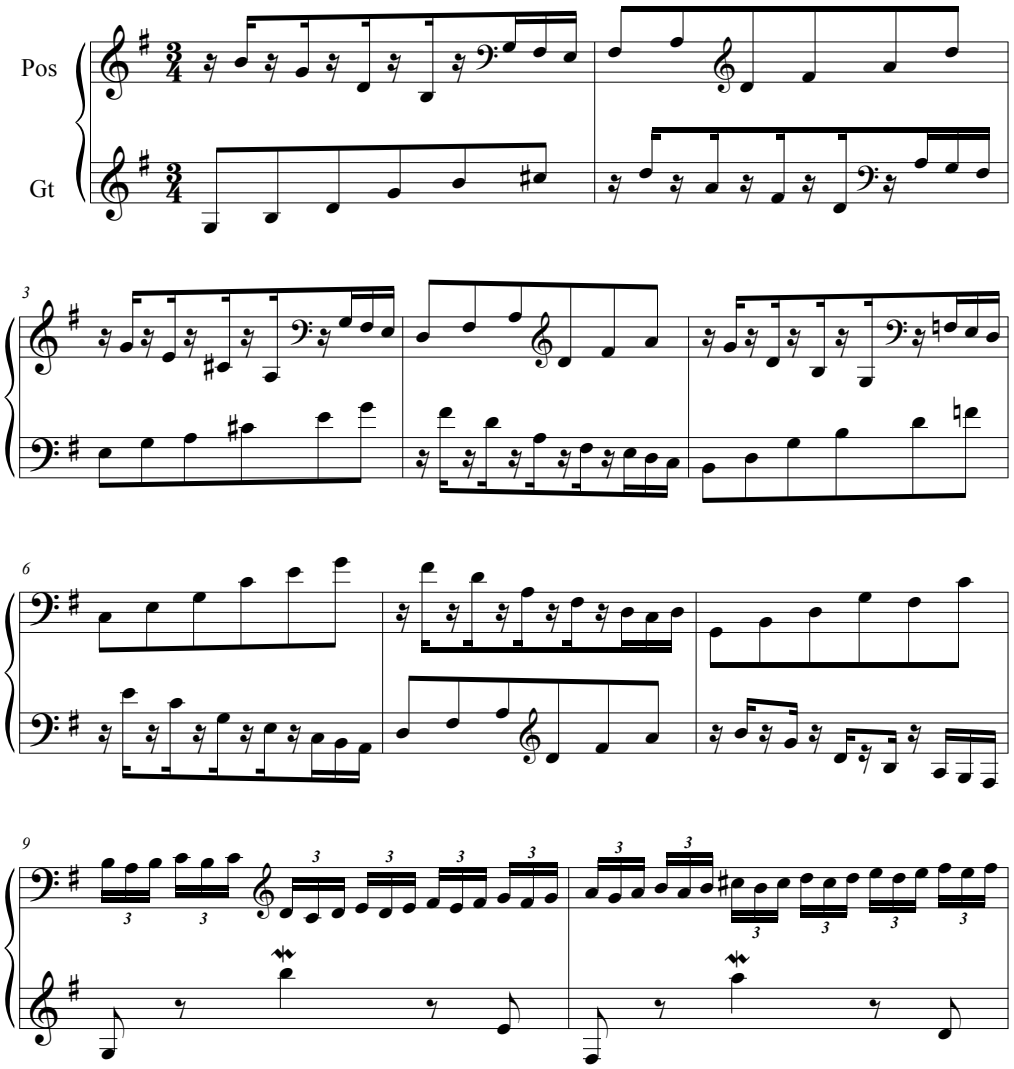
VARIATIO 19. à 1 Clav.

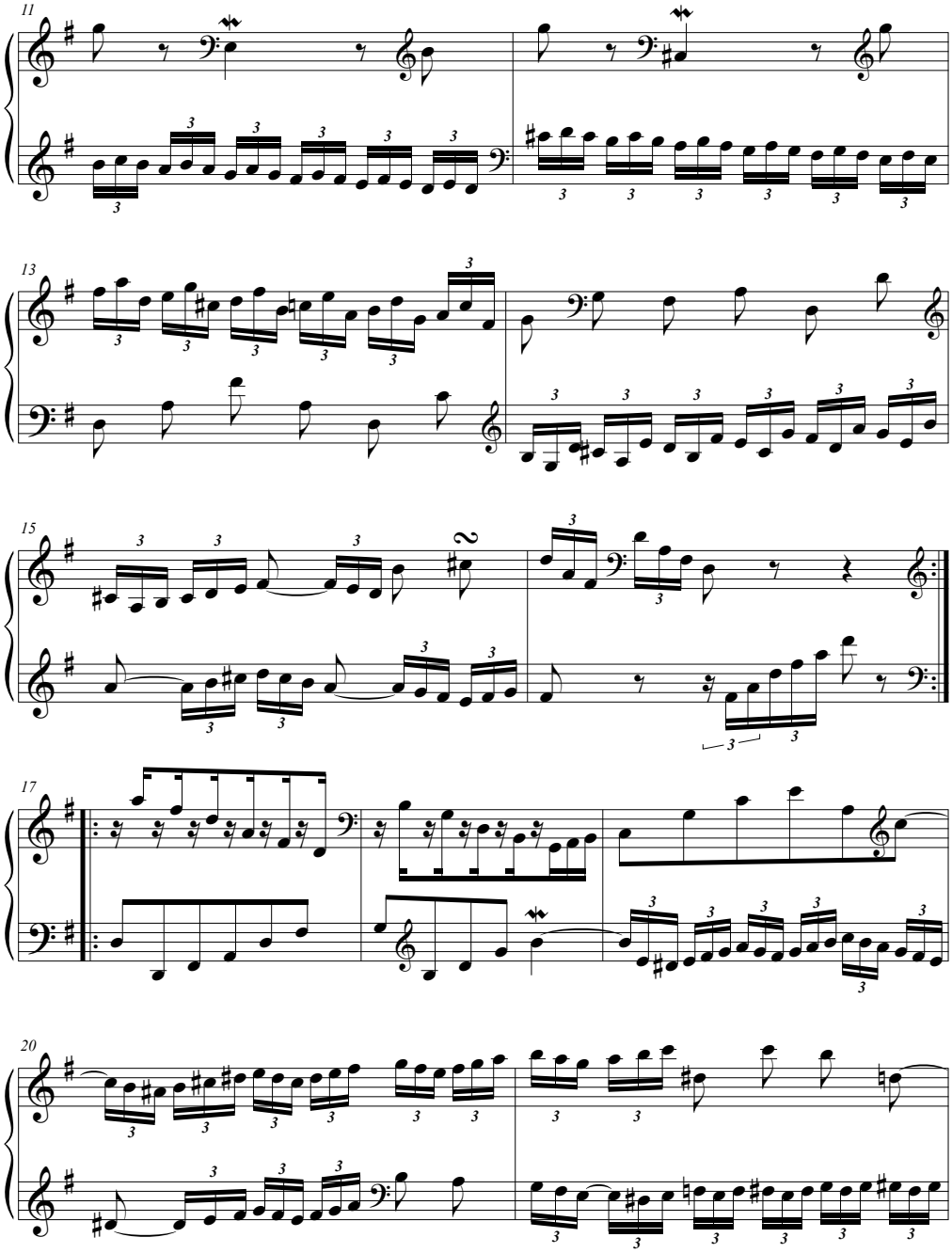



27

Pos - Gedackt 8, Principal 4, Quint, Gemshorn 2
Gt - Octav 2, Hohlflöte 8, Spitzflöte 4

VARIATIO 20. à 2 Clav.

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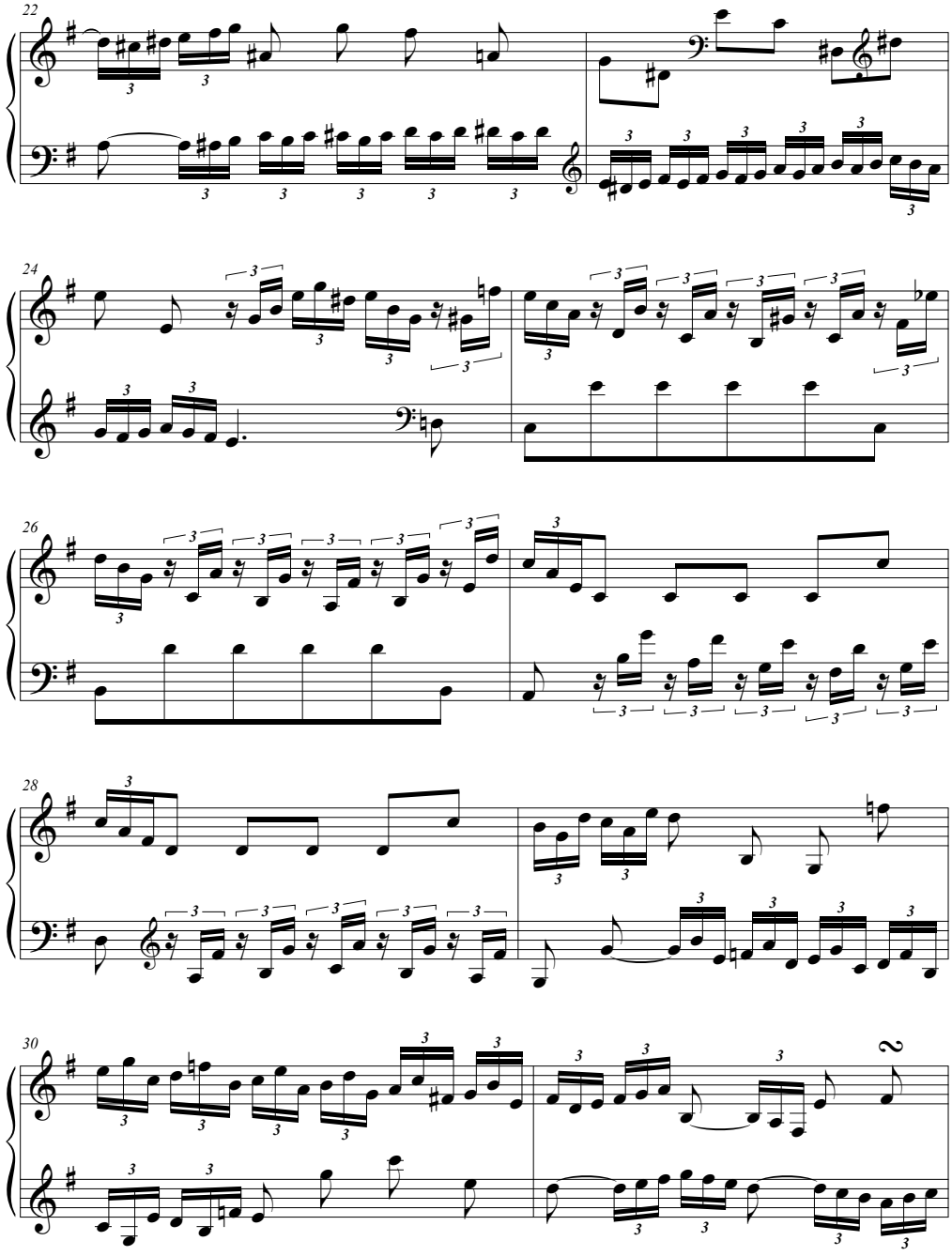
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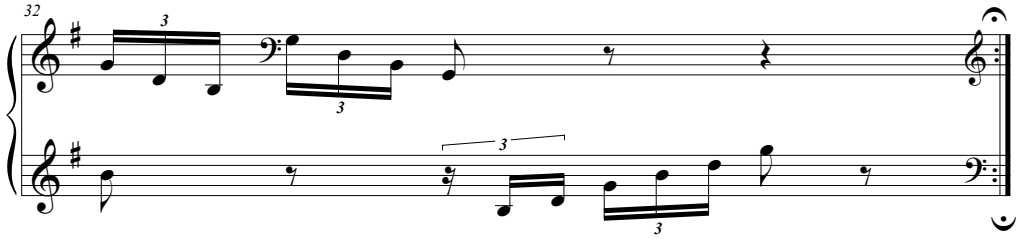
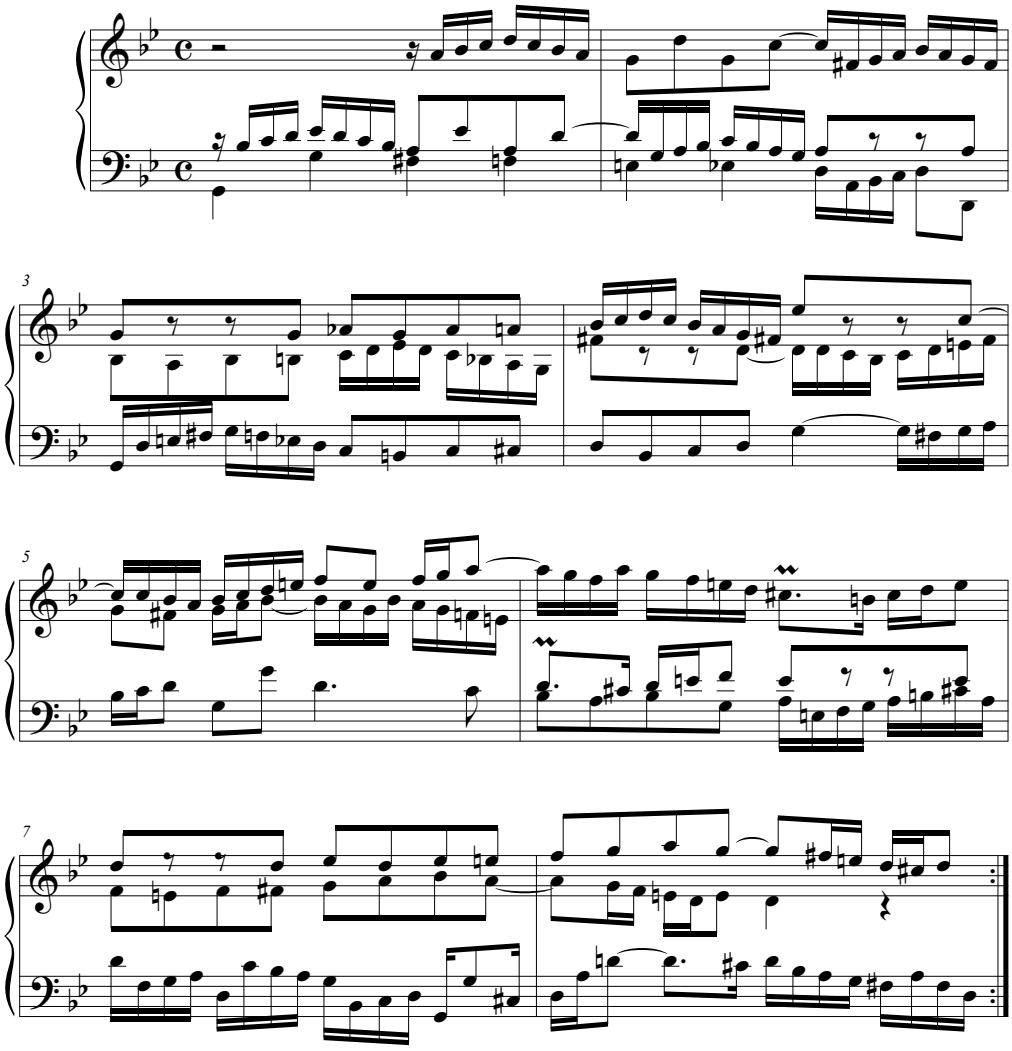
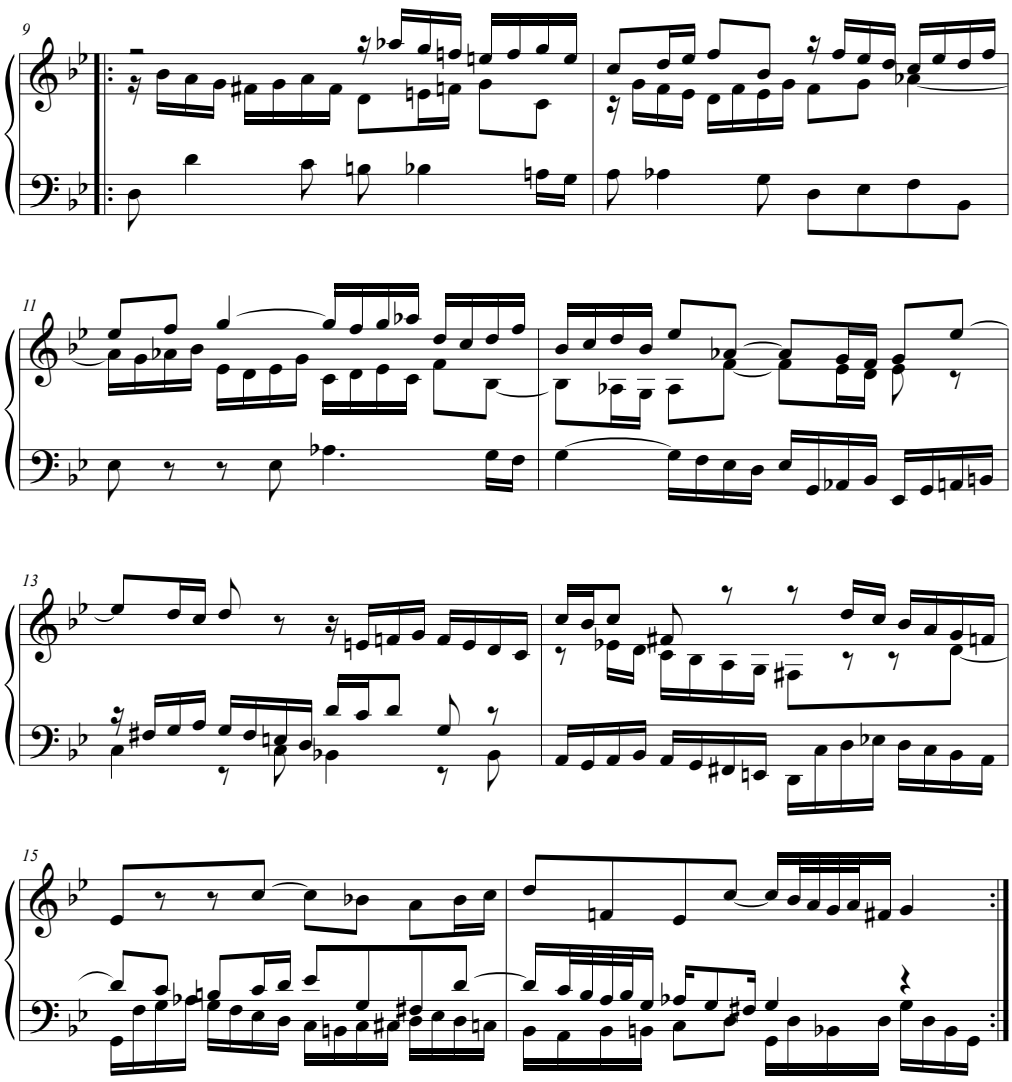

32
3
3
3
3

VARIATIO 21. à 1 Clav.

Canone alla Settima

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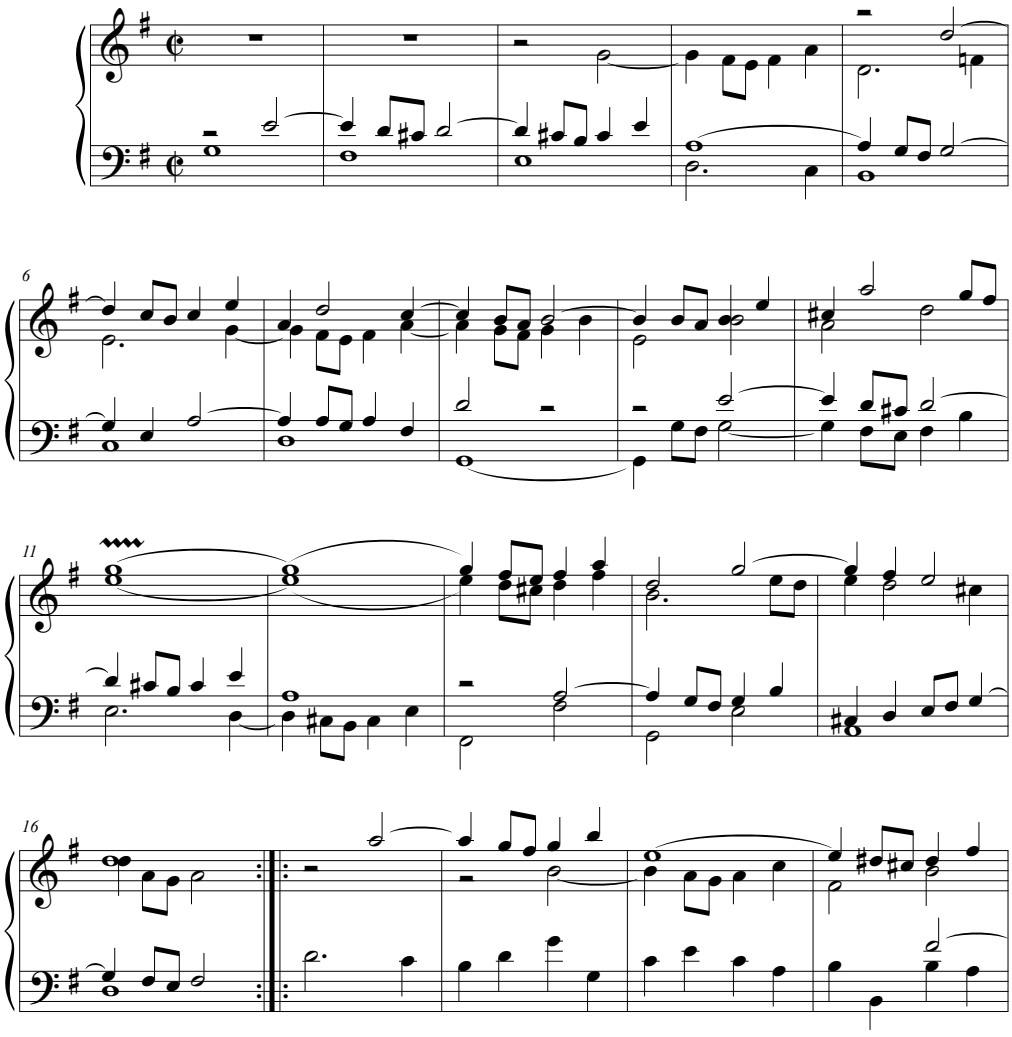
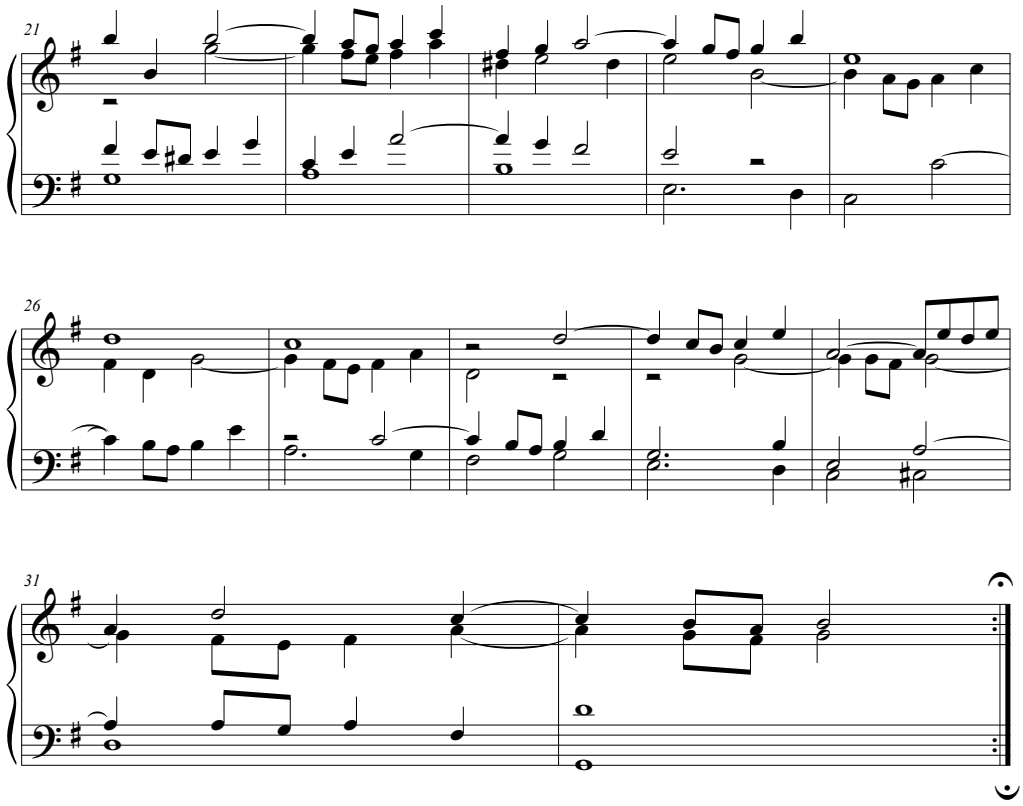
VARIATIO 22. à 1 Clav.

Alla breve




21
26
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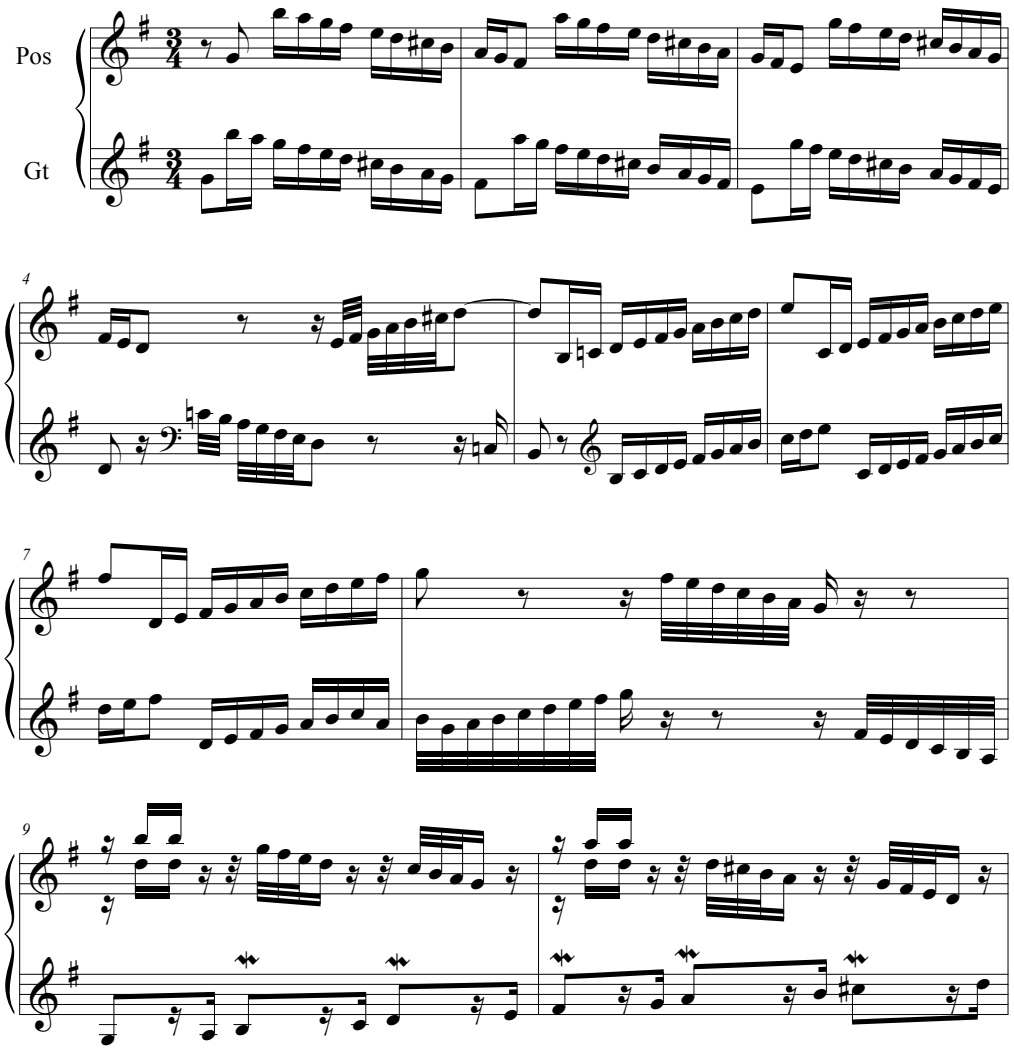
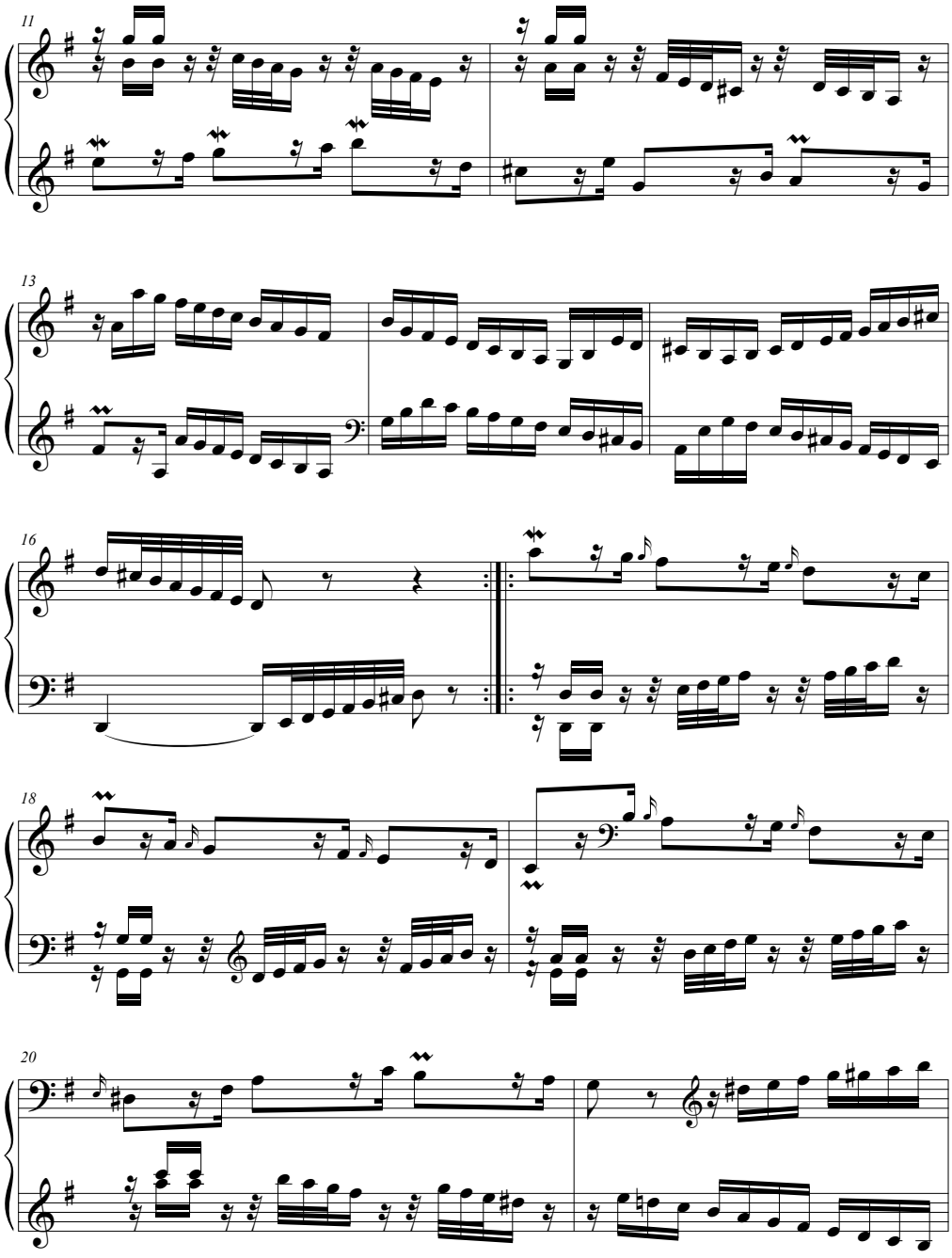
Pos - Gedackt 8, Principal 4, Quint, Gemshorn 2, Scharff, Trichterregal 8
Gt - 16 Principal, Octav 8,4,2, Mixture, Viola da Gamba

VARIATIO 23 a 2 Clav.

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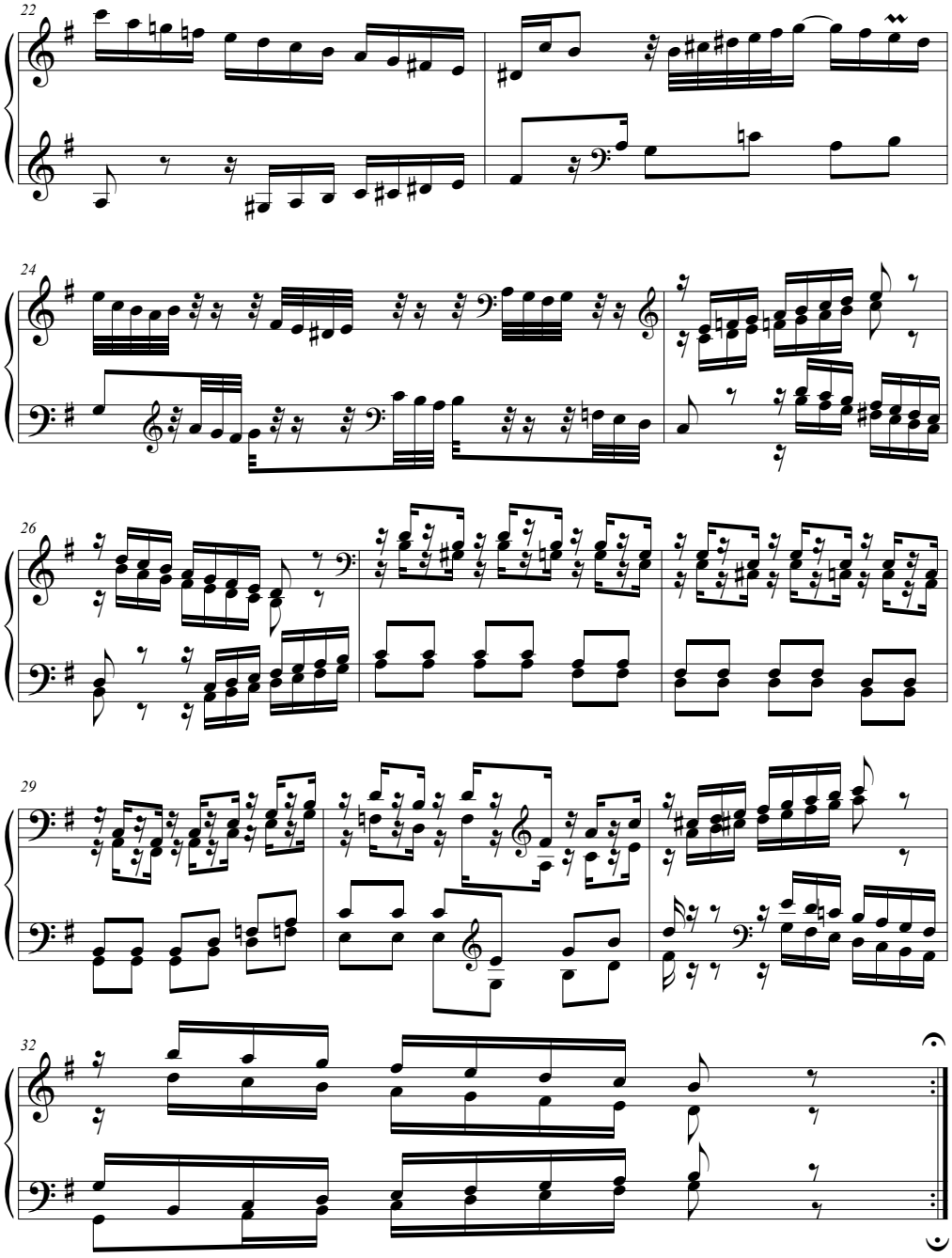
22
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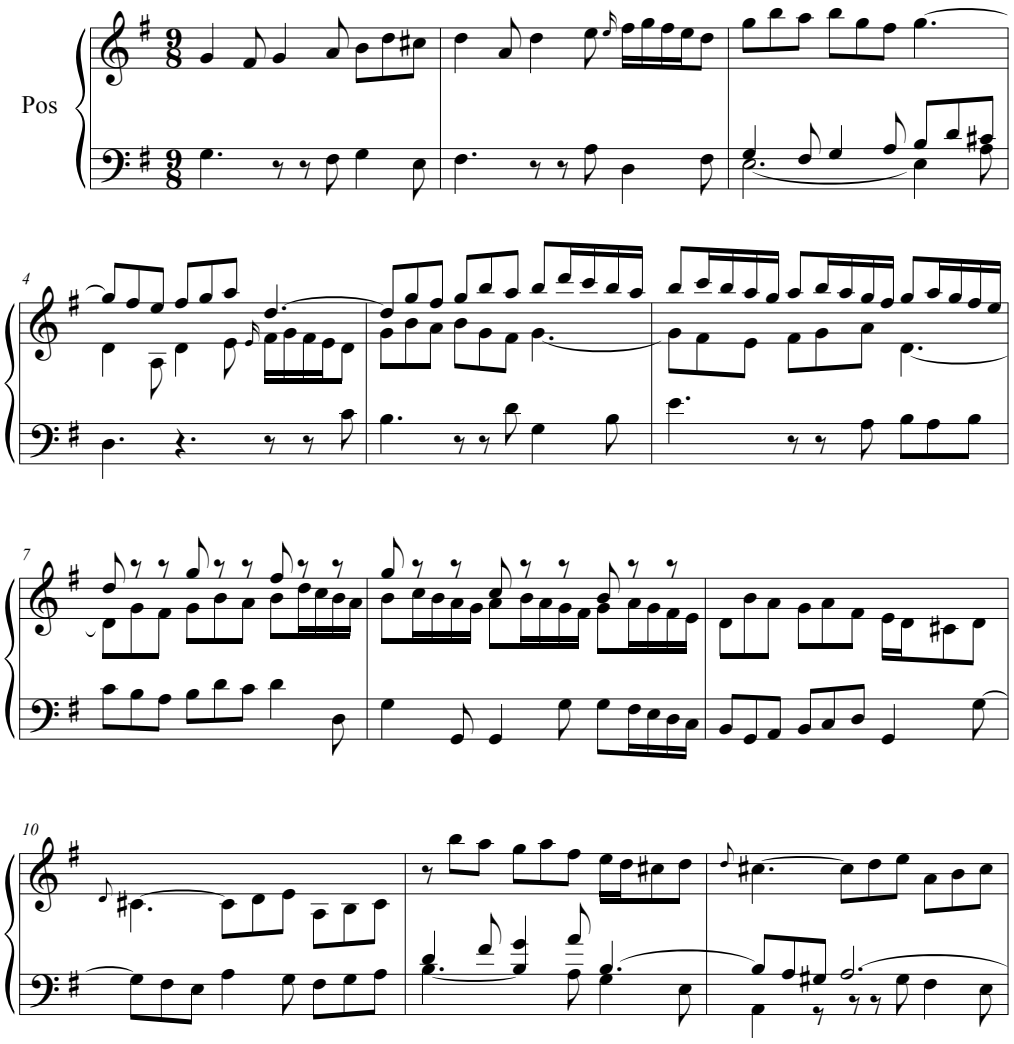
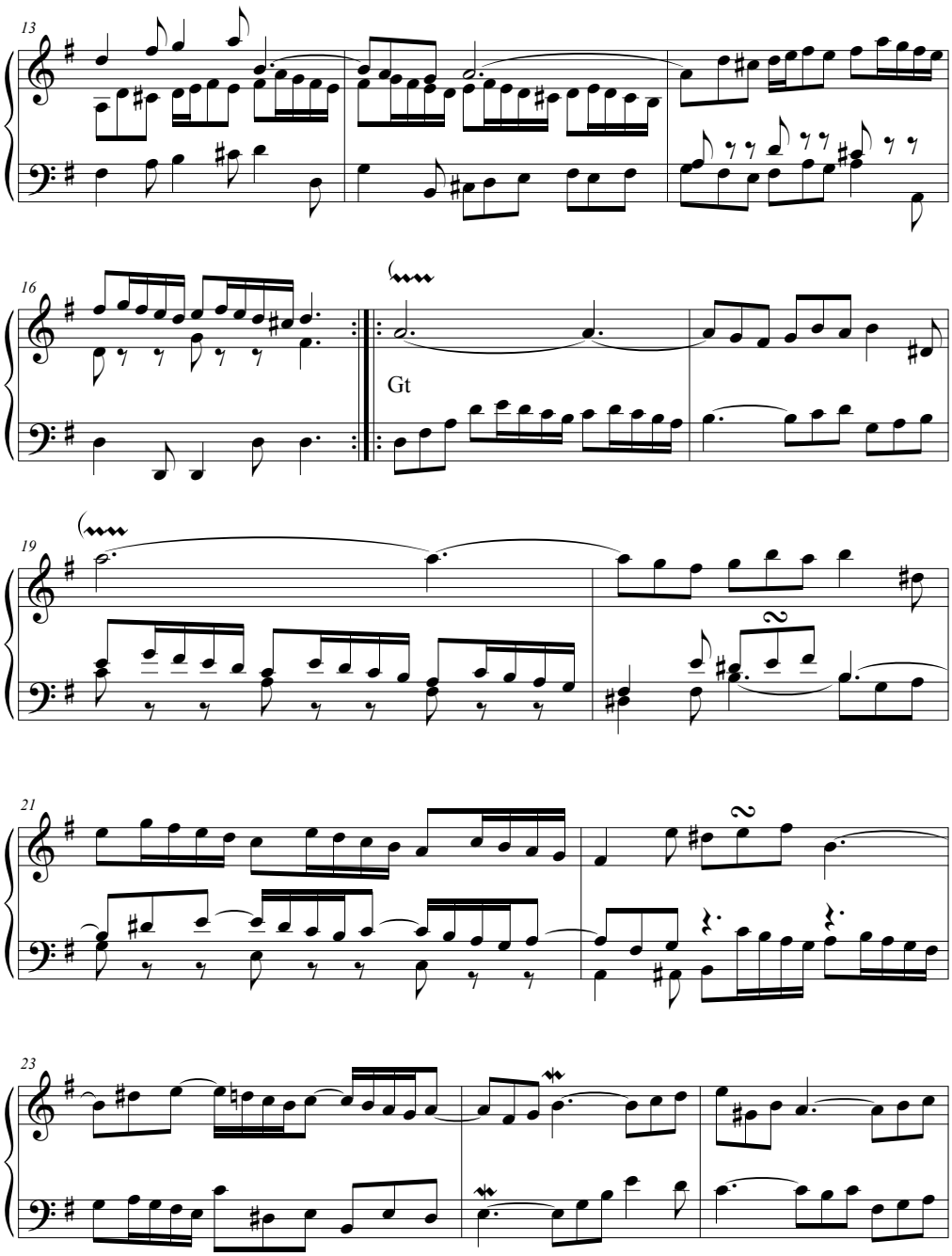
Pos - Blockflöte 4
Gt - Spitzflöte 4

VARIATIO 24. à 1 Clav.

Canone all'Ottava

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Gt
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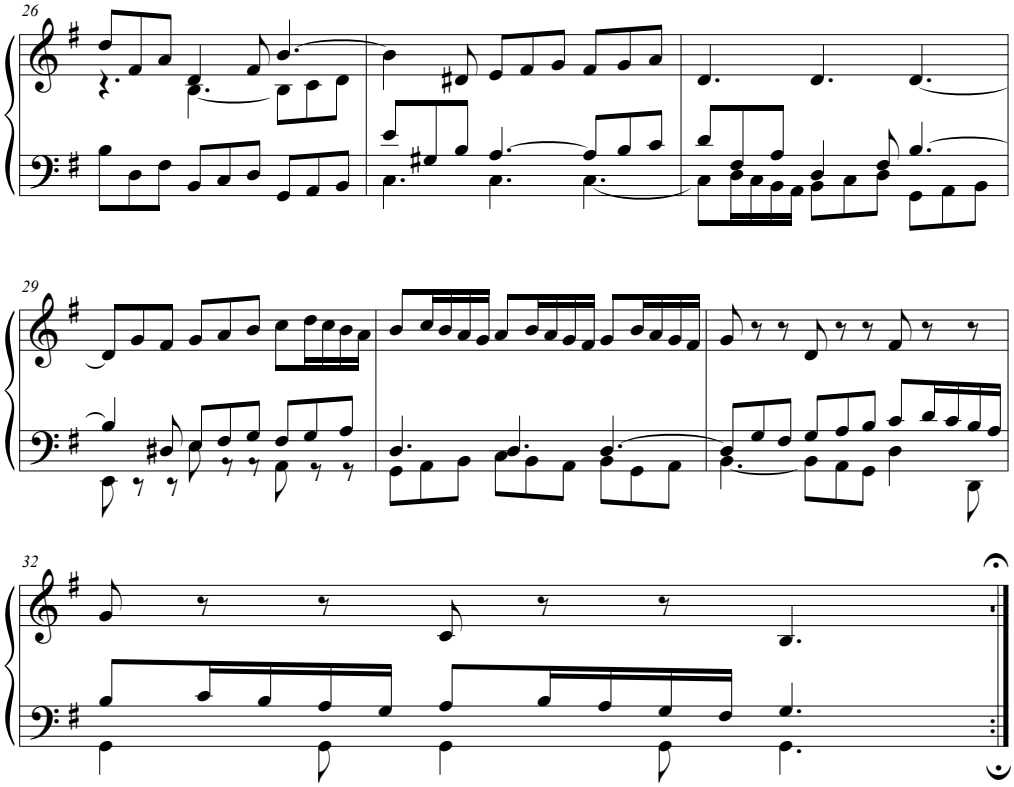
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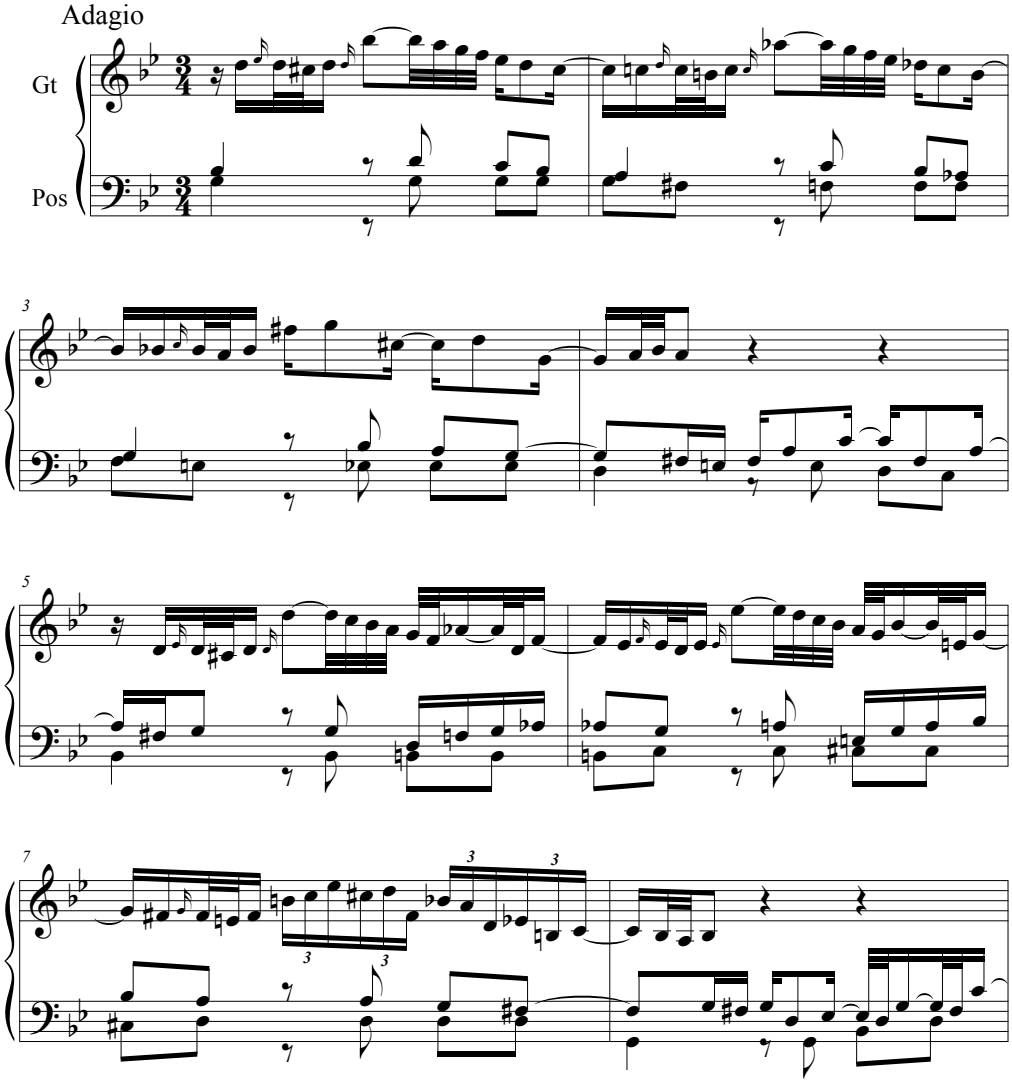
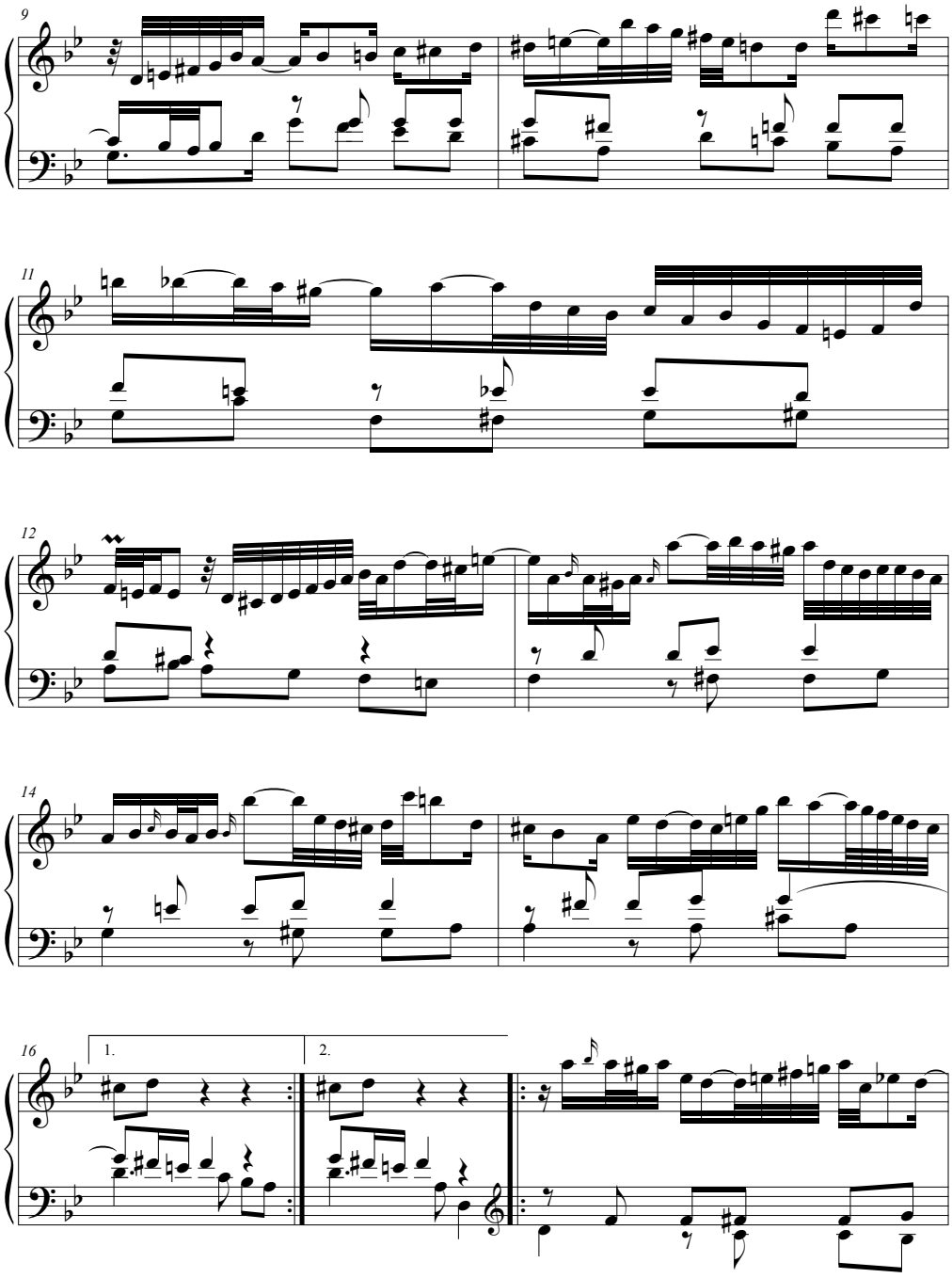
Pos - Gedackt 8
Gt - Principal 16, Tremulant

VARIATIO 25. à 2 Clav.

Adagio

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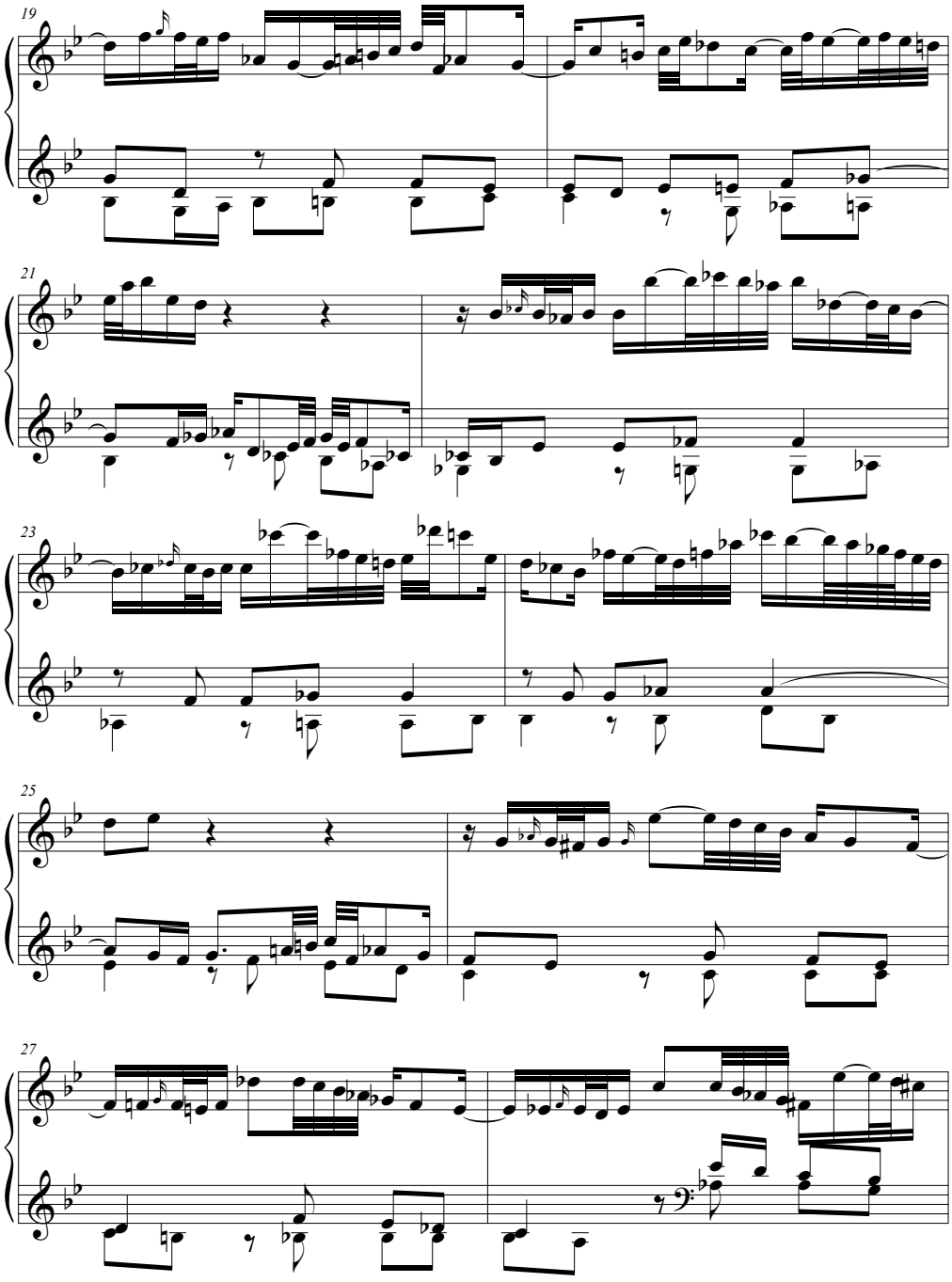
2.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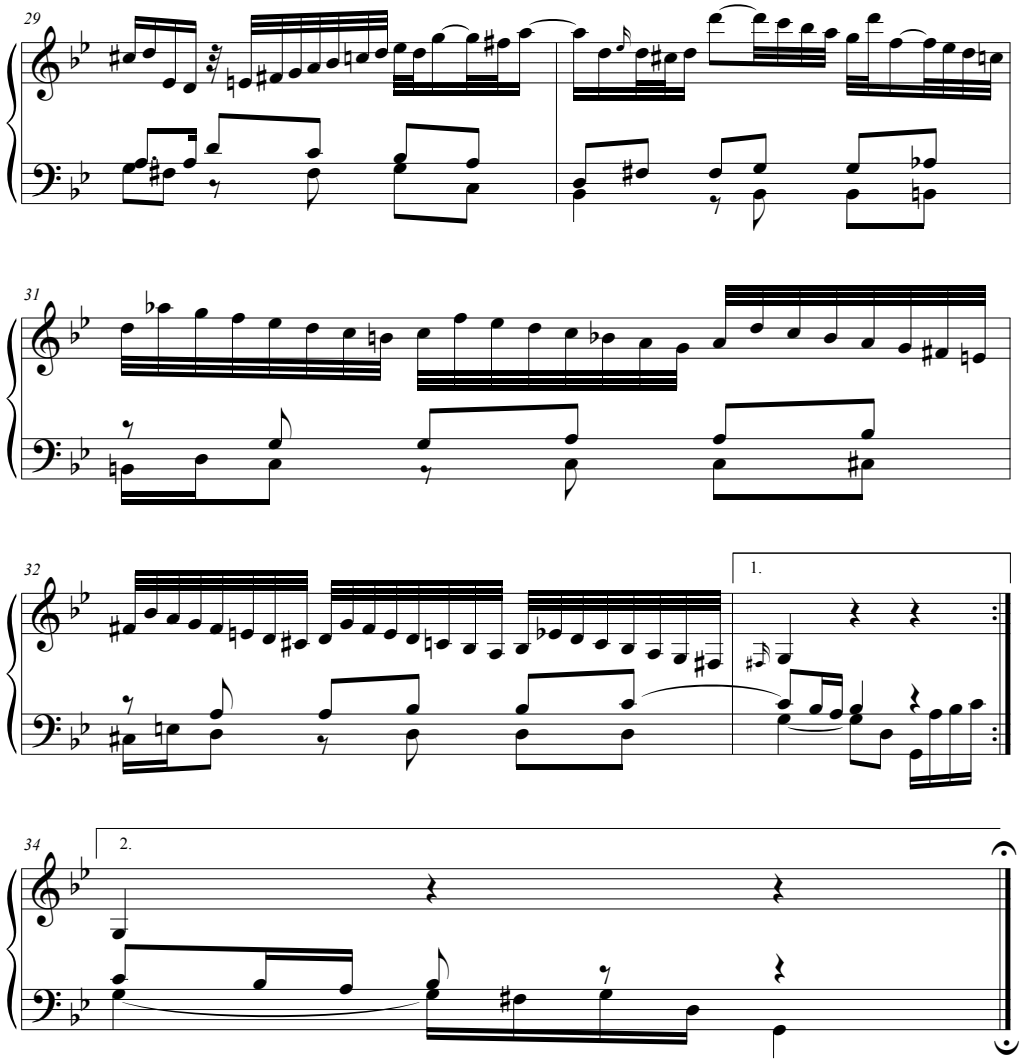
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31
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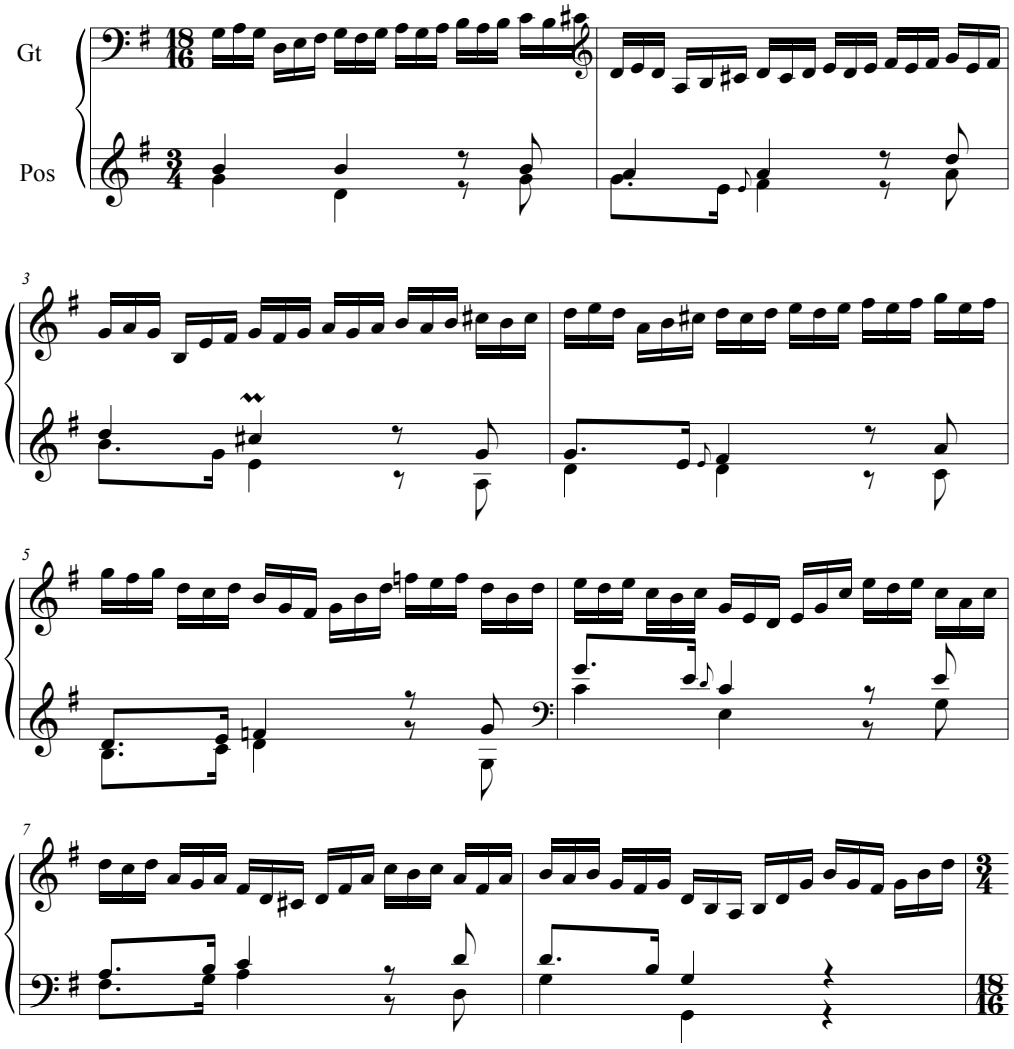
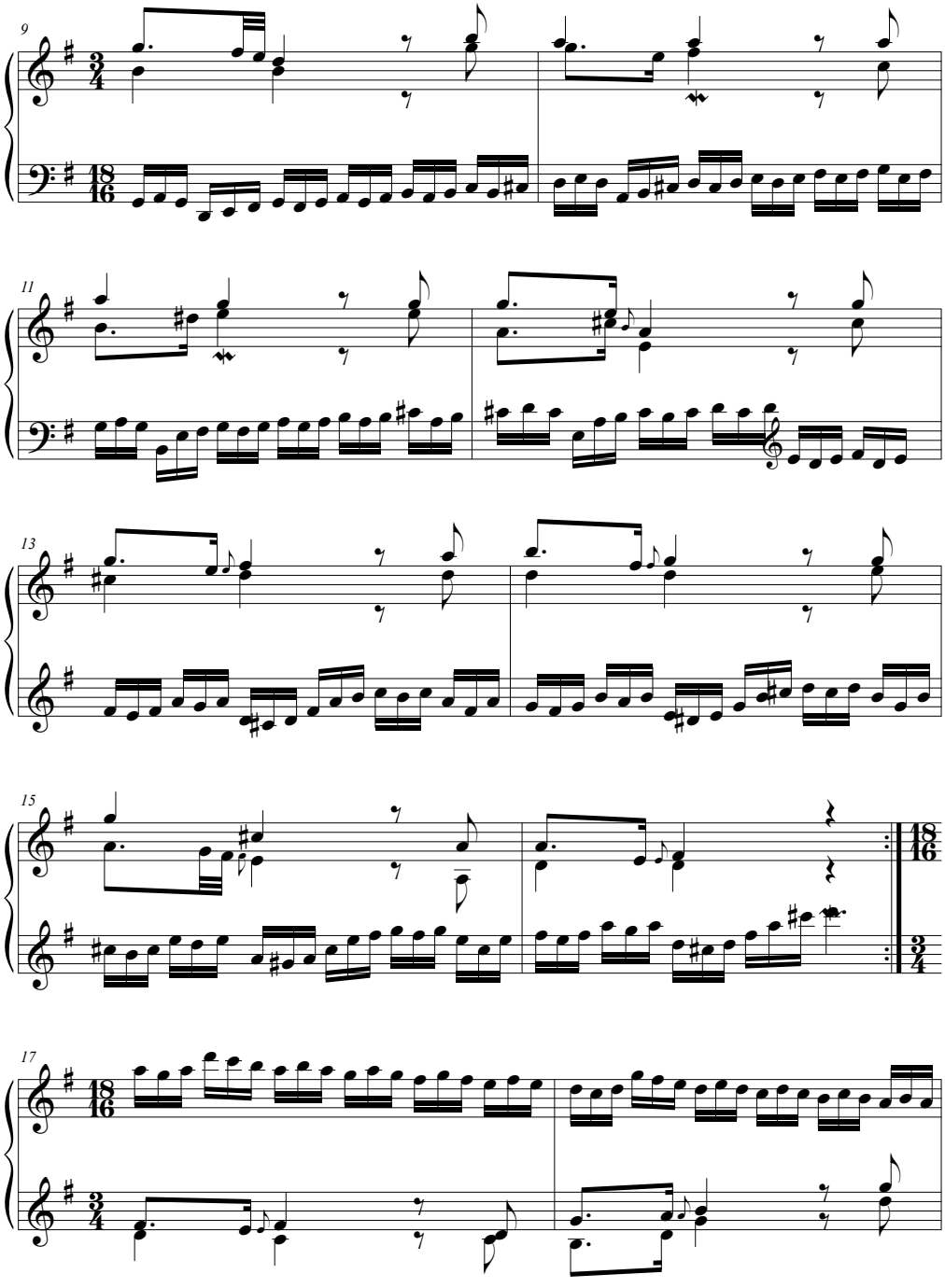
1.
34
2.

Pos - Gedackt 8, Principal 4, Quint, Trichterregal 8
Gt - Octav 8, 4, 2

VARIATIO 26 a 2 Clav.

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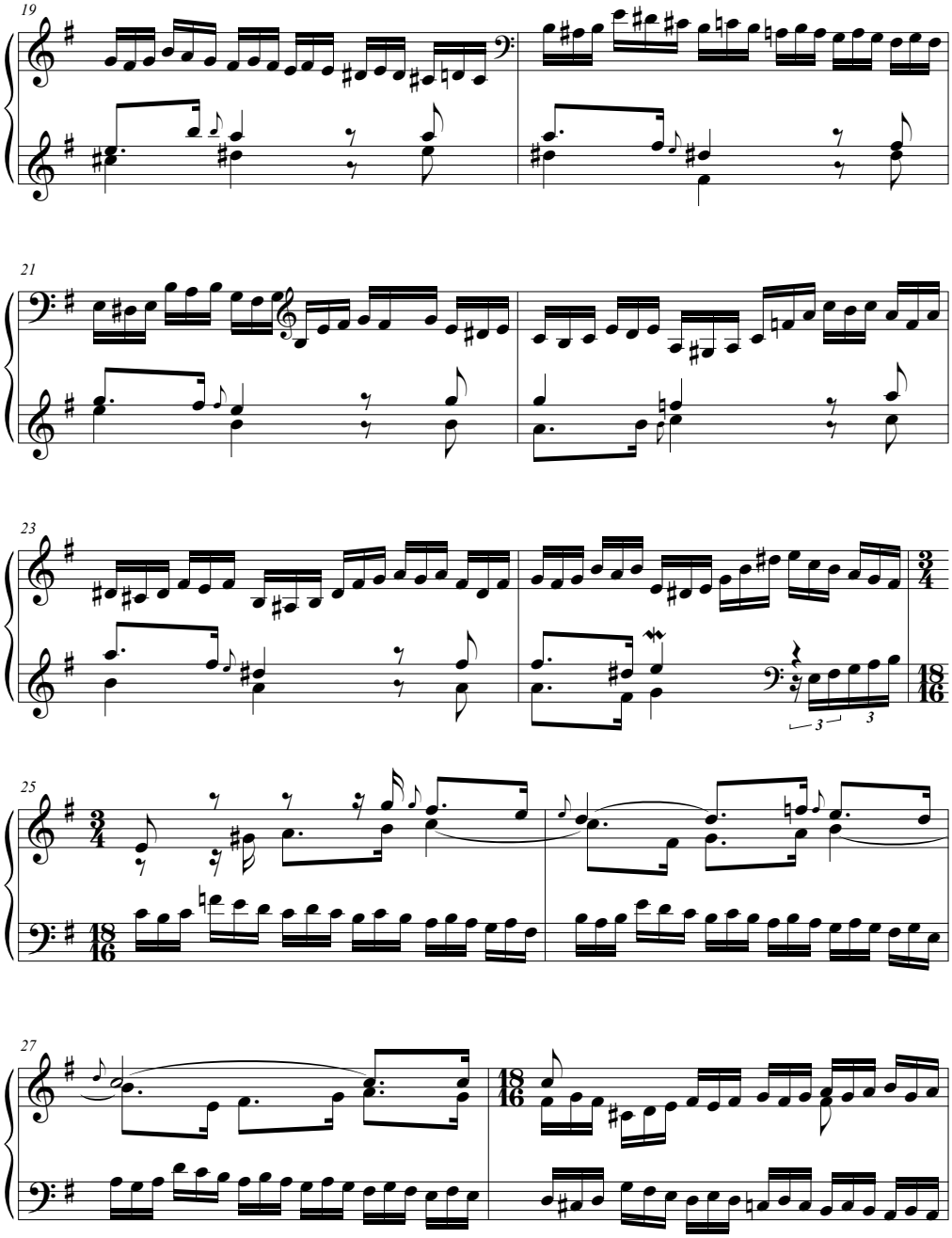
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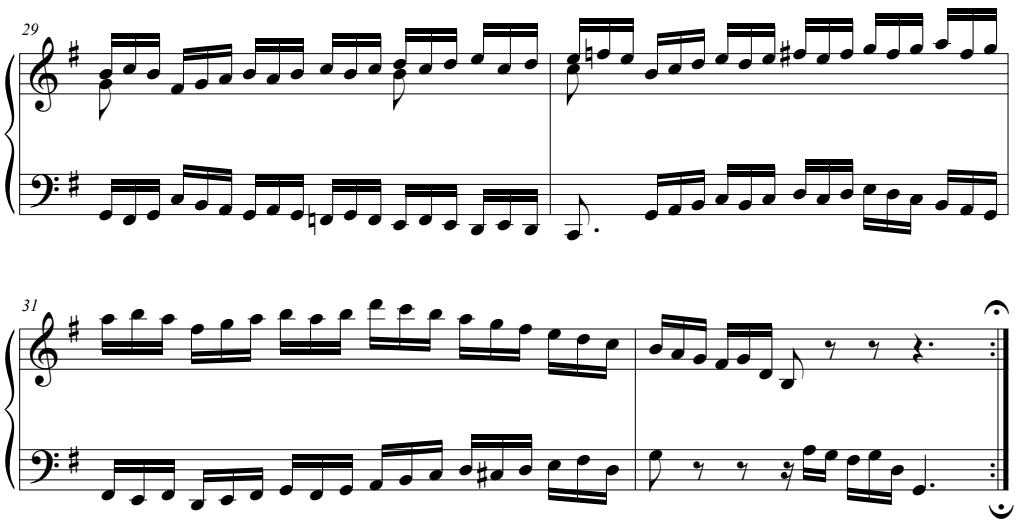
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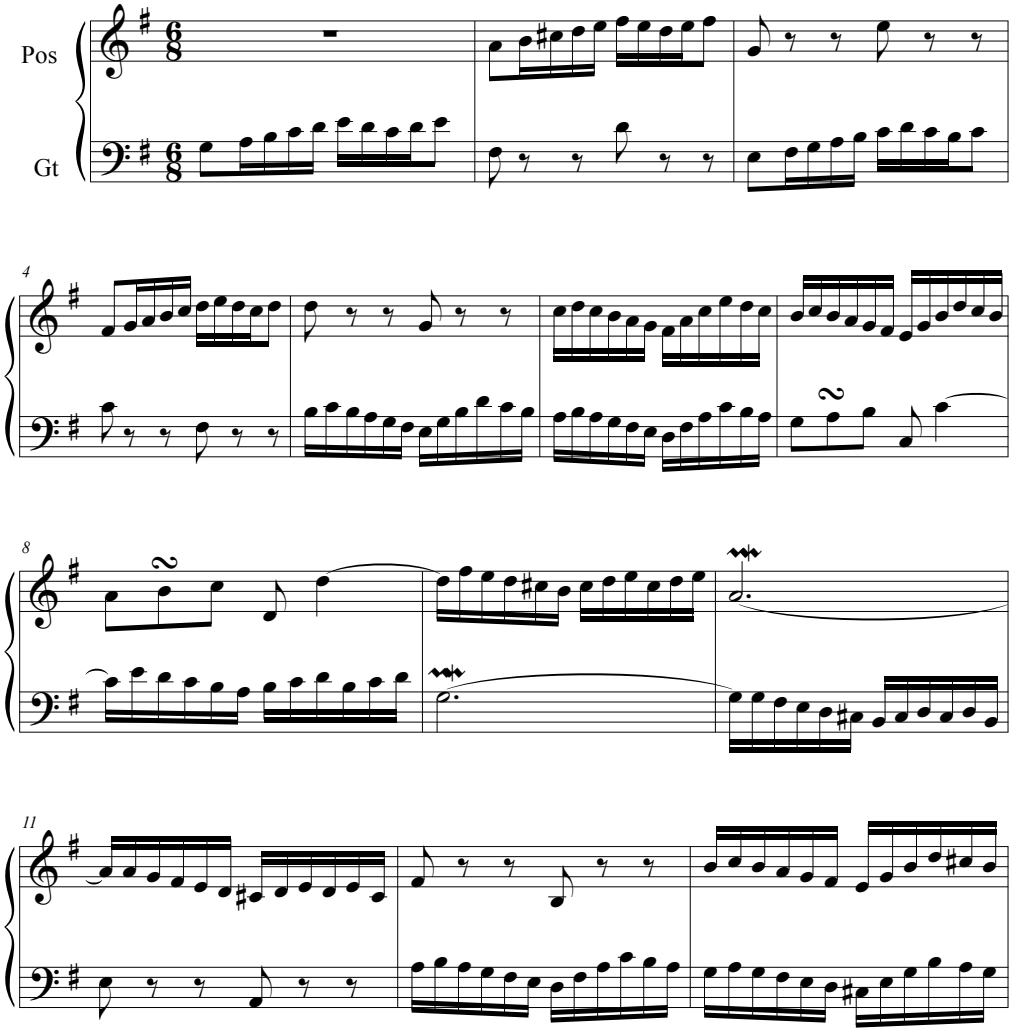
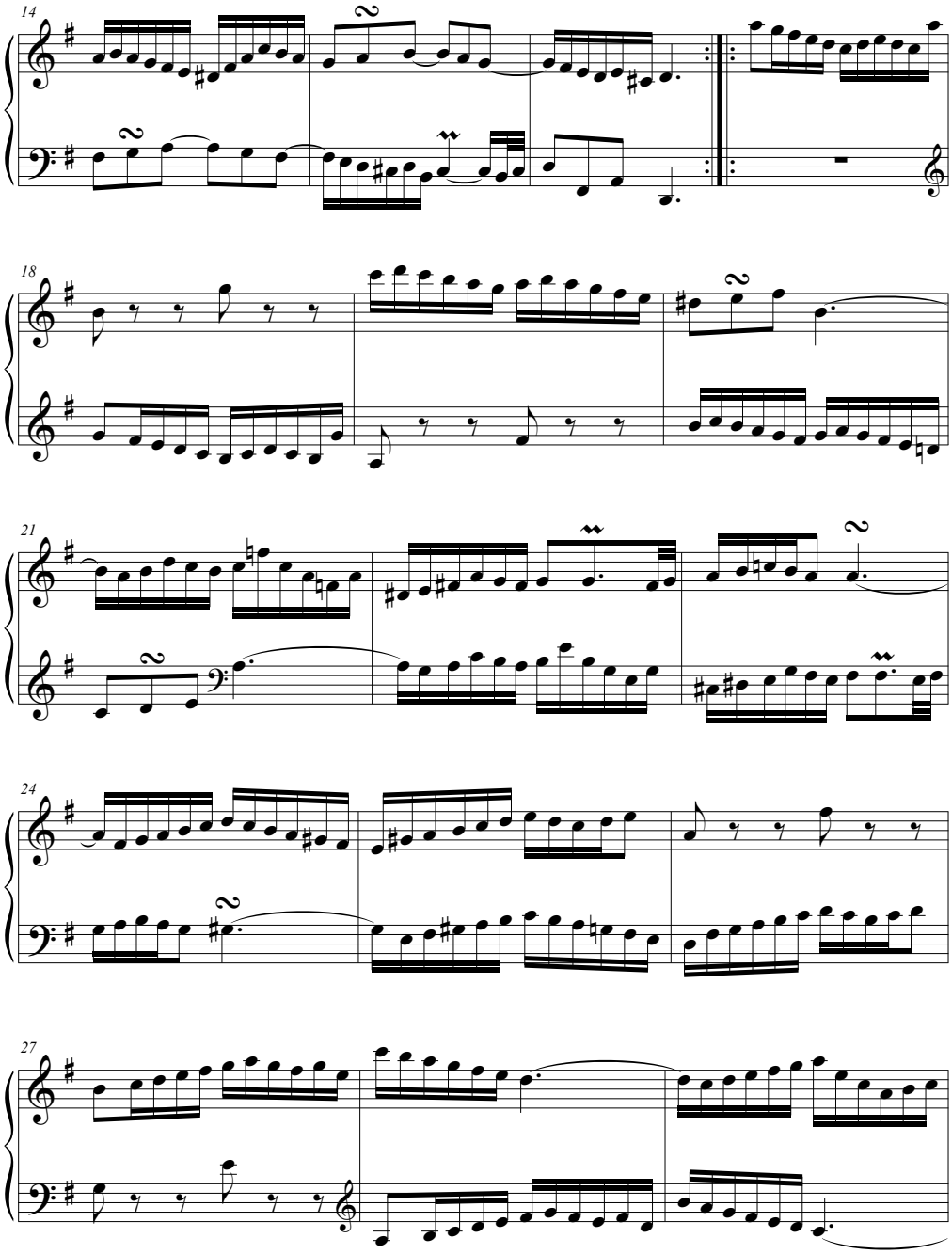
Pos - Gedackt 8, Principal 4, Sesquialtera, Gemshorn 2, Scharff
Gt - Principal 16, Octav 4, 2, Mixture, Viola da Gamba 8, Trompet 8

VARIATIO 27. à 2 Clav.

Canone alla Nona

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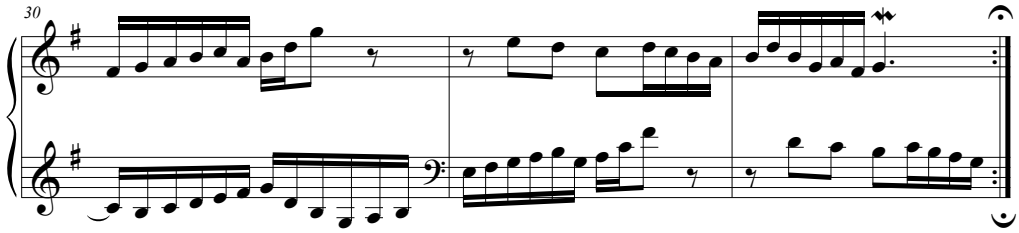
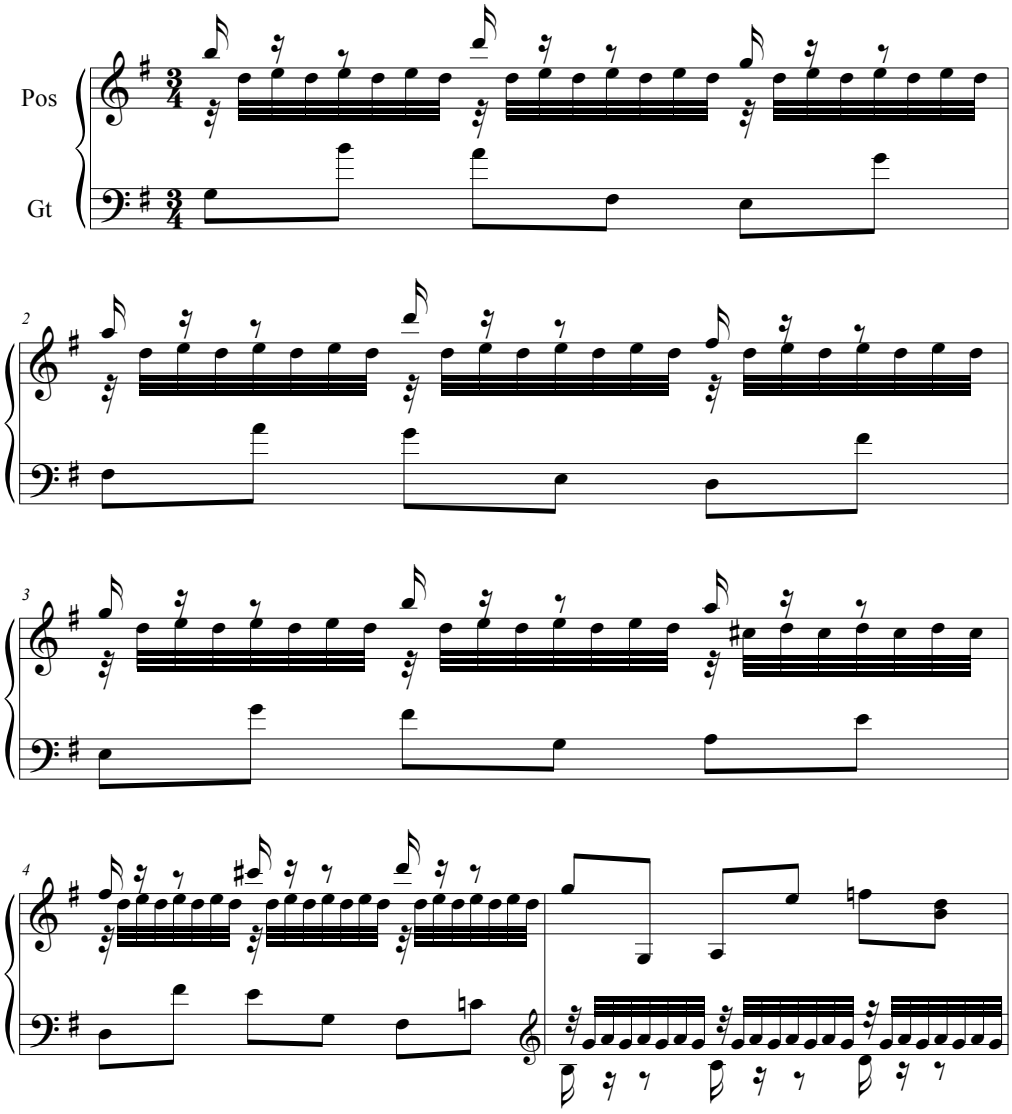
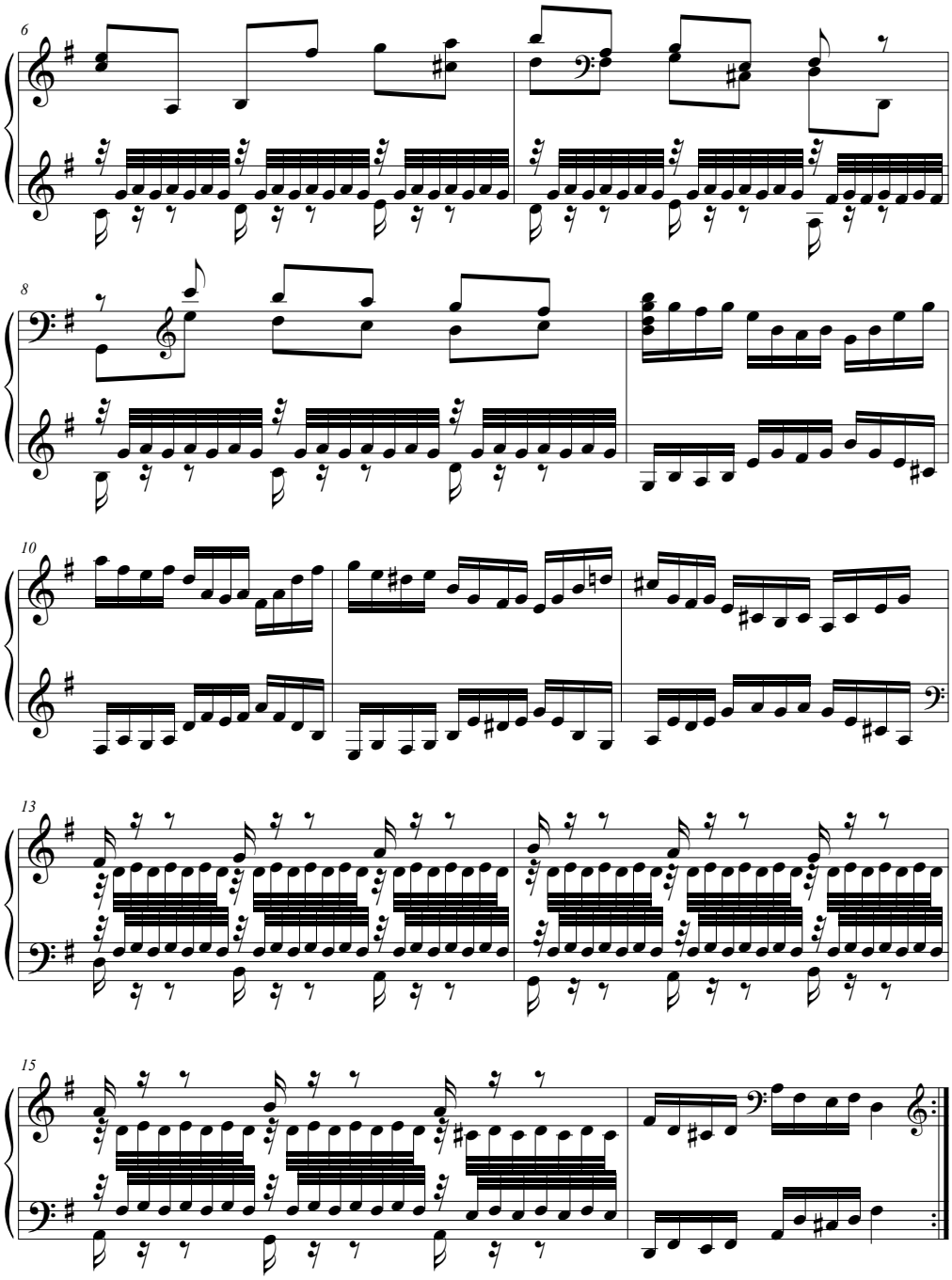

30

Pos - Gedackt 8, Blockflöte 4
Gt - Hohlflöte 8, Spitzflöte 4

VARIATIO 28. à 2 Clav.

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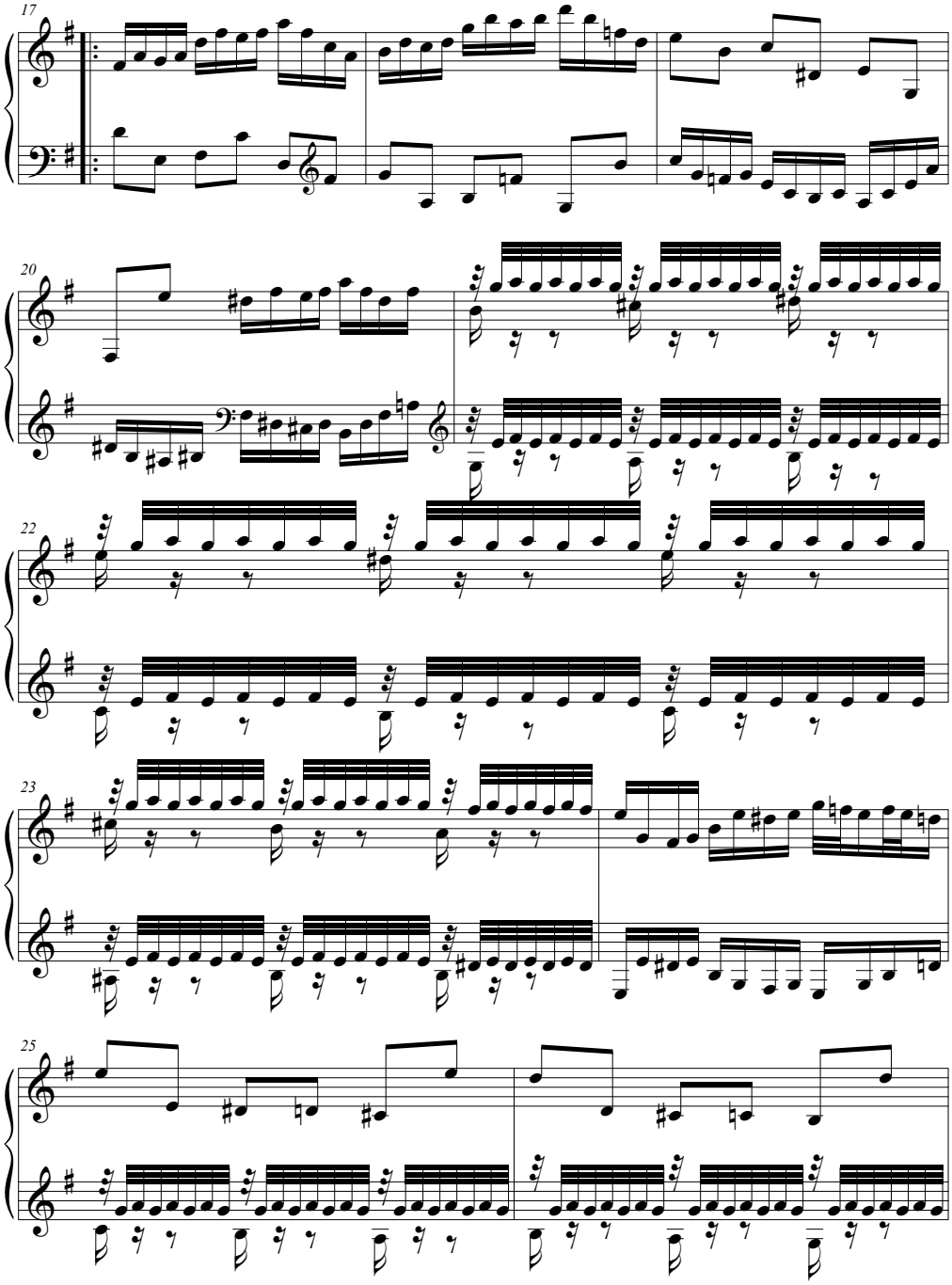
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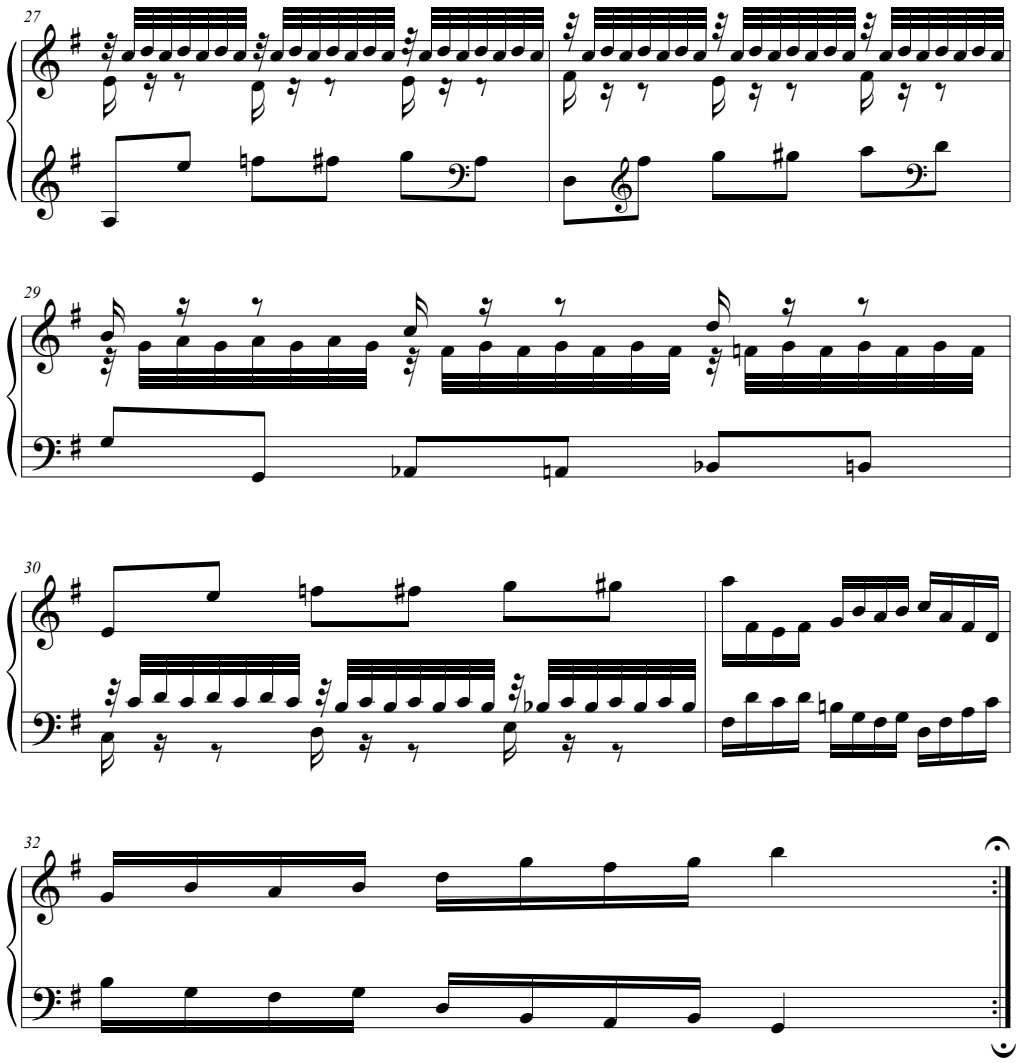
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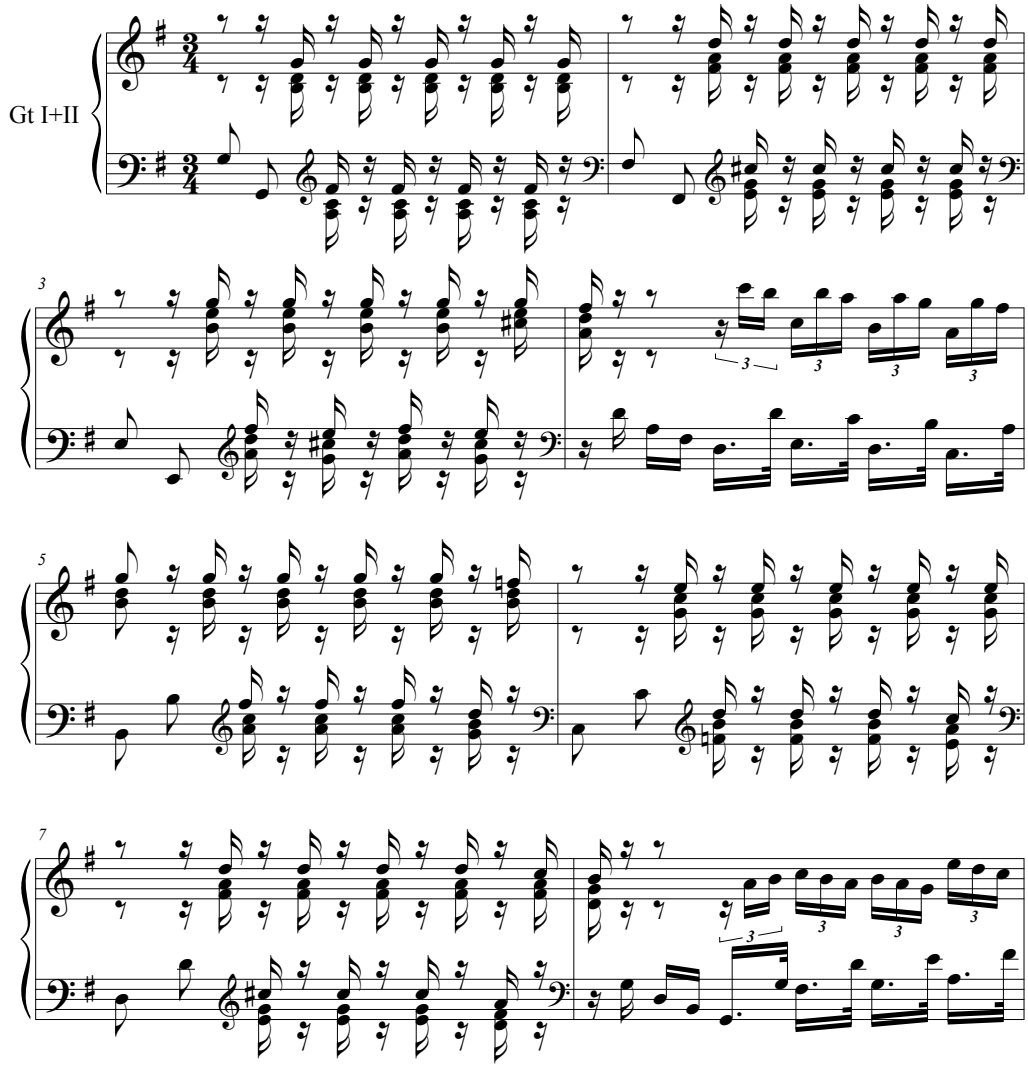
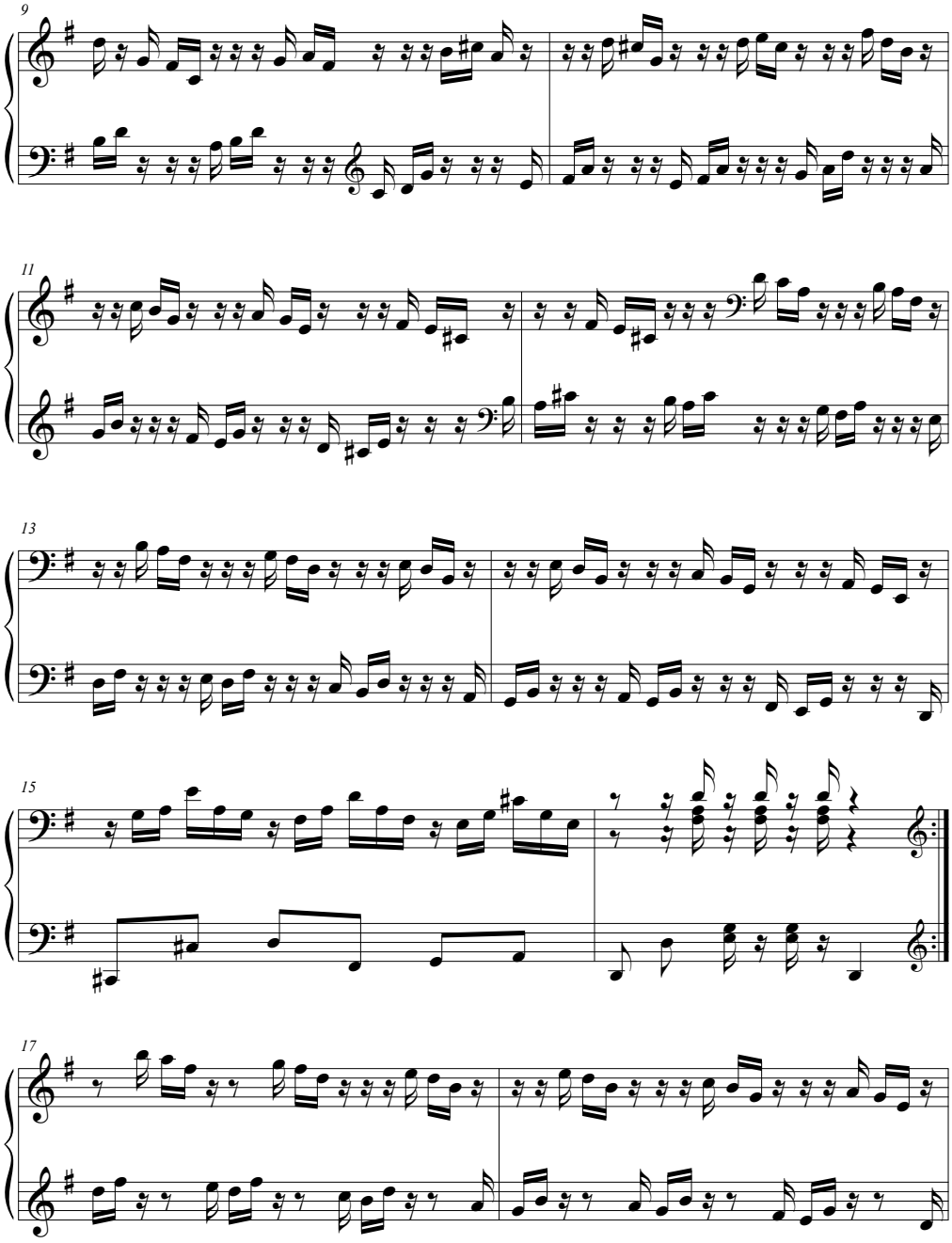
29
30
32

Pos - Gedackt 8, Principal 4, Quint, Gemshorn 2, Trichterregal 8, Scharff
Gt - Principal 16, Octav 8, 4, 2, Mixture, Trompet 8, Viola da Gamba 8

VARIATIO 29. à 1 ovvero 2 Clav.

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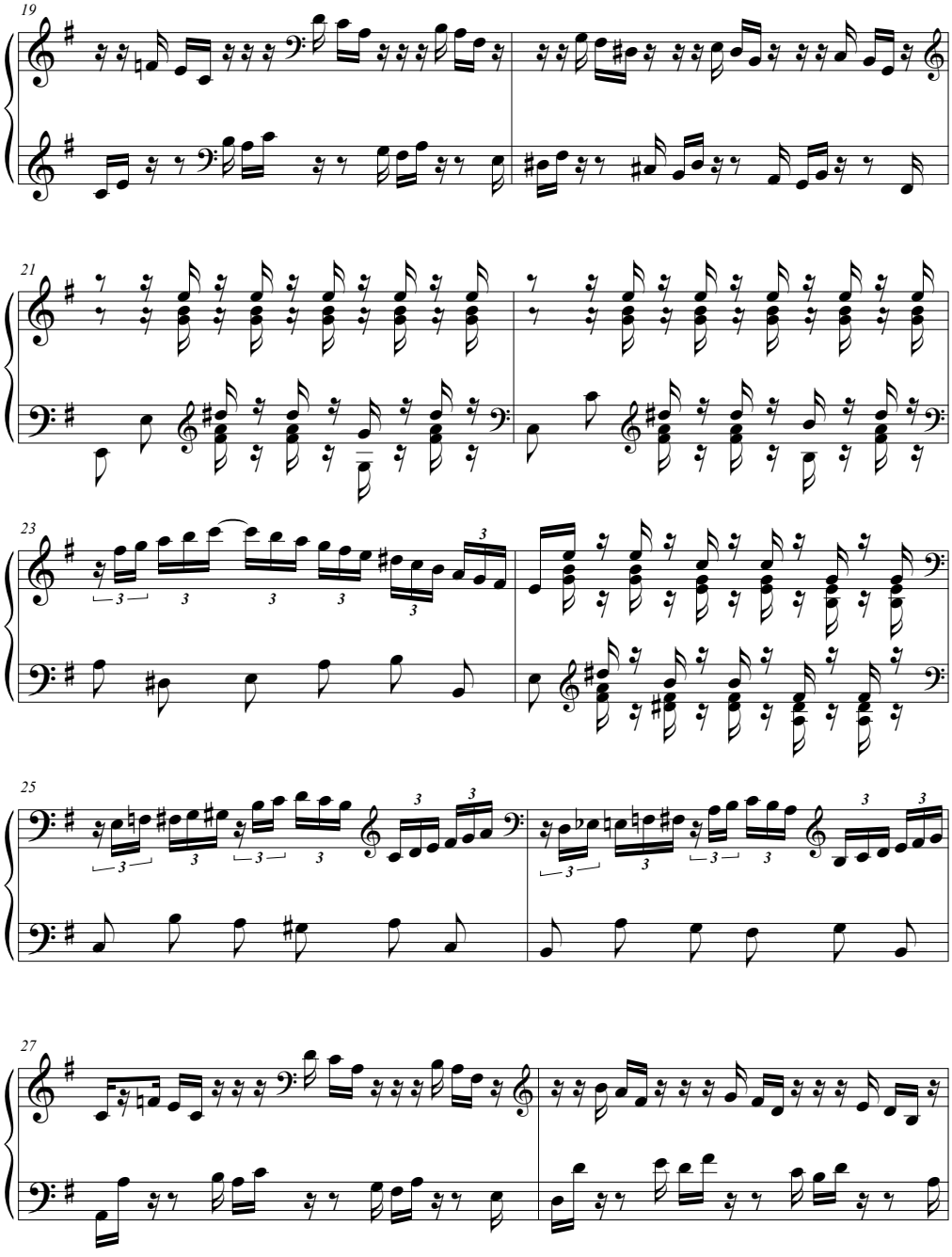
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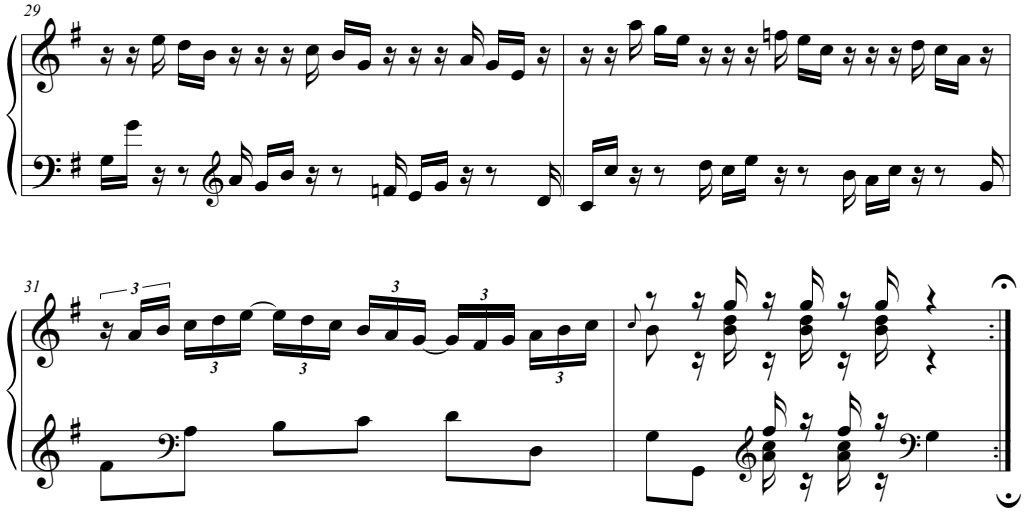
29
31
3
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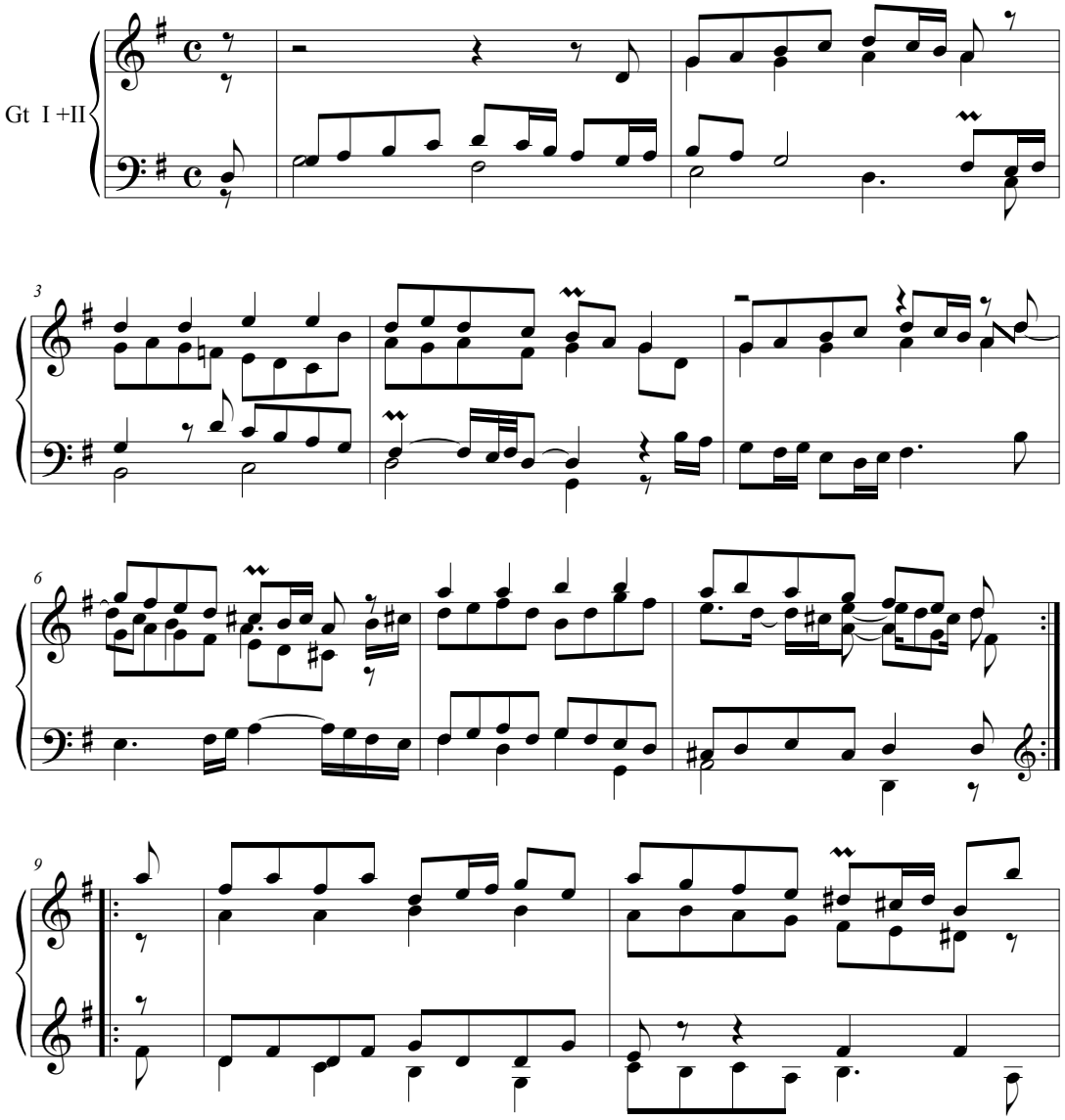
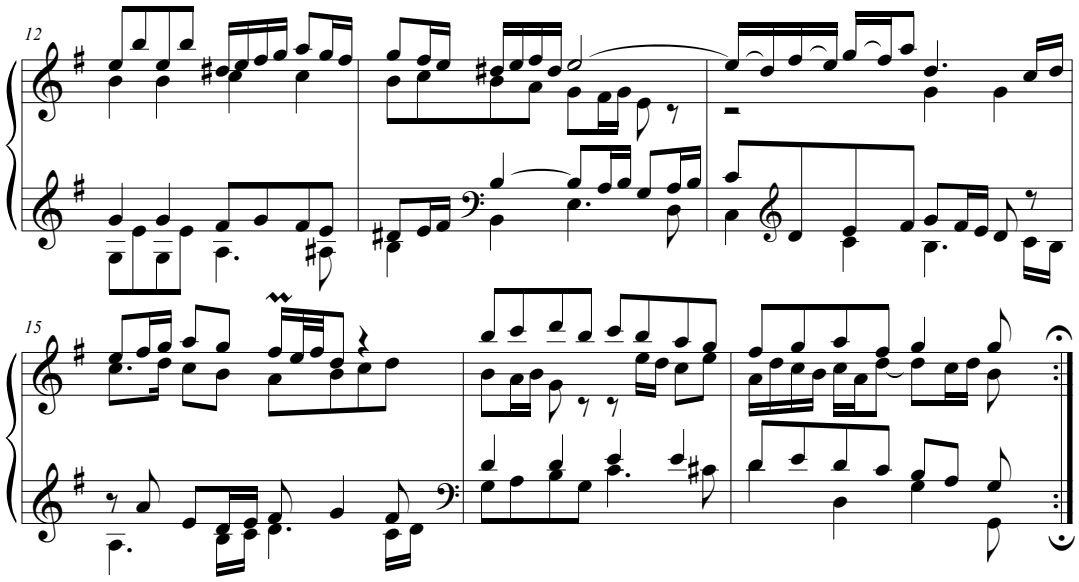
Pos - Quint, Schalmey 4, Trichterregal 8, Dulcian 16
Gt - Octav 8

VARIATIO 30. à 1 Clav.

Quodlibet




12
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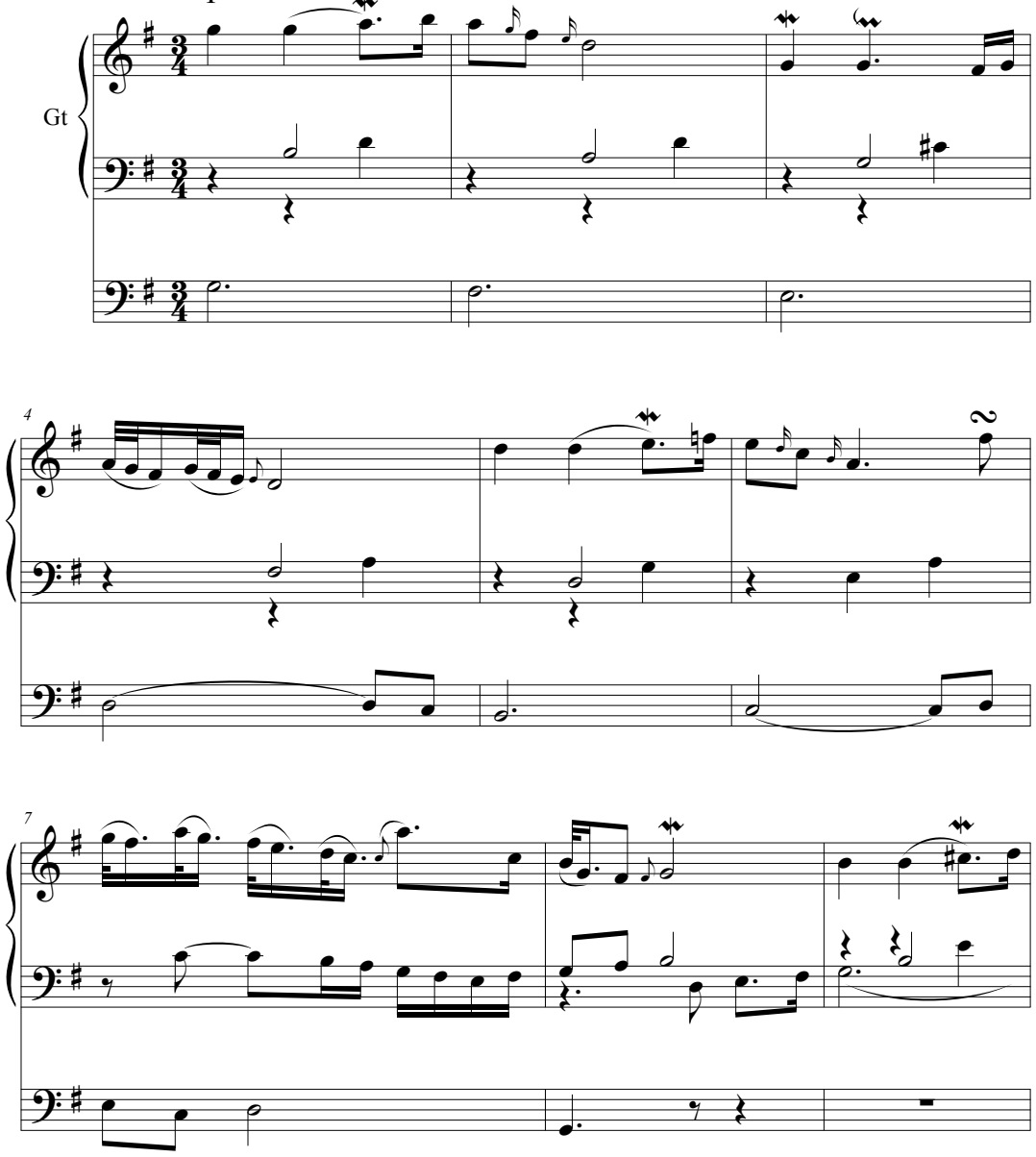
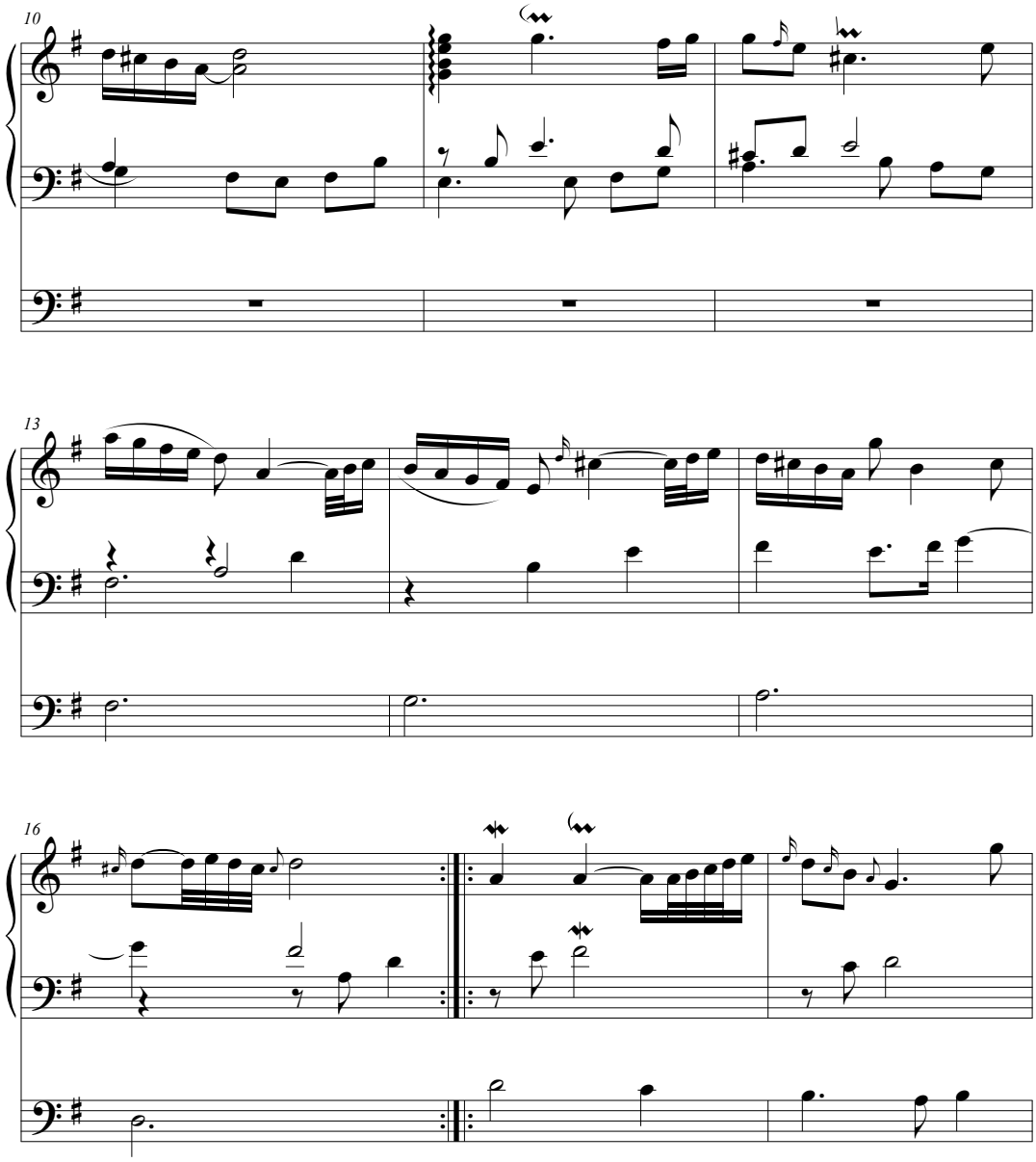
Gt - Hohlflöte 8, Tremulant
Pos - Gedackt 8
Ped - Principal 16

Aria da Capo

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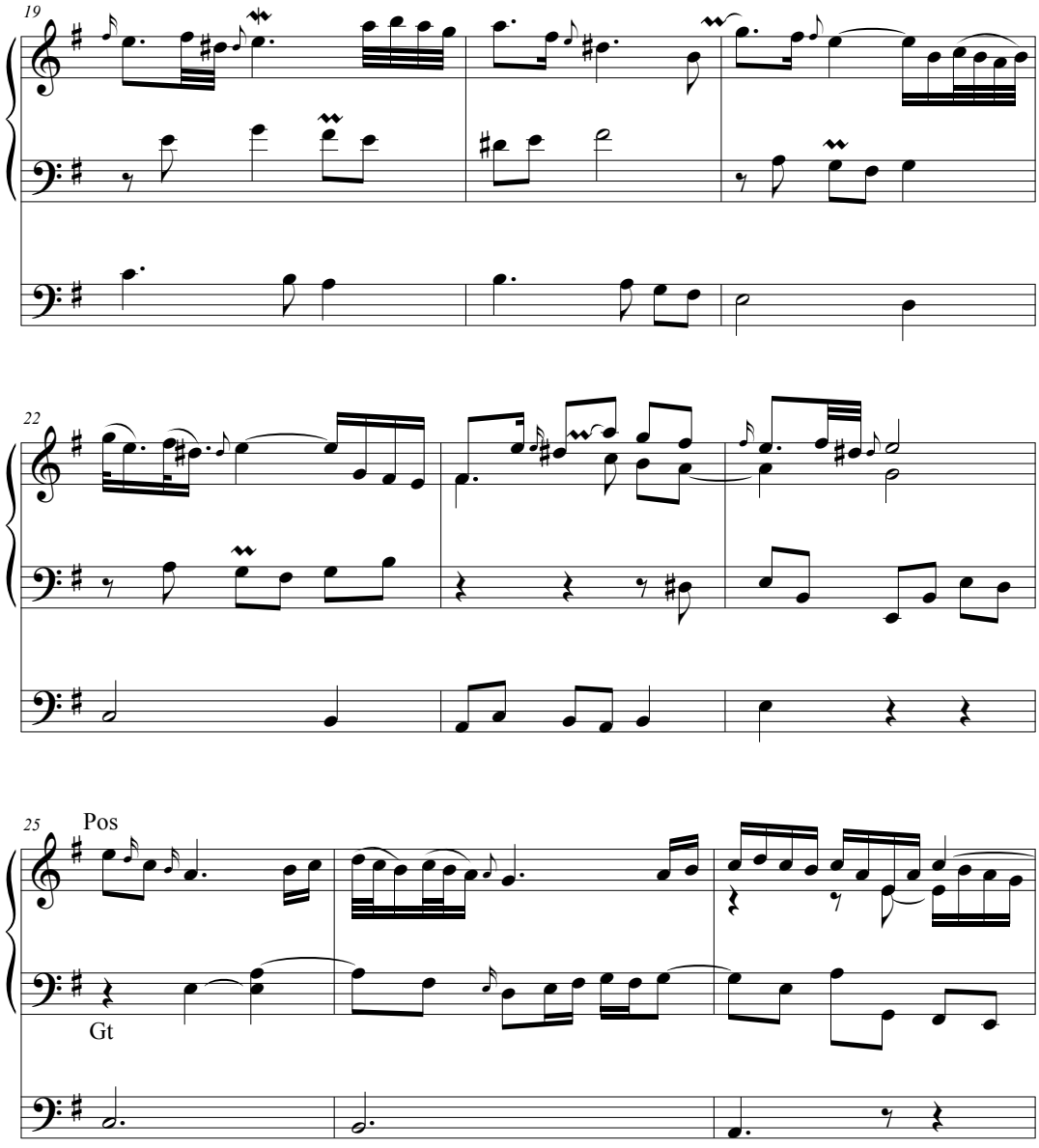
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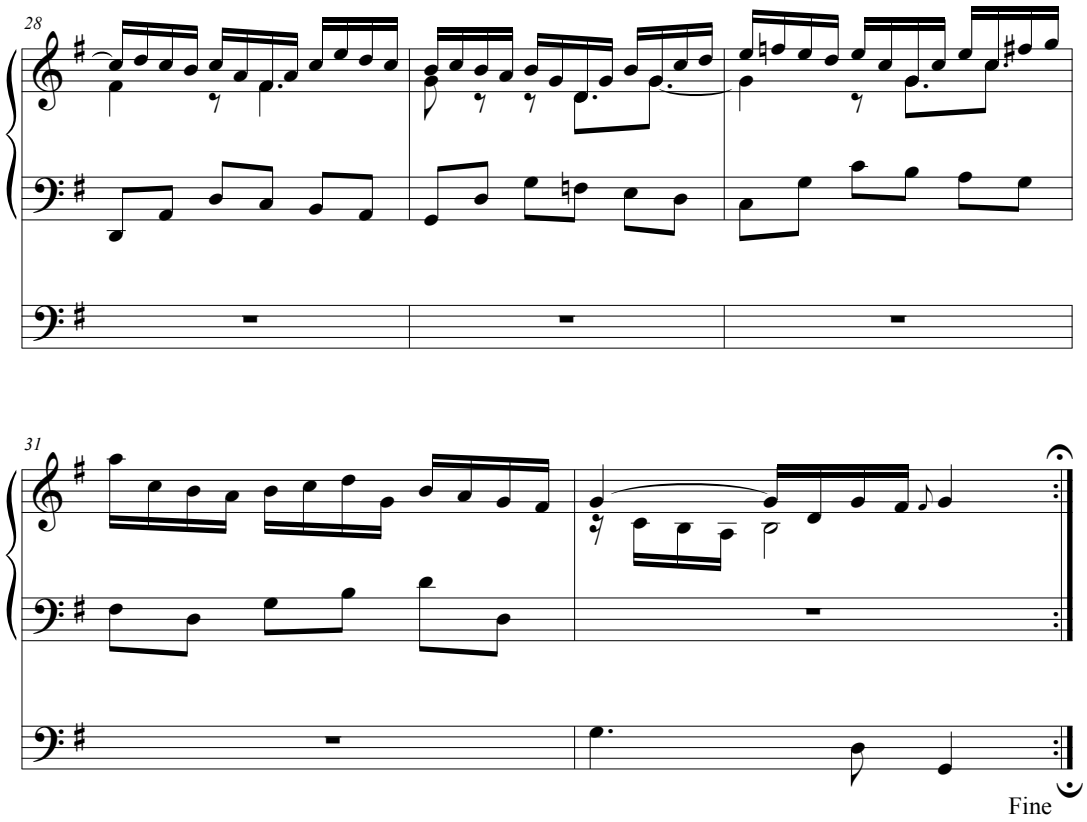
Pos
Gt


28
31
Fine

APPENDIX B

A LINK TO THE RECORDING

https://drive.google.com/file/d/0By_vPnAEAVQKOHRkM1N3cG5wNTg/view?usp=sharing