EIR

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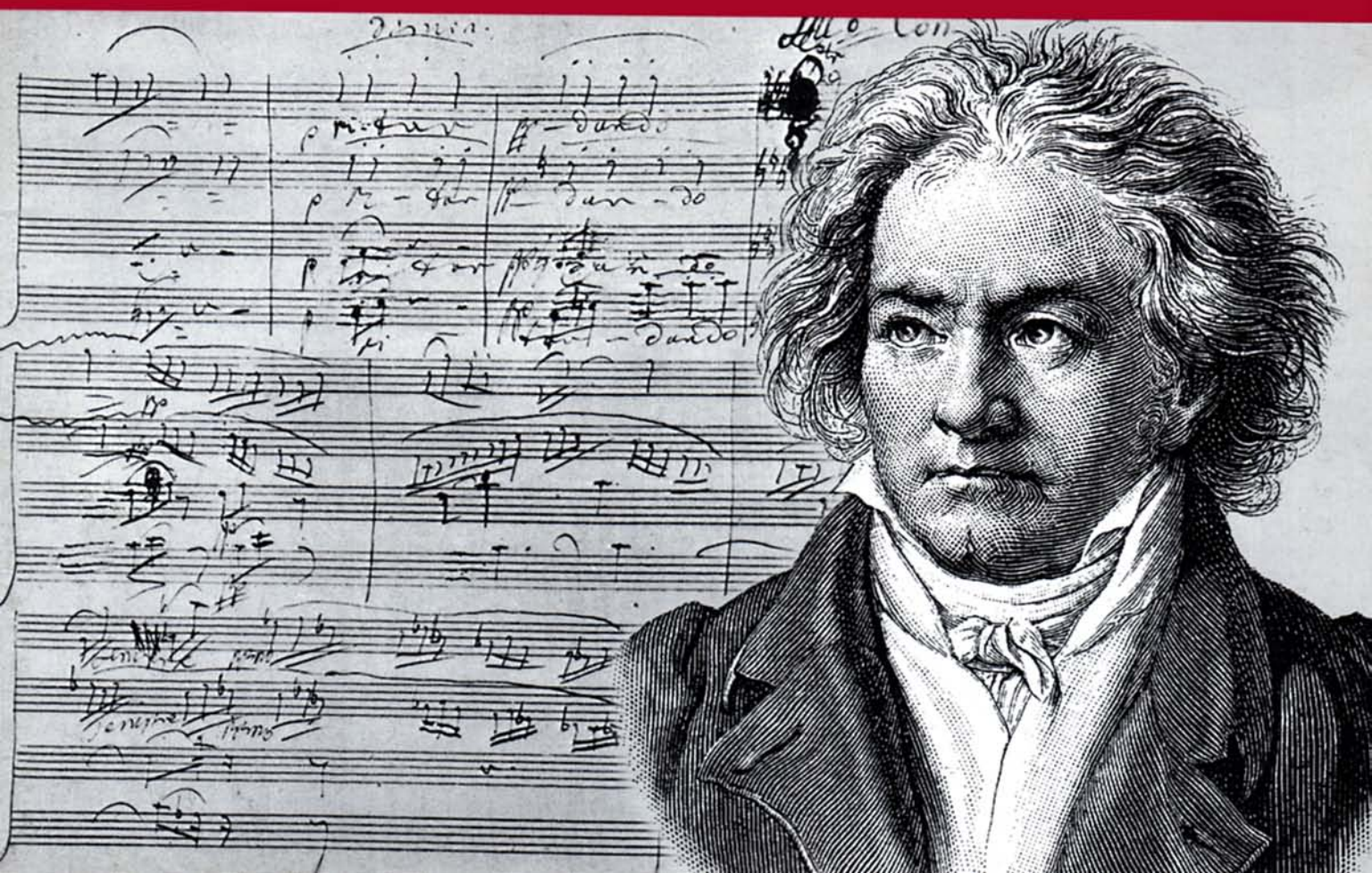
The case of Classical motivic thorough-composition



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This week's issue of **EIR** features 'The case of Classical motivic thorough-composition,' an Appendix to Lyndon LaRouche's 'The Substance of Morality.' For further investigation of the issues addressed in this Special Report, read:

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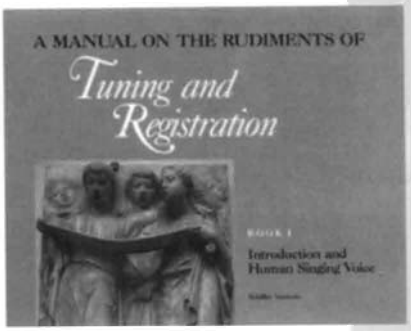

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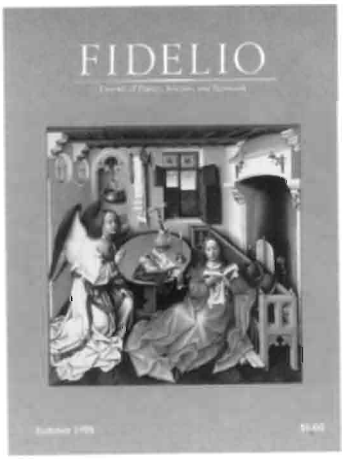

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'This m-fold manifold [of principles of Classical-artistic composition] expresses the passion, the driving and directing force which underlies and otherwise governs both scientific and artistic progress.'

—**Lyndon H. LaRouche, Jr.,**
'The Substance of Morality'

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EIR

From the Associate Editor

This issue goes to press on a day of spectacular turbulence on the world financial markets. Who and what will remain standing when the bourses open again on Monday morning, nobody can say. What we can say with certainty, however, is that *EIR* and Lyndon LaRouche, uniquely, forecast this crisis, and know what must be done to save those institutions that are indispensble for the surival of nations.

Following our news reports on these breaking developments, we present a most unusual *Feature,* the musical Appendix to LaRouche's June 26 *EIR* article, "The Substance of Morality." Special thanks to Kenneth Kronberg, editor of *Fidelio* magazine, for overseeing this package. Thanks also to John Sigerson and Werner Hartmann, who typeset the musical examples. To introduce the work, I turn the remainder of this column over to Mr. Sigerson:

"Even before the 1992 publication by the Schiller Institute of Book I of *A Manual on the Rudiments of Tuning and Registration,* Lyndon LaRouche was already laying out the specifications for Book II, and a transatlantic group of his collaborators had begun to discuss the plan's implementation. LaRouche laid out the full scope of this challenging project, in his article 'That Which Underlies Motivic Thorough-Composition,' which *EIR* published on Sept. 1, 1995.

"So, when LaRouche specified the elements of a musical Appendix to 'The Substance of Morality,' members of this discussion group jumped at this opportunity to push the goal of producing 'Book II' one step forward to fruition.

"The content of the Appendix is unabashedly directed at those whose musical background enables them to peruse printed musical scores. But, let the musical illiterate be consoled: As LaRouche has emphasized, the *real* music lies not in the markings on the page, nor in the notes they represent, but in what lurks 'between' or 'behind' those markings. So, even if you cannot follow the arguments in detail, you can still follow their gist, by attentively listening to great performances of the Classical musical works to which we refer. Most of the larger works have been recorded by the great German conductor Wilhelm Furtwängler, while Beethoven's late string quartets have been marvelously performed by the Amadeus Quartet. If you have never heard these works, you don't know what you're missing!"

Susan Welsh

EIR Contents

Departments

Photo and graphics credits: Cover (Beethoven portrait), www.arttoday.com. Page 27, EIRNS/Stuart Lewis. Pages 29-103, EIRNS/John Sigerson and Werner Hartmann.

Corrections: On the cover of our last issue, we published a photograph of Helga Zepp-LaRouche in Brazil, at an awards ceremony for Presidential candidate Dr. Eneas Carneiro. The person handing Dr. Carneiro the award from the City Council of São Paulo was mistakenly identified: He is City Councilman Oswaldo Eneas, no relation to the Presidential candidate.

Also in last week's issue, an editorial error was introduced on p. 63, in footnote 31 to Lyndon LaRouche's article, "What Will Happen, If . . . ?" Stephen Spielberg's film *Amistad* was actually based on Howard Jones's book *Mutiny on the Amistad* (Oxford: Oxford University Press, 1987).

Economics

Special Feature

Ludwig von Beethoven, with a page from his autograph score of the String Quartet in E-flat major, Op. 127—the three measures, which precede the *Allegro con moto* of the finale, and the subsequent measures. Op. 127 belongs to the composer's late quartets, in which he unfolded the art of four-voice composition in an unsurpassed manner.

Volume 25, Number 35, September 4, 1998

International

National

Will Russian default become the 'Kreditanstalt' of 1998?

by William Engdahl

On Oct. 14, 1997, Federal Reserve Board Chairman Alan Greenspan warned that the integrated electronic trading in global financial markets has created "mechanisms for mistakes to ricochet throughout the global financial system." By the end of the week of Aug. 28, 1998, in the wake of the collapse of Russian state finances and currency, the world had been plunged into just such a condition, of a systemic rolling collapse, a process which is just heating up. Stock markets from Tokyo to Frankfurt to Budapest to Mexico City, from New York to Johannesburg, are all collapsing at rates unheard of in recent memory, with no bottom in sight.

The commodity price index, CRB, has fallen to its lowest in 21 years. The price of gold has fallen to $273 an ounce, down from more than $400 a year and half ago. Oil prices, now at ten-year lows, continue to plunge, threatening the state finances of countries from Mexico to Venezuela to Russia to members of the Organization of Petroleum Exporting Countries. Japan's stock market has plunged to its lowest level since 1986.

The global dimension of the situation is leading some observers to ask whether the Russia default will become the "Kreditanstalt" crisis of 1998, a reference to the May 1931 collapse of Austria's largest bank which brought down Germany's Danat bank, and triggered a chain-reaction banking and economic crisis which plunged the world into depression. In reality, the situation holds potential for orders of magnitude worse crises. The world has entered what economist Lyndon LaRouche warned of in June 1994, in his Ninth Forecast, namely, a global systemic collapse which will rival that of the Black Plague devastation in Europe in the 14th century—that is, barring emergency action by governments to build a new monetary order.

In fact, many people have begun to rethink whether a New Bretton Woods agreement, as LaRouche has suggested, including provisions for fixed currency exchange rates, is indeed overdue (see *Commentaries,* below).

The de facto default on Aug. 23 on Russia's sovereign debt owed Western institutions was nominally the detonator of the ongoing global shocks. The meltdown of Russian financial markets has triggered waves of near-panic selling across the markets of eastern Europe. At the same time, fears of the fallout from Russia's de facto state debt default on some $40 billion worth of ruble-denominated domestic debt held by Western banks—mostly German, Swiss, and Austrian—sent those countries' stock markets into a tailspin. And, billions more in Eurodollar loans of the Russian government and companies has not even yet been discussed.

The German DAX stock index as of Aug. 27 had lost 19% since its peak on July 18, when the Russia crisis began to set off alarms. The French CAC stock index has dropped 15%, and the Czech market has fallen 23%, Austria 27%, and Hungary 39%. The currencies of eastern Europe, until recently an island of relative calm, have begun a major sell-off as foreign investors begin to flee all so-called risky markets for the presumed safety of AAA-rated government bonds. But, not even all government bonds are being sought out. The most in demand are, curiously, German government bonds and, more understandably, U.S. Treasury paper.

Russia disintegrates

In Russia, it would be difficult to conjure up a more disastrous scenario than the current reality. On Aug. 26, German Finance Minister Theo Waigel declared that Russia could expect no aid from either the International Monetary Fund (IMF), the Group of Seven, or the European Union. "Russia must do it by itself," he declared. Rapidly assessing that the

odds at this point that Russia would do "it" were nil, international and domestic holders of rubles abandoned hope of a miracle rescue and made a panic exit, driving the ruble's official exchange rate to the dollar down 12% before trading was closed for the day. The trade remaining in the ruble-deutschemark rate plunged 41% in one day. The following day, convertibility of the ruble, a cornerstone of past years' IMF reforms which was used to lure foreign capital into Russia, was suspended entirely. "At this point no foreign banker is going to go near Russia for a long, long time," commented K.A. Olsen, an economist for a large Scandinavian bank dealing in Russia.

In effect, the Russian authorities are imposing capital controls. But controls alone, in the absence of an effective government dedicated to more than the interests of the tiny group of Russian billionaires, will still mean untold misery for the Russian population.

The focus is now shifting to the banks in the West which helped create, since 1995, one of the world's more spectacular speculation bubbles in Russian GKO and other financial paper. In that year, Crédit Swiss First Boston (CSFB), a major Swiss bank group, devised a scheme which would allow de facto insolvent Russian banks to give the appearance that Russian government finances were finally improving, and thus opening the way for large new dollar credits from the IMF and the World Bank.

According to on-the-scene observers, CSFB convinced the government, then headed by Viktor Chernomyrdin, to select a handful of private banks to receive government deposits of tax and other revenues. The banks then used this money as a deposit base to bid on sweetheart deals for Russian raw materials assets at deliberately cheap prices, creating the present system in which banks own large industrial groups. The banks, in turn, lent sizable funds to the state at minimal interest, funds they got in the first place from the state, which then allowed Russia to get the funds from the IMF which helped stabilize the ruble. Once the process was up and running, the appearance of a Russian "economic turnaround" was used to lure greedy Western banks into the pyramid scheme of GKO short-term debt.

CSFB has now been dealt huge losses in Russia. The bank has admitted to losses of up to $500 million, but banking community rumors say losses easily could surpass $2-3 billion and force the merger of CSFB with a larger bank. However, one candidate that is mentioned, Germany's Deutsche Bank, itself is reeling from losses in Russia, as well as in Asia. On Aug. 26, Standard & Poors downgraded Deutsche Bank from the coveted "AAA" rating, and called its outlook "negative."

German banks have rushed to create the impression that their risk in Russia is tiny, claiming that 90% of it is covered by Hermes state credit guarantees, i.e., by German taxpayers. The reality appears to be quite different. In a discussion with *EIR,* an official with the London-based bank rating agency IBCA-Fitch, while trying to downplay the Russian risk, admitted that the German banks have yet to reveal the full truth. "The German banks have so far only revealed their long-term loan exposure in Russia not covered by Hermes, a very low figure of several billions. Total German bank loans to Russia, according to BIS [Bank for International Settlements] data, are at least $56 billion. But that also does not include German bank trade financing of Gazprom and other trade not covered by Hermes. Nor does it include bank holdings of Russian GKO and other government debt which, at this point, I would call worthless," he said.

There is a strong suspicion in some quarters that German and other European banks with large Russian holdings are simply trying to hide the losses until the panic subsides. That could be some time off, as events are now developing.

Eastern Europe may be next

During the last week in August, the Polish zloty, Hungarian forint, and Czech koruna all fell sharply, the first such fall in months. The stock markets in those countries have been falling for weeks, but a drop in currency suggests panic flight by foreign investors out of those countries entirely, a forboding sign. Spread of the contagion to eastern Europe could be devastating for the German economy. In 1997, German trade with eastern Europe, notably Poland, Hungary, and the Czech Republic, exceeded that with the United States for the first time. German investment in those countries has been major, and a crisis there could have a severe impact on Germany, the heart of the EU economies.

"The spread of this crisis into the heart of European markets could threaten launch of the euro next January," London Bond Broking Ltd.'s Stephen Lewis told *EIR*. "Already we are seeing stresses between the various currencies of the euro-11 countries for the first time since May parities were fixed. If this divergence between government bond prices in Spain, Italy, and Finland, with that of Germany, widen, it could spell real trouble for the new European Central Bank."

The issue that began to spread alarm on Aug. 21, has been hushed up by the same banks which are desperately trying to hide the extent of their Russia exposure. "What really spooked the markets was the speech Friday of Prime Minister Kiriyenko," Lewis said. "When he told the Duma [Parliament] that Russia was 'about to enter' a major financial crisis, Western banks had a shock realization that the worst was about to hit. That brought up the real prospect of default by Russian banks, which are believed to hold some $100 billions in ruble forward contracts with Western banks. But these are over-the-counter derivatives deals which are off-balance-sheet of the banks, and are not covered by any Hermes or other guarantees. A derivatives default of this scale has never before been faced. The Bank of New England derivatives exposure in 1991 was $10 billion, as was Drexel Burnham."

Such a default could trigger a chain-reaction default throughout the entire global banking system, exactly as LaRouche and *EIR* have warned.

Commentaries

International clamor for a change in policy

Across the spectrum, there is acknowledgment that "savage capitalism" has failed miserably, and some are calling for a New Bretton Woods system.

Walter Meade a senior fellow at the New York Council of Foreign Relations, wrote in the Aug. 23 *Los Angeles Times,* that "even with the stock markets tottering around the world, the President and the Congress seem determined to spend the next six months arguing about dress stains. Too bad. The United States and the world are facing what could grow into the worst threat to world peace in 60 years.

"Forget suicide car bombers and Afghan fanatics. It's the financial markets . . . that pose the biggest immediate threat to world peace."

The Aug. 24 issue of the ***Wall Street Journal*** dropped the pretense that each "crisis" could be isolated and singly managed. The *Journal* wrote: "The financial firestorm that has been scorching economies around the globe is intensifying into one of the world's worst—and most baffling—currency crises since the system of fixed exchange rates crumbled a quarter of a century ago. What makes the crisis so unnerving is that there is no clear solution in sight—no financial firebreak that governments or international financial institutions can construct to slow the spread. Hopes that the crisis, ignited by the July 1997 devaluation of the Thai baht, would soon burn itself out have been dashed, by this month's devaluation and default in Russia and the side effects that flared Friday [Aug. 21], including record lows for the Mexican peso and the Canadian dollar, and the Venezuelan central bank's decision to give the bolivar more room to fall."

Larry Elliott wrote in the London *Guardian,* on Aug. 28, under the headline "Rescuing Russia."

"What is called for now is a new Bretton Woods, to rethink from first principles the way in which the global economy is managed" to provide a global alternative to the past 25 years of "unfettered capitalism, uncontrolled capital and unbridled laissez-faire policies." These policies have "done what Stalin could never do," i.e., bringing the West "to the brink of economic turmoil. . . . It is now recognized that the financial and political crisis that is engulfing Russia is not just a problem for Boris Yeltsin, but a threat to the stability of the entire global economy."

"The new Bretton Woods" would have to discuss "restoring sanity to a system that increasingly appears to be spiralling out of control. In practical terms, this would mean the global elite swallowing large dollops of humble pie. . . . The crisis in Russia is the logical conclusion to the misguided policies of the past 20 years." He criticizes the "parties of the center-left," in various governments, which "bought heavily into the new orthodoxy" of financial liberalism. What is needed now, are policies that "tax foreign exchange speculators. . . . The only real defense against the perils of globalization is the power of the state. And they need to understand it now, before it is too late."

"Taking On the Speculators," is the title of a commentary in the Aug. 25 *Journal of Commerce* by Hong Kong's representative to the United States, **Kenneth Pang.** Hong Kong, he said, has "the freest market in the world," where "Adam Smith is as revered as Mother Teresa is in India," but, he warned, "Not all speculation is equal." Those now attacking Hong Kong are "the kind of financial gamblers whose cold-bloodedness could freeze mercury at 10 paces." Authorities have confirmed "the substantial speculative selling of Hong Kong dollars by a few investment houses, acting on behalf of the hedge funds. . . . While they had every right to speculate, they had no right to do so at the public's expense. . . . Hong Kong is not against the shorting of the Hang Sang Index futures by hedge funds, or by anybody else. But there comes a point when national governments must defend the public good and their economies. . . . Our actions had nothing to do with Adam Smith and everything to do with responsible economic stewardship. Governments cannot sit idly by while speculators take delight in economic ruin."

Brazil's ***O Estado de São Paulo*** ran an editorial on Aug. 25 on "Hong Kong's Warning," citing an article by Hong Kong Monetary Authority head Joseph Yam, who explained why Hong Kong defended itself from the speculators: "People are important, and the government has the responsibility for the well-being of the governed. Markets can be efficient, but they can also produce disasters, as has happened in various so-called emerging economies. It is unacceptable not to intervene to protect people.

"Less than a quarter-century ago, few people would have called these statements into question. It would be unlikely that a government official would have judged it necessary, as Joseph Yam . . . did, to write an article reaffirming these points. That such an explanation was considered necessary is a significant historical fact. It shows how the cult of the Market has spread, and how it has altered the concept of social life. . . . But action in the national context may be insufficient.

"Thus, his warning directed to the governments of the

principal capitalist powers: Now is the time to act and stop uncontrolled speculation, because, if they wait to act, it could be too late to stop grave harm to themselves in recession and unemployment.

"A half-century ago, these kinds of negotiations brought about the formation of a reasonably efficient order. This order is finished, and it is time to find something new."

Russian "reformer" **Grigori Yavlinsky** evinced a quick change of heart in an interview with Italy's *Corriere della Sera* on Aug. 28. When President Clinton goes to Russia in early September, he should invoke Franklin Roosevelt's New Deal: A Russian New Deal should be preceded by "emergency therapy." "First, we must guarantee the survival of citizens, prevent them from starving. The emergency therapy must be drastic: Cut taxes on primary goods, favor national production, suspend the activity of private banks, and increase the power of the central bank."

On Aug. 25, Russian Premier-designate **Viktor Chernomyrdin** told *Komsomolskaya Pravda:* "The protection of social interests will be our first priority. The second will be state industrial policy, since we can't take Russia out of the crisis by purely monetary means."

The same topic was addressed at press conferences by State Duma Speaker **Gennadi Seleznyov.** He reported that the "tripartite commission" of representatives from the Duma (parliament's lower house), the Federation Council (the upper house), and Chernomyrdin's office, is working on a draft economic plan, using recent Duma resolutions, the Kiriyenko government's partially approved "anti-crisis program," and the Federation Council's "guidelines for government anti-crisis activities," the latter drafted chiefly by Sergei Glazyev's Analytical Center at the Federation Council.

Seleznyov was asked, "The focus is now on the anti-crisis program. Could you indicate the possible points of disagreement?" He replied: "I don't know what stumbling blocks may appear, but the main thrust of the program is to provide Russia with an industrial policy. We want to see the improvement in the welfare of our people and rehabilitation of the industry."

He continued, "If this main emphasis is preserved and if the government makes suggestions about certain growth points and how the economy can be restarted, and indicates which enterprises will implement that program and how—that would mark a step forward. So far, there is nothing but talk about the industrial policy. . . .

"You see, they all regard the industrial policy as monetarists, they believe that all economic processes can be regulated only by the ruble and the dollar. This is a most profound delusion. Everything is by far not like this. There must be a state protectionist policy, a tough protectionist policy if we want to provide our people with jobs, pay them wages, give them a pension worthy of human beings."

At another press conference, Seleznyov, reported that the "tripartite commission" must formulate its "anti-crisis concept," before a coalition government can be formed. He noted that the cash money supply in Russia is only 4% of so-called GDP, the lowest ratio in the world, achieved in the name of "curbing inflation." But, what about relatively non-inflationary currency emission, in coordination with the central bank, functioning as a national bank, earmarking approved categories of spending it? Seleznyov said: "Printing money should be one of the anti-crisis measures. Emission of money under strict government control. This money could be directed to special accounts in the Central Bank and designed to pay for government contracts. As you know, at present the government is not paying anyone for its contracts. This money will not vanish, this money will not be converted into dollars. It will be used to pay workers, engineers, those who have already fulfilled the government contract and whose output is already working, but people have not yet been paid. There is nothing terrible about this."

These measures are similar to those outlined by Academician Leonid Abalkin, most recently in the Aug. 1 *Ekonomika i Zhizn* weekly, on the need for a state-guided monetary and credit policy, aimed to restart real growth, as the only way competently to create a tax base.

Financial guillotine poised over Brazil

by Lorenzo Carrasco

The worsening of world financial turbulence on Aug. 21, which has become known in Brazil as "Black Friday," triggered a moment of pure panic on the São Paulo financial markets, when the Bovespa index plummeted more than 10%, forcing resort to a "circuit breaker" which suspended stock operations for more than an hour and a half. This mechanism has not been used since last October, when the stock market suffered a 14% one-day fall. Later in the day, due to behind-the-scenes intervention of the government—which ordered the National Bank of Economic and Social Development and the pension funds to buy up falling stocks en masse—the market decline was halted, and closed down just 2.9% for the day.

Over the month of August, the Bovespa index registered a nearly 30% loss. At the same time, Brazil's renegotiated foreign debt bonds, known as C-Bonds, also collapsed. During "Black Friday," they reached the point of being negotiated at 54.5% of their face value, meaning that interest rates on these bonds rose to 11.76% above what is being paid for 30-year U.S. Treasury Bonds, the worst level since April 1995, at the height of the Mexico crisis. All of this means an increased risk for international speculators in Brazil; put another way, this could be the forerunner of what could turn into a major speculative attack against the country, a high probability given that international speculators know full well that the only goal of the current government of Fernando Henrique Cardoso is to guarantee his reelection in the six weeks before the Oct. 4 elections.

As a result of this scenario, capital flight during August approached $7 billion; at the time of this writing, no one knows how much the country's reserves have fallen. Central Bank President Gustavo Franco acknowledged that monetary authorities are ready to lose $10 billion of the nearly $70 billion in reserves, in defense of Brazil's currency, the real. But, taking into account the financial market as a whole, potential flight capital could well exceed the government's projection. In fact, the government's most recent measures reveal that it, too, is aware of this probability.

Desperate measures

On the day of the panic, the Brazilian Central Bank offered speculators 1 billion reals (some $900 million) in Special Central Bank Notes (NBC-E), which are one of the government's numerous internal debt bonds that are indexed to the dollar exchange rate—that is, they are effectively denominated in dollars. Interest rates offered on the NBC-Es were 18.5% above the exchange rate, when in previous auctions the rate was 12%. In the coming days, another half-billion reals worth of NBC-E bonds will be put up for auction, as will 500 million reals in National Treasury Notes, Series D (NTN-D), which are also indexed to the U.S. dollar. Further, the government will allow the minimum time that foreign capital must remain in Brazil to be reduced, thereby allowing in more volatile capital. Equally suicidal, the government will allow 100% of the loans Brazil's banks are taking in abroad, supposedly to finance agriculture, to be invested in government debt paper.

What is clear from all of these hyperinflationary measures is that the government has no other defense available to it but to burn up its reserves, or to issue still more domestic debt paper. An increase in interest rates, as was done last October, will not have the same effect of keeping capital inside the country, given that 60% of the domestic debt is linked to "post-fixed bonds," that is, to bonds whose interest rates are fixed at the point they come due (not at the time of issuance), as the average of the rate applicable during the term of the bond. Therefore, the government insists that it will not increase domestic financial rates, because this would cause the fiscal deficit to rise even more dramatically than it currently is.

Speculation in domestic debt

Beyond all the speculative algebra, the real problem lies in the escalation of the domestic debt, and in the payments on that debt, which have worsened the fiscal deficit—today more than 7.1% of the Gross National Product. As Nestor Perini, the coordinator of the Economic Council of the Rio Grande do Sul Industrialists Federation, declared on Aug. 21 to the newspaper *Correio do Povo* of Pôrto Alegre, the conservatively estimated 15% interest rate carried by the 315 billion reals public debt requires annual debt service payments of $45 billion, approximately 6% of Brazil's GNP. Meanwhile, the private sector, with its debt of 570 billion reals at an interest rate of 30-35%, is paying 170 billion reals annually in debt service (20% of GNP).

In sum, and despite the government's systematic denial that the country is vulnerable to a situation like that of Russia, there is no doubt that the guillotine of the financial speculators is being readied against Brazil, notwithstanding the agreements from early this year struck between President Cardoso and mega-gambler George Soros. The only real question now is whether the crisis will hit before or after the Presidential elections on Oct. 4. If before the elections, such a crisis will lead to the evaporation—within hours—not only of Brazil's monetary reserves, but also of the reelection dreams of the supposedly invincible President Cardoso.

Report from Bonn by Rainer Apel

Unprepared for leadership in a crisis

The political elite prefers to stick with the monetarism of the International Monetary Fund.

With the Sept. 27 elections for national parliament less than four weeks away, the economic policies of the two biggest parties, the governing Christian Democrats (CDU) and the opposition Social Democrats (SPD), are coming more into focus. It is expected that under the increasing pressure from the financial crises in Asia and Russia, the two parties will form a Grand Coalition after the elections. This is what a majority of voters and industrial managers want, but, how do the two parties view the ongoing global economic crisis?

Among the more apparently reality-oriented comments was one by Ernst Schwanhold, chief economic policy spokesman of the SPD parliamentary group, in Bonn on Aug. 24. "The Russian crisis," he said, "is escalating in a dangerous way, with massive threat potentials to the German economy, banking sector, and stock markets. . . . Russia and the Russian crisis are an essential component in a world economy that is turning more and more problematic."

Schwanhold said that, "according to estimates done by Deutsche Bank Research . . . 38% of the world economy is more or less in a state of crisis: Southeast Asia has had grave problems for a year; in addition, Japan has bad loans in the range of 1.3 trillion German marks; there is strong pressure on China, including the natural catastrophe; and now, Russia is on a slide down and insolvent. Moreover, the situation in Latin America is getting more problematic. And, the United States is in a process of controlled conjunctural downturn."

Even more precise were remarks by SPD national party chairman Oskar Lafontaine, in Bonn on Aug. 24. He said that the Russian crisis must be seen in "the broader context of the worsening world economic situation," and that the Russian crisis cannot be solved in Russia alone. There must be "global agreements on a fixed exchange rate system," he said, because "the world financial markets need an ordering framework."

By contrast, the government of Chancellor Helmut Kohl prefers to talk the Russian disaster down. Its view was summed up in the Aug. 20 *Frankfurter Allgemeine Zeitung:* "The federal government states with emphasis that there is no crisis of the world currency system. There are problems with the functioning of the world financial system, though."

There is a paradox here: The CDU, of which Kohl is the chairman, denies the existence of a crisis, while the SPD addresses it. How these two views could cooperate in a coalition is the question. The answer is much simpler than most people think, because the two parties share the same principles of monetarism. Granted, Lafontaine is known for having a nose for new trends, like re-regulation of the financial markets, but he is also known for not grasping much more than that.

The search for actual concepts behind such fine-sounding statements among the Social Democrats, leads nowhere. Rather, SPD loyalties to the monetarist structures around the International Monetary Fund (IMF) are all-too visible. The SPD does not want a New Bretton Woods, and the SPD's Chancellor candidate, Gerhard Schroeder, has repeatedly said that he opposes transaction taxes and similar anti-speculation measures. He also said so in his Aug. 5 speech on globalization at Georgetown University, in Washington, D.C.: "We must minimize its risks and maximize its opportunities, not just for a minority but for everyone. To this end, market forces should remain unbridled; this century has taught us that attempts to do the contrary lead to disaster."

All that Schroeder was ready to endorse, was "jointly managing globalization." He met with U.S. Federal Reserve Bank Chairman Alan Greenspan on Aug. 5, and it has been leaked in the media that Greenspan voiced deep concern about the ongoing collapse of Asia, particularly Japan. It is not known what Schroeder told Greenspan, if anything. A senior SPD aide in Bonn told me, that the party's policy on the global financial situation is not to call for new institutions, but rather to make existing ones, including the IMF, the Group of Seven, and the World Trade Organization, "more flexible" and "more efficient." And, it is not known in the SPD, the aide said, that Lafontaine, for all his calls for a "return to fixed exchange rates," wants anything outside of the IMF structure. An SPD-led government would just do more than the present CDU-led government, to tap the "potentials" that the Social Democrats believe exist in the global monetarist structures.

This just confirms that the SPD is way behind the global debate on re-regulation, and is not part of any debate on a New Bretton Woods system.

The CDU acts the same, in the belief that staying with the sinking *Titanic* will prevent it from going under. An old party rival of Kohl's, Kurt Biedenkopf, in an ironic aside at a CDU campaign kick-off event in Dortmund on Aug. 23, said: "Had Helmut Kohl been the *Titanic,* the iceberg would have sunk."

Business Briefs

Poverty

Russia's Yeltsin urged to aid homeless children

A group of public figures has called on Russian President Boris Yeltsin to take "energetic measures" to help the country's some 2 million homeless children, Itar-TASS reported on Aug. 18. Their appeal said that "not only the future of the children rejected by society is threatened, but society itself."

The widespread homelessness among children is the result of the economic dislocation caused by the policies of the International Monetary Fund, and the consequent development of the "gray" economy, which has turned many of Russia's youth into drug addicts, prostitutes, and youthful bodyguards for the mafia.

Among those signing the appeal were former First Lady Raisa Gorbachova. Also on Aug. 18, Moscow's Commission on Vagrancy Prevention reported that there are some 30,000 homeless people in Moscow, the most prosperous city in Russia. The Russian capital has facilities to handle only 1,505 homeless.

China

Rail link to 'roof of the world' planned

In a move that will provoke howls of protest from the British and their cultist dupes, China has completed a feasibility study and on-site route surveying for a 1,100-kilometer rail line which will connect the Tibetan capital, Lhasa, with the rail system of central and western China. Besides its obvious strategic and economic importance, this rail line (called the Qingcang railroad) will be one of the most spectacular in the entire world, winding north-south through valleys between mountains ranging to well more than 6,000 meters in elevation.

Noting that "Tibet is the only area of our country which still has no railroad," the Aug. 14 *People's Daily* reported: "In the 1950s, the Railroad Ministry already began to survey and plan the Qingcang railroad. The first project was the section from Xining to Ge Er Mu, which was opened in 1984. Since July 1997, a group of experts from the First Railroad Bureau has been investigating the topography, morphology, geography, and plant-cover situation along the Qingcang railroad route. According to the proposed project, the line will begin at Ge Er Mu in Qinghai, traverse the pass into the Kunlun mountains, and then run via An Duo, Na Qu, Dang Xiong, and Yang Ba. . . . The total length of bridges and tunnels will be 30.6 km, and the total investment, calculated in 1995 fixed values, will be 13.92 billion yuan. . . . The Qingcang railroad will fill up a blank in our country's western rail system, and at the same time it will mark the end of the historical period when Tibet had no railroad."

Petroleum

No end in sight to oil price collapse

"There is no end in sight to the oil crisis; it is becoming more acute every day. If the price of world oil doesn't begin rising soon, the Asian crisis will become global very soon. Russia, Indonesia, Mexico, even Saudi Arabia and the [Persian] Gulf are hurting," a source close to the Saudi Oil Ministry told *EIR* on Aug. 18.

According to this source, "The major mistake was made last November in Jakarta at the OPEC [Organization of Petroleum Exporting Countries] meeting, when the Saudis insisted demand would continue to rise despite the Asian crisis. Now we have a huge supply glut overhanging the markets. Just last week, Saudi Arabia announced it might have to cut output again to firm prices, even by as much as another 800,000 barrels per day. But the market simply ignores it, doesn't believe it. Iran and Venezuela are both very soft on adhering to the cuts agreed to in March and June, but even a cold winter at this point will not alleviate the falling price soon."

Asked if Washington had pressured the Saudis to increase oil output in order to ease inflation pressures last year, the source replied, "Many conspiracy buffs in the Gulf jump to that conclusion, but this is not the 1970s or 1980s. This administration in Washington, I think at least, has realized that such strong-arm pressure from the United States in the long run only backfires. No, there is no U.S. pressure. The Saudis did this one."

Malaysia

Leaders steel people for national survival

Malaysian Prime Minister Dr. Mahathir bin Mohamad has been on an almost nonstop tour around the country since the announcement of the action plan of the National Economic Action Council (for credit creation to recapitalize the banks and fund infrastructure projects), to rally people behind the government's plans to deal with the financial crisis, and to steel them against rumor campaigns threatening renewed outbreak of ethnic riots and aimed at undermining and ousting Mahathir himself. In this effort, Deputy Prime Minister Anwar Ibrahim has increasingly backed Mahathir, and echoed the Prime Minister's harsh attacks on speculators and criticism of the dysfunctional international monetary system.

Malaysian officials are closely following the anti-speculation measures taken by Hong Kong and Taiwan. Mahathir told a 2,000-person rally at a Workers' Day event on Aug. 18, that "we are studying various measures. We're studying steps on buying back shares. We hope we can do it." Measures being looked at include Hong Kong's interventions into the stock market, as well as Taiwan's efforts to stop banks from selling undervalued shares pledged as collateral.

At a 10,000-person National Front rally in Kota Kinabalu, the capital of Sabah, on Aug. 15, Mahathir alluded to contingency plans that he said some might consider "drastic," but called on the people to "have faith in the government," that whatever actions taken are well thought out. "I say this because sometimes the government has to make decisions that may be a shock to the people," he said. "We have to get the people's mind ready."

In his public speeches, he repeatedly hit

at foreign speculators and foreign media, and urged his audiences to continue to aspire to Malaysia becoming an industrialized country by 2020. "This is not a burden for the foreigners, it's our dream. We can turn that dream into reality through our own efforts," he said.

Indonesia

R&D must continue, says President Habibie

Indonesia must continue its research and development efforts, despite the economic and financial crisis, President B.J. Habibie recently told the staff of the Agency for Assessment and Application of Technology (BPPT), which he headed prior to becoming Vice President in March 1998. Habibie, who trained as a research scientist in Germany, said that a nation must have mastery of technology to enable it to become equal with other nations.

"We realize that investments in research are very costly—almost similar to investments in human resources. But I must convince you that such investments will not go to waste. We have to think about the future," Habibie said. He reminded the staff that many of the inventions developed by BPPT had contributed to increased food production and improving technology for building low-cost housing. He said that while many Indonesians have enjoyed the fruits of such inventions, "we should not easily become contented" with them, but pursue constant innovation.

On Aug. 22, Habibie signalled that privatization of state firms may be delayed, or at least slowed down, because current share prices are artificially depressed. In response to press questions, he said, "If you are going to sell company shares, you should sell it if it is moving and not if it's fairly cheap. I can imagine that one day all government enterprises, if they become healthy, will go public."

On Aug. 21, the government reneged on an earlier pledge to sell a majority share in the state cement manufacturer, Semen Gresik, saying that only a 14% stake would be sold, not the 35% previously pledged with the added perk of eventually handing over majority share to the winning bidder. The proposed sale of state-owned Krakatau Steel was abandoned in June, following domestic protests that it was being sold off too cheaply, based on closed bids. Habibie added that contrary to privatization plans launched under President Suharto, he would prefer direct placements rather than floating companies on the stock market, which would have the advantage of the purchaser re-investing in the firm and in the country, and bringing in know-how, infrastructure, and funds, thus restoring the country's economic credibility.

New Zealand

Privatization policy meets growing opposition

New Zealand's coalition government broke apart on Aug. 15, reflecting a growing backlash against Mont Pelerin Society economic policies which have devastated the country. Prime Minister Jenny Shipley sacked her Deputy Prime Minister, ending the coalition, leaving her with just 44 seats in the 120-seat parliament.

The dispute was triggered over the privatization of Wellington Airport. The minority member of the coalition wanted the airport to remain majority New Zealand-owned; Shipley's National Party wanted to make the sale to Britain's Heathrow Airport company. Wellington Airport was sold to Infratil, a New Zealand firm, at a firesale price of $61 million, after Heathrow pulled out of the tender process, citing "political instability."

Other cracks are beginning to appear in the Mont Pelerin Society's juggernaut in New Zealand, which since 1984, has reduced the once wealthy island-nation to economic rubble, *virtually unopposed*. There have been mass political demonstrations against the government's economic policies, and a new business group has been established, called New Zealand Business for Social Responsibility, for the express purpose of challenging the views of the Business Roundtable, the Mont Pelerin Society think-tank that has directed the so-called economic reforms since 1984.

Briefly

THE ASIAN CRISIS has collapsed copper, lead, and zinc prices 5% since January, and aluminum and nickel have lost 14% and 32%, respectively (41.6% for nickel since the Asian crisis began last September). According to British consultant Brook Hunt, 60% of aluminum, 55% of zinc, and 95% of nickel producers are now operating at a loss.

MYANMAR will receive $250 million of equipment and technology from China to help build the Paung Laung hydropower plant, the nation's largest, *China Daily* reported on Aug. 18. Once completed, the plant will increase Myanmar's generating capacity 30%.

IRAN will drill four oil wells in the Turkmen Bashi region of Turkmenistan, the National Iranian Drilling Co. said on Aug. 15. Turkmenistan began an oil swap with Iran in August, in which Ireland's Dragon Oil is shipping 7,500 bpd to the port of Neka on the Caspian, in return for Iranian light crude made available for export on the Persian Gulf.

ALAN GREENSPAN, chairman of the U.S. Federal Reserve Board, last year kept his personal investment portfolio almost entirely in short-term Treasury bills, according to his annual financial disclosure forms made public on Aug. 17.

VIETNAM imposed a temporary ban on new rice export contracts on Aug. 15, to conserve "national food security and stabilize food prices," an official statement said. Vietnam is one of the three largest rice exporters in the world. Demand from Indonesia, Cambodia, Laos, and China has been intense, because of regional drought.

PROSTITUTION in Southeast Asia is rapidly taking over as a major employer and money-maker, as unemployment soars, according to an International Labor Organization report released on Aug. 19. It represents 2-14% of GDP in Indonesia, Malaysia, Thailand, and the Philippines.

Terrorist flaunts 'covenant' with the British

by Jeffrey Steinberg

Less than 48 hours after the United States launched missile strikes against a pharmaceutical factory in Khartoum, Sudan and "Afghansi" terrorist camps near Khost, Afghanistan, the London-based spokesman for Osama Bin Laden, the man accused of masterminding the Aug. 7 bombings of the U.S. embassies in Nairobi, Kenya and Dar es Salaam, Tanzania, issued a fiery attack against the United States, and, in the same breath, defended what he called "a covenant of peace with the British government."

Bin Laden is widely described, in inflated, semi-fictional media accounts, as a one-man terrorist international, running a worldwide murderous insurgency, from a high-tech "bat cave" dug into the side of a mountain in Afghanistan. The fact is, as *EIR* has reported for the past two years, that Bin Laden also maintains a residence in London, and still enjoys sanctuary courtesy of the government of Great Britain and the British Crown. Furthermore, while the super-rich ex-Saudi no doubt provides financing to the worldwide Afghansi terror apparatus, he is by no means the head of the several-thousand-person-strong terrorist-for-hire network. To the extent that the Afghanis were involved in the two embassy bombings, they were the cat's paws for British and Israeli intelligence networks, out to drive the United States out of the African continent.

Therefore, no investigation that stops short of the hierarchy of Anglo-Israeli intelligence networks, ultimately responsible for the two embassy massacres, will put a dent in the global anti-American irregular warfare insurgency.

'Covenant of peace'

During an Aug. 22 interview in London with the Arabic daily *Al-Sharq Al-Awsat,* Omar Bakri, leader of the Al-Muhajiroon group and the self-described public spokesman for Bin Laden, was asked about "why the Islamist groups never attack British interests." He responded promptly, "I work here in accordance with the covenant of peace which I made with the British government when I got asylum. . . . We respect the terms of this bond as God orders us to do."

Bakri's blunt admission of collusion between the British government and the Afghani terror apparatus was seconded in the same *Al-Sharq Al-Awsat* article by Abu Hamza Al-Misri (real name, Mustafa Kamil), the leader of the Egyptian Al-Jihad organization's "Supporters of *Sharia*" front group, who is wanted for murder in Egypt, but enjoys political asylum in London. Al-Misri issued a direct threat of terrorist action against U.S. targets, in retaliation for the Sudan and Afghanistan strikes. Asked about his status in Great Britain, he explained, "They have interrogated me several times, but they have no law that bans statements concerning things that happen outside Britain."

It is now a widely recognized fact among governments throughout the Islamic world, that Lyndon LaRouche was right, in October 1995, when he warned, in an *EIR* Special Report: "A new wave of international terrorism is stalking the world. It is led by a horde of mujahideen mercenaries: human flotsam, like the 1920s 'rootless' veterans of World War I, cast upon the world in the wake of the 1980s Afghan war. This is the worst terrorism yet; it is much worse than that of the 1970s. It is coordinated from the capital of a former U.S. ally, London; worse yet, it was created with the complicity of former U.S. Vice President (and, later, President) George Bush."

Following Bakri's interview, pressure once again mounted on the government of British Prime Minister Tony Blair, to take action against the terrorists safe-havened in the United Kingdom.

On Aug. 23, the London *Sunday Times* published a story, entitled "Revealed: Arab Terror Chief's London Network," which detailed the London ties of Osama Bin Laden. "The terrorist mastermind blamed by America for the bombing of its embassies in Nariobi and Dar es Salaam is using Britain as a base to finance a global network of Islamic fundamentalist groups," the *Sunday Times* reported. Citing testimony by Sidi Tayyib, a former Bin Laden "bagman" now in jail in Saudi Arabia, the article reported that funds regularly flow from Bin Laden bank accounts in Afghanistan and Pakistan into London, "for distributing . . . to anti-American groups and fundamentalist movements in Europe, the Middle East and north Africa. . . . Other sources say the FBI is investigating separately how Bin Laden finances supporters in America by routing money through Britain."

The *Sunday Times* also reported that an aide to Omar Bakri, Makbool Javid, has been recently appointed to a post on the Race Relations Forum by Blair's Home Secretary, Jack Straw!

It should come as no surprise that Straw has dragged his feet for nearly a year, in moving against the international terrorists enjoying safe haven and financial subsidies in Britain. On Nov. 20, 1997, following the massacre in Luxor, Egypt, Straw had told the *Daily Telegraph* that he was rushing through new legislation to ban terrorists from operating on British soil. Nothing has happened since that promise.

Nine months earlier, Blair and Straw's Labour Party had succeeded in blocking precisely the same anti-terror legislation, when it was presented in the House of Commons by Conservative Party Member of Parliament Nigel Waterson. Labour Member of Parliament George Galloway, who led the successful effort to defeat the anti-terror bill, at one point in the House of Commons debate, declared, "We are all in favor of controlling terrorism in Britain. Surely not a single Honorable Member has any truck with terrorism here, but we are talking about terrorism in other countries and what is defined as terrorism by foreign dictatorships where there is no democratic process."

Pressure on Tony Blair

This time, following the U.S. embassy bombings, Prime Minister Blair is clearly coming under intense pressure to shut down the terrorist safe havens. He admitted as much during a press conference in Omagh, Northern Ireland, the site of a recent terror bombing that killed 28 people. On Aug. 25, Blair announced draconian new domestic "anti-terror" measures, giving the police carte blanche to arrest anyone accused by a police official of colluding with Irish extremists. At the same press conference, Blair announced that he will soon ask Parliament to pass a law making it illegal "to conspire in Britain to commit terrorist offenses in another country."

Blair made it clear, however, that this initiative was being imposed on him from abroad. This legislation, he admitted, "has been strongly pressed upon us by many states who are concerned at what they believe to be U.K.-based nationals of their countries using the U.K. to plan terrorist acts abroad."

Secret negotiations revealed

In another dramatic event, following the Aug. 20 U.S. bombing of the pharmaceutical factory in Khartoum, *EIR* has learned from well-placed diplomatic sources in Bonn, Germany, that the Clinton administration has offered an apology for the bombing of the Al Shifa factory, as well as compensation, to the Sudanese government. The offer, made through a third party, was made on condition that it be done secretly. The Sudanese government has maintained its position, that the United States must apologize publicly for the action. Otherwise, it intends to pursue all legal channels to obtain compensation for the bombing, and exoneration from the chemical weapons charges.

This report lends new credence to information, reported last week in *EIR,* that President Clinton was misinformed about the evidence linking the Khartoum factory to the Bin Laden networks before he approved the U.S. attack.

Following the Aug. 20 attack on Khartoum, a number of well-placed U.S. intelligence sources admitted to *EIR* that they were baffled by the action. However, they cautioned, given the intense political attacks on President Clinton, they would not publicly criticize the President's actions.

Not so for some of the United States' leading allies in the Middle East. The Arab League on Aug. 24 unanimously condemned the bombing against Sudan; Jordanian Crown Prince Hassan also condemned the bombing. Jordan's Information Minister, Nasser Judeh, put it succinctly: "There should be some sort of dialogue between different nations, regardless of differences of opinion. Sudan and the United States don't have to see eye to eye on everything, but we just feel that dialogue should prevail."

Criminal probe progressing?

On Aug. 27, at a press conference at FBI headquarters in Washington, D.C., FBI Director Louis Freeh, National Security Adviser Samuel Berger, Attorney General Janet Reno, Secretary of State Madeleine Albright, and U.S. Attorney for the Southern District of New York Mary Jo White announced the extradition to the United States of two men accused of participating in the Nariobi bombing. The men are Mohammed Rashid Daoud Al Owhali and Mohammed Saddiq Odeh. Odeh was arrested in Pakistan on the day of the Nariobi and Dar es Salaam bombings, en route from Kenya to Afghanistan. He was flown back to Kenya, where American and Kenyan officials questioned him and followed up on leads that he provided, leading to the second arrest, of Al Owhali.

At the FBI headquarters press conference, the Clinton administration officials placed great emphasis on the criminal investigations on the ground in Nairobi and Dar es Salaam. No mention was made of the missile strikes against Sudan and Afghanistan.

African nations defend Congo against Ugandan-backed rebellion

by Linda de Hoyos

The governments of Zimbabwe, Angola, Zambia, and Namibia have taken steps to defend the sovereignty of the Democratic Republic of the Congo against a rebellion which has been instigated and sponsored by London's marcher-lords in the region: Ugandan President Yoweri Museveni and Rwandan Defense Minister Paul Kagame. The action has been taken under the aegis of the Southern African Development Community (SADC), but without the approval of South African President Nelson Mandela, whose country supplies weaponry to Uganda and Rwanda.

On Aug. 19, after a meeting in Zimbabwe, the SADC countries sent a message to rebellion headquarters in Goma stating, according to Kenyan Foreign Minister Bonaya Godana, "If you continue fighting and move into Kinshasa, you can expect to engage units of our forces." The meeting "unanimously agreed," said Zimbabwean Defense Minister Moven Mohachi, "that we must with urgency make sure that practical assistance, both materiel and manpower, is given to the [Congo] in order to restore peace and stability."

Although Angola has a special interest in maintaining a regime in Kinshasa that will not aid Jonas Savimbi's Unita, the deployment on Aug. 24 of Zimbabwean, Angolan, and Namibian troops against the Rwandan-Ugandan rebellion, reflects a concern for the future not only of the Congo, but all of southern Africa. The aim of the deployment is to ensure that the government of the Congo is *not changed through foreign military intervention*. The fear is that a new regime—backed by Rwanda and Uganda, as Congo's Laurent Kabila was himself originally—will only bring more war to the Congo, and hence a heightening wave of instability across all central and southern Africa, in which the Congo is a geopolitical linchpin. Such instability will threaten the very existence of the SADC countries, many of them already under siege by the International Monetary Fund and by demands for British Commonwealth private ownership of their resources.

Zambian President Frederick Chiluba expressed his nation's concerns while in Harare, Zimbabwe on Aug. 27, where he met with Zimbabwean President Robert Mugabe. "We have the same understanding with Zimbabwe and all SADC countries on the D.R.C. issue. We recognize and accept that there is a Congo with a government and whose President is Laurent Kabila, and as such we cannot accept anything that violates that understanding. . . . It's a conflict not particularly against the Congo, it's a conflict that honestly questions the very essence of our unity on the continent, and we cannot tolerate it. We cannot allow it to carry on."

The day before, Zimbabwe President Mugabe had called for the Organization of African Unity to negotiate a peaceful settlement in Congo. "We want the solution to come from the OAU," he said. "It will have to work out an effective plan which will ensure the invading troops withdraw in the context of a cease-fire." He rejected a call by U.S. Special Envoy Howard Wolpe for all foreign troops to leave the Congo, saying that "the illegitimate ones purporting to be rebels are the ones that must go, because they have invaded the territory of the D.R.C." Kabila had invited SADC assistance.

As of Aug. 28, Zimbabwe has reportedly committed 4,000 troops to Congo, including 2,200 specialized airborne troops. Namibia has also supplied troops to defend Kinshasa. On Aug. 24, Angolan troops and tanks poured across the border from Cabinda to take back the Kitona airbase and nearby towns from the rebels.

A counteroffensive is expected from Rwanda and Uganda, and possibly other countries whose leaders line up with London's "new breed" of leadership. Both Rwanda and Uganda have threatened to officially send troops to the Congo, if the SADC forces are not withdrawn. Signaling military escalation from the Uganda-dominated east, Ugandan Maj. Gen. Salim Saleh announced on Aug. 28 that Uganda "is physically being attacked by Kabila, Zimbabwe, and Angola," in order to explain the fact that Ugandan soldiers have been taken prisoner or have been killed in the D.R.C. "We are not going to leave Congo," he said.

The possibility that the Congo conflict will become a regional conflagration is now mounting. But this is a risk that SADC governments evidently believed they had to take—an indication of the danger they perceive coming from the British marcher-lords of East Africa.

Ugandans protest troop deployment to Congo

Ugandan President Yoweri Museveni's deployment of Ugandan troops into the Democratic Republic of Congo (D.R.C.)—either covertly or overtly—has created a major

political crisis within Ugandan itself.

According to the government, troops from the Second Division of the Ugandan Popular Defense Forces (UPDF), under the command of Museveni's nephew James Kazini, moved to establish a base in Congo, on the west side of the Ruzenori Mountains, allegedly to encircle the insurgent Allied Democratic Forces, fighting in western Uganda. The government has acknowledged this deployment. In the first week of August, according to multiple sources and as reported in the press, 3,000 more Ugandan troops moved to join Rwandan forces that had invaded the Congo farther south. This deployment is denied by the government.

Since Zimbabwe, Zambia, and Namibia pledged to come to the aid of the Congo, Museveni has stated that he "reserves" the right to militarily intervene on the side of the so-called rebellion, and has warned that Uganda will take "independent action."

Since 1990, Museveni has put the Ugandan Army at the disposal of the British Privy Council's financial and geopolitical interests in East and Central Africa. Ugandan troops have been deployed against Sudan, against the Habyarimana government of Rwanda, against democratic forces in Burundi, and it is acknowledged even in the Western press that Ugandan forces played a key role in the Zairean war of 1996-97. While many opposition leaders in Uganda have protested this use of Ugandan soldiers, the political crisis and insecurity *within* Uganda has caused the deployment of troops this time into the Congo to erupt into a serious challenge to the Museveni regime.

Paul Ssemogerere, chairman of the opposition Democratic Party, on Aug. 20 called for a national debate: "As Ugandans we demand that there be a national debate on Uganda's role in the Democratic Republic of Congo war, to establish the extent to which the accusations of aggression by Uganda are valid; and if so, under what authority, and to what end such aggression was carried out." Ssemogerere pointed to reports that Ugandan Mamba (special reserves) and Buffalos (special forces) had been sent to Congo from the West Nile region of northwestern Uganda. "There are also allegations that military equipment has been moved from Masaka army barracks at Kasijjagirwa all in the name of helping Banyamulenge rebels."

Ssemogerere said that many Ugandans had died inside Sudan, although war had never been officially declared; that many others had perished in Rwanda, and that Ugandans were also in Burundi. "As a concerned politician who hates these territorial ambitions, I must raise an alarm."

Deployment is unconstitutional

The next day, Ssemogerere was joined by Member of Parliament Cecilia Ogwal, chairman of the Interim Executive Council of the Ugandan Peoples Congress (UPC), who pointed out that the deployment of Ugandan troops to other countries is unconstitutional, unless approved by the Parliament.

Since her press conference on Aug. 21, Ogwal has received a number of death threats.

Ogwal, expressing the views of most Ugandans, took aim at Museveni's military ambitions in the region, stating: "UPC is concerned that Uganda has now earned the status of an exporter of violence. Uganda's hand was in the Rwanda holocaust. Uganda's hand is visible in Burundi, and now the latest victim, the former Zaire, is now accusing Uganda of aiding the rebellion against [Laurent] Kabila. In the case of the D.R.C., the chief witness to the conspiracy is none other than President Kabila himself. Providence has proved the UPC right, in that we identified President Museveni's agenda for the region and made it public. Our repeated appeals to the International Community landed on deaf ears. The present crisis in the D.R.C. is a rude reminder to Ugandans, the region, and Africa that Africa's tribulations, under the yoke of imperialism, are not yet over. Sadly, it is evident that imperialism has found an ally in Mr. Museveni's scheme of conspiracy and instability.

"Mr. Museveni's grand design of creating an empire in the region has clearly nothing to do with Uganda's interest and is exposing the people of Uganda to international scorn and hatred.

"The UPC therefore calls upon President Museveni to stop involving Ugandans in his military adventures.

"The UPC further calls upon the people of the Great Lakes region and the International Community to be aware of this design and to draw a clear distinction between the designs of Mr. Museveni, the person, and the aspirations of the people of Uganda."

Ogwal also called for the United Nations and the Organization of African Unity to stop the sale of arms to all parties in the regional conflict.

By Aug. 25, the pressure on the government was such that First Deputy Prime Minister Eriya Kategaya was forced to admit in Parliament the presence of Ugandan troops in the Congo, which he called "an appropriate military presence" carried out in order "to contain and eventually remove the bandits who were using the bases they had in the area to destabilize Uganda. The situation pertaining in the D.R.C. today where there is a breakdown of authority, warrants it even more that Uganda must maintain a military presence which is more than before crucial for the security of our country and her people."

The admission provoked a storm in Parliament, with the obvious questions being raised: Does the government have the funds to sustain troops in the Congo, when its people are without services and security at home? Why are troops sent outside the country, when the UPDF is unable to protect citizens from abductions, looting, and killings in the war in northern Uganda? Furthermore, opponents to Museveni have pointed out, in the last week, four terror bombs have gone off inside the country—with 28 people killed in one bus bomb. "There is no security, no safety, no peace anywhere inside the country," Ogwal said.

Paris judge issues report on Diana probe

by Jeffrey Steinberg

One year after the collision in Paris that took the life of Princess Diana, Dodi Fayed, and Henri Paul, investigating magistrate Hervé Stephan is still hard at work. Days before the first anniversary of the Aug. 31, 1997 crash, Judge Stephan issued a terse public statement through the prosecutor's office — only the third official statement issued by the French investigators — indicating that his probe would continue until at least October, and highlighting some of the remaining areas of inquiry.

Judge Stephan confirmed a report, first published in *EIR* in June, that further blood tests on driver Henri Paul, revealed a level of carbon monoxide at the time of his death that could be fatal. Such high levels always cause severe disorientation, intense headaches, and loss of balance. The blood tests also showed a presence of alcohol and two prescription drugs.

It remains unclear how Paul could have even gotten behind the wheel of the Mercedes under the influence of such a near-lethal combination. The fact that the other passenger in the car who died instantly in the crash, Dodi Fayed, had no carbon monoxide in his blood, rules out the possibility that the Mercedes was leaking carbon monoxide. Moreover, security camera footage of Paul in the Ritz Hotel, prior to the fatal ride, gave no indication that he was at all disoriented or under the influence of intoxicants. Back in June, this had prompted Independent Television (ITV) in England to question: Is it possible that the blood sample did not come from Henri Paul, or was somehow doctored?

Judge Stephan also confirmed that he is still awaiting the completion of the forensic tests on the Mercedes 280S in which Paul was driving Diana and Dodi. There are reports that the car was in need of serious repairs; that the air bags were activated *prior* to the car's crashing into the pillars inside the Place de l'Alma tunnel, incapacitating driver Paul; and that there was water in the brake fluid.

The Paris investigation has yet to turn up the white Fiat Uno that collided with the Mercedes as the two cars were entering the tunnel. That collision caused Paul to lose control of the Mercedes. The Fiat sped out of the tunnel, and, for the past year, the car has been missing and its driver remains unknown. French police interviewed more than 3,000 Fiat Uno owners, but have so far been unsuccessful in finding the driver. In June, French police official David Laurent gave his own eyewitness account of the Fiat lying in wait near the tunnel entrance, just seconds before the crash.

Judge Stephan's brief statement also confirmed that there is an ongoing probe of the emergency rescue effort for Princess Diana, who had initially survived the crash, but did not receive adequate emergency treatment, probably sealing her fate. From the moment the ambulances arrived, it took nearly two hours to deliver Princess Diana, who was bleeding internally, to a hospital less than four miles from the tunnel. She died moments before being wheeled into an operating room at the Hôpital La Pitié Salpêtrière.

Disagreements

According to a report published in the Aug. 31, 1998 issue of *Time* magazine, there is a dispute between Paris prosecutor Maude Coujard and Judges Stephan and Marie-Christine Devidal, over whether to go ahead with criminal prosecutions against nine paparazzi and a photo-agency motorcycle driver, for involuntary homicide. Reportedly, Coujard is opposed to prosecuting the paparazzi. Both judges, according to *Time,* not only favor prosecution of those nine, but have widened the investigatory net to determine which other paparazzi may have been involved. Judge Stephan has reportedly subpoenaed the mobile phone records of all the suspected paparazzi, to determine who was in phone contact with them as the evening's events played out. *Time* magazine Paris bureau chief Thomas Sancton and Middle East correspondent Scott McLeod, who co-authored a well-researched book, *Death of a Princess: The Investigation,* say that Judge Stephan is convinced that some of the paparazzi "may know more about the Fiat Uno than they let on, and that its driver could possibly have been a photographer."

And now, Mohamed Al Fayed, Dodi Fayed's father, who has fought to ensure that the questions surrounding Dodi and Diana's deaths are resolved, has come out, for the first time, criticizing the two bodyguards who accompanied Diana and Dodi to Paris. Both Trevor Rees-Jones, who was seriously injured in the crash, and Kes Wingfield, resigned from the staff of Harrods last spring, and have been increasingly trying to lay the blame for the fatal crash on the management of the Paris Ritz Hotel, which, like Harrods department store in London, is owned by Al Fayed. *EIR* was alerted by a well-placed U.S. intelligence source at the beginning of 1998 that there would be an effort to turn the two men against Al Fayed, in order to protect the joint effort by the British monarchy and the French government to cover up the truth about the crash.

Al Fayed told Sancton and McLeod that he is "not on good terms" with Rees-Jones and Wingfield. "I didn't want them to leave, because the investigation is still running and I need them. But they are the people who caused the devastation and the accident through their incompetence and unprofessional practices. They had rules, and they moved away from the rules. They let me down."

Israel sets 'contingency plans' for Mideast war

by Dean Andromidas

Amid rising tensions in the Middle East, the government of Israeli Prime Minister Benjamin Netanyahu recently announced a $543 million increase in the defense budget. The Israeli Defense Force (IDF) is also preparing contingency plans based on the assumption of an early outbreak of war. This planning includes a reassessment of Israel's nuclear deterrent policy.

The provocative policies of the Netanyahu government could rapidly transform these so-called contingency plans into reality, rapidly escalating into an international strategic crisis. The planning also comes at a time when Netanyahu has been trying to put those sharing his radical views at the head of the various branches of the Israeli security establishment, including the Mossad, the IDF, and the Shin Bet. Although his efforts in this direction have not been fully successful, the new IDF Chief of Staff, Lt. Gen. Shaul Mofaz, is well known to be a hawk.

Amir Oren, a military commentator for the Israeli daily *Ha'aretz,* recently wrote that the IDF staff is drafting contingency war plans based on the perception that the suspension of the peace talks will continue, as "the grip of the Clinton administration weakens and the U.S. loses its power to push the Netanyahu government to make progress in the peace process."

War on three fronts

Israel's ground forces are deployed in three territorial commands: north, central, and south. War plans for each of the three fronts are being drafted.

The northern command includes the Israeli self-proclaimed security zone, which stretches almost 20 kilometers into southern Lebanon and forms a continuous swath of territory with the Golan Heights, seized from Syria in the 1967 war. In the north, war plans are based on the perception that Syria could decide to undertake a military option, as its only means to regain the Golan Heights.

This perception is based, again, on the collapse of the peace process. Although the previous governments led by the assassinated Prime Minister Yitzhak Rabin, and by his successor, Shimon Peres, entered preliminary negotiations with the government of Syrian President Hafez Assad, Netanyahu has made no credible efforts in this direction. War or peace with Syria is intimately intertwined with the situation in Lebanon, where Syria maintains 35,000 troops and is preeminent in Lebanese domestic affairs. For the last two decades, Lebanon has had the tragic misfortune to have been a surrogate battlefield between Israel and Syria. Fighting between Israel and the armed factions in southern Lebanon, including Hezbollah and Amal, could rapidly escalate into war between Israel and Syria.

In late August, the situation in the security zone, which has been tense for the last several weeks, worsened dramatically when the IDF assassinated the Amal guerrilla movement's deputy commander. In response, Amal launched a Katyusha rocket attack into northern Israel, the first such attack since 1996.

Earlier, Uzi Landau, president of the Knesset (Parliament) committee on foreign affairs, and Security Minister Avigdor Kahalani called for bombing Lebanon's electricity grid and water resources in retaliation for Hezbollah attacks on Israeli military forces. Landau also called for blowing up Syrian jeeps in response to attacks. Moreover, Ariel Sharon, the architect of the disastrous 1982 invasion of Lebanon, and now Minister for Infrastructure, approved plans for the building of 5,000 new housing units on the Golan Heights. Given the fact that hundreds of new houses in the region, built several years ago, remain unsold, Syria, predictably, saw the move as a provocation.

On the central front, the IDF is making plans for a low-intensity conflict with the 35,000 armed Palestinian paramilitary police force based in Gaza and the West Bank. Such a conflict threatens war with Jordan and Iraq, which is precisely where the resulting massive flow of Palestinian refugees would be funnelled, in what would make the so-called "Jordan is Palestine" option a reality.

Here, the situation is the most explosive. Netanyahu's refusal to accept an American proposal for a second withdrawal of Israeli forces from the occupied territories, which has been on the table for almost six months, has led to such deep frustration throughout Palestinian society that it threatens Palestinian National Authority President Yasser Arafat's political, if not physical, survival.

Recent clashes between radical settlers and Palestinians have been met by Netanyahu with further provocations. In response to the murder of Israelis living in the most radical settlements in the West Bank cities of Nablus and Hebron, Netanyahu has authorized plans for the expansion of these settlements, an expansion that all previous governments had refused to authorize.

In this context, hostilities could be triggered on almost any pretext. For example, on Aug. 27, a bomb exploded in front of Tel Aviv's main synagogue, wounding 12 people. The national police chief called it a "terrorist attack," although no one has claimed responsibility. Netanyahu took the opportunity to attack the Palestinian Authority, and repeated his demand that the PA crack down on Muslim militants as a condition of moving forward the peace process. However,

Sheikh Amed Yassin, a leader of Hamas, the main Palestinian Islamic movement, told Reuters, "We don't know who carried it out. Maybe they were Jewish extremists who want to push Jews to more extremism." And PA peace negotiator Hassan Asfour said, "It is not unusual for Netanyahu's government to blame everything on Palestinians and the Arab world to hide its failure in the peace process."

In the south, contingencies for possible war with Egypt are being planned out. This, despite the fact that Israel and Egypt have had normalized relations for almost two decades. Egypt is also a close ally of the United States, receiving the largest amount of U.S. foreign aid after Israel. Israeli war planners envision the possibility that Egypt could decide to intervene in either of the first two war scenarios, turning the conflict into a general Middle East war.

Netanyahu's strategic miscalculation

In commenting on these plans, Oren warns of the danger of serious miscalculation on the part of the military leadership and Netanyahu's government. He points out that the "new generation of soldiers and officers" does not have battle experience, as did the generation of officers who fought the October 1973 war. Oren admits that that earlier generation lacked the wisdom to prevent the so-called Yom Kippur War, but they at least had the capability to hold the line militarily until an international political settlement could be reached. The lack of battlefield competence among the new IDF generation, Oren says, makes the "lack of wisdom" to prevent a war even more potentially catastrophic.

Oren singles out Mofaz as a man who is seriously lacking in that wisdom. Oren points out that Mofaz was the commander of the Army division in 1994 that was "responsible for the slip-ups that enabled Baruch Goldstein to carry out mass murder," killing 50 at a Hebron mosque. Even more important, Oren writes, Mofaz, who, everyone knows, owes his career to Netanyahu and Defense Minister Yitzhak Mordechai, is incapable of politically influencing the government to prevent war.

As a nuclear power, any miscalculation in the conventional battlefield could lead to the introduction of nuclear weapons. Up until now, Israel has maintained what it calls "strategic vagueness," refusing to confirm or deny that it has nuclear weapons. But now, there are indications that this approach is being reassessed. In a recent workshop on Israeli security held under the auspices of the Ministry of Defense, Gen. Yitzhak Ben-Yisrael, head of the Armaments Research and Development Department, said that "if Israel's defense doctrine is deterrence, you can't deter anyone except by showing him your capability." He added that Israel "is not interested in announcing what we have because information like this feeds the public's fantasy about what we have." Nonetheless, according to a report in *Ha'aretz,* he said that this policy is now being reappraised, and that, although deterrence continues to be Israel's strategy, the development of a preemptive strike capability is also important.

Italy remoralized by McDade-Murtha victory

by Umberto Pascali

The McDade-Murtha "Citizens Protection Act," passed as an appropriations amendment by the U.S. House of Representatives on Aug. 5, is rapidly becoming a household word in Italy. From the beginning, many Italian leaders have closely watched the bipartisan fight waged by Reps. Joseph McDade (R-Pa.) and John Murtha (D-Pa.) and the LaRouche movement against the Department of Justice (DOJ) permanent bureaucracy and Kenneth Starr's assault on the U.S. Presidency. Over the last five years, Italy has been similarly hit by the "Clean Hands" operation, which has decapitated the country of its leadership. Operation Clean Hands is connected to Prince Philip's Transparency International, which includes "former" International Monetary Fund and World Bank executives, and collaborates closely with IMF Managing Director Michel Camdessus and World Bank President Sir James Wolfensohn. Its mission is to use corruption scandals to shred the fabric of a target nation's institutions (see *EIR,* Aug. 7, 1998).

The overwhelming vote (345-82) to pass the McDade-Murtha provisions has begun to remoralize those Italian forces who had been smashed by the "Clean Hands" magistrates. "If the U.S. can rebel against these pseudo-legal persecutions, so could we," said one Italian observer. A leading daily, Milan's *Il Giornale,* has launched an all-out campaign, including the publication of interviews with co-sponsors Murtha and McDade (see *Documentation*).

"It is lawful," *Il Giornale* wrote, "to find in Starr's doggedness, suggestive parallels with the methods that certain magistrates in Italy have used and still are using against political leaders. . . . Starr tried constantly to violate the principle of attorney-client confidentiality. He behaved like the captain in the *Caine Mutiny* who went insane. . . . What creates alarm (and the parallel with Italy also emerges, naturally) is that a man like Kenneth Starr suffers from a common disease, that is, the increasingly frequent criminalization of political debate."

Il Giornale underlines the connection between the supporters of the magistrate in the "Clean Hands" team — mainly the Milan State Attorney's office led by Saverio Borrelli — and politicians who gained from the "elimination by scandal" of the previous political leadership. *Il Giornale* points especially to Deputy Prime Minister Walter Veltroni, a key leader of the PDS (the former Italian Communist Party). Veltroni has organized official and confidential meetings with British Prime Minister Tony Blair, to set up a "Third Way" Interna-

tional. On Sept. 21, Blair, Prime Minister Romano Prodi, U.S. President Clinton, and Swedish Prime Minister Göran Persson will address a conference at New York University Law School intended to launch the "Third Way." A debate over this new post-Communist International is raging in Italy, even among Veltroni's party colleagues. The way Prodi put it to PDS political secretary Massimo D'Alema, is that the "Third Way" political movement aims to "globalize politics after globalizing the economy."

Il Giornale demonstrates the complementarity between the Clean Hands legal intimidation and the emergence of the "Third Way." The daily brandished the McDade-Murtha victory to tell the friends of Blair and Veltroni that the opponents of Clean Hands have allies, i.e., that U.S. Democrats and Republicans are indeed in revolt against the abuses of the DOJ bureaucracy. The front-page headline on Aug. 11 mocked the Third Way crowd in Europe: "In the U.S., the Allies of Blair and Veltroni Came to a Decision. . . . U.S. Democrats Vote to Establish a Committee to Protect Citizens against Prosecutorial Abuse."

Moreover, Clean Hands opponents have side-stepped a trap set for them by George Bush ally Michael Ledeen. Ledeen, former U.S. Assistant Secretary of State for Europe, had advised his Italian conservative contacts—many of them victims of Clean Hands—to treat the operation as purely a local Italian phenomenon. As *Il Giornale'*s coverage of McDade-Murtha shows, that advice has been rejected. After all, as one source noted, it was Ledeen who, in July 1995, introduced Clean Hands prosecutor Antonio Di Pietro to the United States. Di Pietro was forced to resign for accepting bribes and "favors." In order to obtain immunity, Di Pietro ran for the Senate on the PDS slate, whence he has since created a radical Jacobin movement.

Documentation

The United States says 'Enough!'

Il Giornale *interviewed U.S. Representatives McDade and Murtha in its Aug. 12 issue.*

"Murtha: 'We want to protect our citizens against prosecutorial abuses!' The United States says 'Enough!' to the 'storm trooper' prosecutors. 200 members of Congress have already signed the proposal of a committee to oversee the attorneys' offices.

"The America of the Democrats, which is liked so much by Vice Premier Walter Veltroni, and by the 'Olive Tree' [government coalition] crowd here in Italy, is creating an instrument for keeping under control the excessive zeal and the frequent violations of some of the U.S. prosecutors. We have found Democratic Congressman John Murtha, one of the two legislators who presented to the Congress the proposed law for stopping the 'storm trooper' prosecutors.

" 'We do not want to gag our prosecutors,' he says; 'on the contrary, we want to institute an ad hoc commission, bipartisan, half of whose members should be appointed by the White House, and the other half by the Congress, so that our citizens might be guaranteed and protected, against the abuses of the prosecutors, which—if you go by the latest statistics—are growing every day. . . . It will put curbs on those Attorneys General and prosecutors who use the methods of persecution, who start with the person to get to the crime, who do not respect the rights of the citizens. It will be an instrument that will subject to scrutiny, those prosecutors who operate outside the law. . . . The commission will have the job of examining whether the prosecutors give their instructions with the aim of persecution, whether there be procedural abuses with respect to the grand jury. Starr is not the only one, unfortunately, in the U.S.A., to reveal secrets of his office, to certain friendly press, to strike home at the White House, in this war, by now personal, which is taking place in our country, in the face of incalculable risks. This, by now, is a habit of many prosecutors, who assault the people they are investigating, in order to impress public opinion and popular juries. . . .'

"Republican Joseph McDade explains: 'We need at least another ten signers in order to set up a Control Commission over those prosecutors who abuse their powers. I don't know the Italian problem, nor the one that concerns the leader of your opposition, who . . . seems to be being subjected to a certain ferocity at the hands of Italian prosecutors. . . . My personal case is emblematic of the reason why certain prosecutors have to be curbed. In 1992, I was accused of corruption, I was accused of having obtained illegal contributions for financing my electoral campaign. I had to resign from my position as chairman of the House Appropriations Committee; my name was covered with mud by the usual "attack" prosecutor who wanted to give himself some publicity, using my case so that he could become a judge. Then, two years later, I was tried and cleared on all counts.' "

On Aug. 11, Il Giornale *Washington correspondent Alberto Pasolini Zanelli wrote:*

"Many see in the Clinton/Starr case only the most Boccaccio-like aspects. . . . In reality what is at stake is much more of the personal case, even of a President. This could become one of the 'battlefields' of the counterattack launched by many sectors of U.S. society, in particular the Congress, and the political world against a situation that leads to disequilibrium. . . . The [McDade-Murtha] bill demands simply that the rules established for U.S. lawyers be also applied to prosecutors, including those who work for the DOJ, and the special prosecutors. . . . The oversight committee should check whether the attorney offices' conduct . . . 'selective investigation' . . . prosecutorial attitude, grand jury abuse. . . . As one can see, this is exactly what some prosecutors in Italy are accused of."

International Intelligence

Kohl warns, Kosova facing winter disaster

German Chancellor Helmut Kohl told a German television interviewer on Aug. 23, that winter could bring a humanitarian catastrophe to Kosova, on a scale that could force foreign intervention even without a UN mandate. "Winter in that part of the world can start as early as mid-October, while maybe more than 100,000 people are still seeking refuge in the forests and mountains, and a humanitarian catastrophe looms," he told ZDF television.

"We must therefore act as quickly as possible—first and foremost the UN Security Council."

Meanwhile, journalists near the Kosova capital of Pristina reported that Serbian shelling had sent four villages up in flames, to the south and west of the capital. Other journalists saw hundreds of Kosovars on the move on tractor or by foot, to escape shelling around Ribari. The Kosova Information Center also reported shelling of villages in Stimljey, farther south. The reporters said the shelling seemed intended to drive people from their homes, since there was virtually none of the small-arms and machine-gun fire that usually accompanies combat.

Wiranto outlines reform of Indonesian military

Indonesian Armed Forces (Abri) commander General Wiranto held a press conference at the headquarters in Cilangkap on Aug. 21, to outline the military service's plan to reform its "dual function" as a defense and security force, and a political force, as prescribed in the constitution. Referring to past abuses, General Wiranto said, "What Abri did in the past is a part of what the government did . . . and the politics of the time. It's not true that all the mistakes and violations which happened within the country, even the economic crisis, were caused by Abri's dual function role." Acknowledging excesses in the provinces of Aceh, East Timor, and Irian Jaya, where secessionist movements still fester from the colonial era, he said that the decision to turn them into "military operations areas" was political. As for Abri, "We did our national duty. It is not objective to say that the nation has not benefitted from what Abri did in the past." It is also not logical to assess that past performance "viewing it through the new paradigm" of reform, he said.

Wiranto's remarks echo views expressed in President Habibie's Independence Day address on Aug. 17. Wiranto said that, in addition to ending "occupying" the troubled provinces, Abri would increase "political role-sharing with non-military partners." Wiranto added, "Abri is committed to saving the national life. We are aware of the problems which have to be solved soon. Our priorities are: to recover from the economic crisis, engage in and control the reformation process, to guarantee the continuity of development." In late August, Abri began withdrawing 1,000 regular and special forces (Kopassus) troops from Aceh, following similar moves in East Timor.

MSIA holds three forums in Baja California

Some 350 people attended conferences on Lyndon LaRouche's proposal for a New Bretton Woods system, sponsored by the Ibero-American Solidarity Movement (MSIA) in the Mexican state of Baja California. Carlos Cota Meza addressed the need for the New Bretton Woods, the global financial disintegration, and what is required for a fight for real human rights and the creation of a new Non-Aligned Movement. Cota, a frequent contributor to *EIR,* spoke to audiences in Mexicali, Ensenada, and Tijuana on Aug. 11, 12, and 13, respectively.

There was heated discussion over Cota's denunciation of free trade, and the *maquiladora* economy, based on cheap-labor plants on the border with the United States. The state government of Baja is led by the National Action Party (PAN), which boasts that Baja is the number-one job generator, because of the *maquiladoras*. Far from being a boost to a crisis-wracked Mexico, polemicized Cota, Baja is also "number one" in drug consumption, in transport of drugs to the United States, in murders, and in incidence of AIDS.

Cota explained in detail that the *maquiladoras* are a product of globalization, which has fuelled the disappearance of national industry. He used graphs to demonstrate how industry had been destroyed, unemployment increased, and how thousands of Mexicans had been driven out of productive employment and forced to migrate to other parts of the country, because of the North American Free Trade Agreement, which had spawned the *maquiladoras*. But, he stressed, even the *maquiladoras* cannot escape the ravages of the world monetary crisis.

In all three forums, Mexicans expressed their concern over the assault on the U.S. Presidency, and welcomed the interventions of the LaRouche movement, as exemplified by the victory on the McDade-Murtha vote to rein in the Justice Department permanent bureaucracy.

King Hussein passes most powers to Crown Prince

Jordan's King Hussein, undergoing chemotherapy at the Mayo Clinic in the United States for a B-cell lymphoma, issued a decree on Aug. 12, in which he handed over certain royal powers to his brother Crown Prince Hassan. This has led several political analysts to say that the succession process has begun in earnest. The Royal Decree lifted, for the first time in Jordan's history, one of the limits to the Regent's authority, which is "that of accepting or demanding the resignations of ministers and the prime minister," wrote the *Jordan Times* on Aug. 18. It is assumed that the Crown Prince has the right to appoint ministers. Thus, the paper added, "the only powers that remain outside the scope of the Regent's authority, as specified by this week's decree, are entering into treaties and amending the Constitution."

As far as domestic politics is concerned, the decree means that Prince Hassan can proceed to reshuffle the Majali government, which is evidently the King's wish. The government, in power since March 1997, has come under attack because of a crisis over contaminated water in the capital, and,

for reportedly falsifying statistics on the economy. "Figures disclosed during a World Bank team's visit showed a growth rate of 0.8 and 2.7% for 1996 and 1997, respectively, while government estimates had previously placed economic growth at 5.2 and 5%," wrote the *Jordan Times*.

The government has also been attacked for alleged violations of human rights, limiting public freedoms, and in particular, promoting legislation to muzzle the press. The arrest, detention, and conviction of opposition figure Laith Shubeilat, allegedly for inciting to riot, was conducted under the Majali government.

In addition to public discontent, the King reportedly expressed his dissatisfaction with the Majali cabinet, in a letter to Crown Prince Hassan, in which he cited hitherto undisclosed cases of negligence: a near-collision of jumbo jets in the national airspace, and a near-explosion at a power plant in Aqaba.

British are accused of killing Dag Hammarskjold

Archbishop Desmond Tutu, of the South African Truth and Reconciliation Commission, has released documents indicating that British intelligence plotted to kill United Nations Secretary General Dag Hammerskjold. Hammarskjold, who was mediating the crisis in the former Belgian Congo, died in a suspicious plane crash in Africa on Sept. 20, 1961. The documents (which are being reviewed by *EIR*) point to the direct role of MI5, which at the time was responsible for intelligence operations in the colonies (including the Union of South Africa), and relations to the Special Operations Executive and the U.S. CIA. The documents consist of some brief notes between an unnamed director of a military intelligence front operation, called the South African Institute for Marine Research (SAIMR), and a field operative who is conducting operations in the Congo. This comes during the attempt by Katanga province to secede from the former Congo, an operation backed by the Belgian mining company Union Minièrere.

Included is a note reading: "At a meeting between MI5, Special Ops Exective, and SAIMR, the following emerged:

"Dag . . . is becoming troublesome and it is felt that Hammarskjold should be removed. . . . [CIA director] Allen Dulles agrees and has promised full cooperation of his people. He tells us that Dag will be in Leopoldville on or about the 12/9/1961. . . . Please see that Leo airport as well as Elisabethville is covered by your people, as I want this removal to be handled more efficiently than was Patrice [Lumumba]. . . . Operation to be known as Celeste." The plan called for a bomb to be put on the plane. Although the crash was declared an accident, the only survivor, an American, said there had been an explosion.

A researcher for a South African think-tank pointed out to *EIR* that in 1961, the intelligence services of the Union of South Africa were still part of the British Empire's intelligence service. Therefore, if these documents are valid, the researcher said, then they constitute the proof that the "dirty tricks" of the South African intelligence services have their origin with British intelligence.

Jiang postpones overseas summits due to flooding

Chinese President Jiang Zemin has had to postpone his visits to both Russia and Japan due to the "immensity of flood control and disaster relief efforts in China," Xinhua news agency reported on Aug. 22. Jiang was to have visited Moscow and Tokyo on Sept. 4-11. "It is necessary for President Jiang to remain in the country to supervise the pressing flood-fighting and disaster-relief efforts," Foreign Minister Tang Jiaxuan said.

Jiang's trip to Moscow was to be part of the regular annual exchange of visits between the Chinese and Russian top leaders. Boris Yeltsin said that he hoped that the trip would be rescheduled as soon as possible. The trip to Japan was to be the first by a Chinese President, and mark celebrations of the 20th anniversary of the signing of the Sino-Japanese Peace and Friendship Treaty. Japanese Prime Minister Keizo Obuchi called on President Jiang to visit Japan "at the earliest possible time."

Briefly

CHINA'S Foreign Ministry called on India to take the initiative to normalize relations, in a statement on Aug. 19. Spokesman Zhu Bangzao said, "It is the set policy of the Chinese government to develop good-neighborly and friendly relations with India on the basis of the five principles of peaceful coexistence." Zhu was responding to Indian President K.R. Narayanan's remarks that problems in Sino-Indian relations were "temporary."

THE PALESTINIAN Authority has rejected an Israeli proposal to turn 3% of the West Bank into a nature preserve under Israeli security control, according to the Palestinian daily *Al Quds* on Aug. 23.

EZER WEIZMAN, Israel's President, was verbally attacked by Baruch Marzel, a leader of the violent right-wing Kach party. Labor Party leader Ehud Barak said that "Marzel's shocking remarks against Weizman, the country's President and one of the architects of Israel's security and peace, represent a grave phenomenon that must be uprooted." Referring to the earlier threats against Yitzhak Rabin, Barak added that the Netanyahu government "may be encouraging this kind of vicious incitement, as we have already seen where it can lead."

QUOTABLE QUOTE: Cambodian Second Prime Minister Hun Sen, when asked by a reporter recently what he thought of the legacy of the United Nations Transitional Authority in Cambodia over the past seven years, responded promptly: "AIDS."

BELARUS PRESIDENT Alyaksandr Lukashenka has announced that he is too busy to attend the 53rd session of the UN General Assembly in New York, which will open on Sept. 9, according to ITAR-TASS. He also said he will not participate in a conference of the Non-Aligned Movement scheduled for Durban, South Africa on Aug. 29-Sept. 3.

Clinton's attacks on Starr rile 'elites' and 'New Dems'

by Edward Spannaus

The story was recently related, that a few weeks before his first inauguration as President, Bill Clinton found himself at the Georgetown home of Katharine Graham, the "black widow" of the *Washington Post* and the Washington social set. Graham had invited the usual crowd, the so-called opinion-makers, the power brokers, the policymakers, and the trend-setters, and at a certain point she toasted the incoming President, and invited him to offer his own toast in response.

Clinton's response came down to: Thanks for dinner, I'm looking forward to being your President—and (smiling) I'm warning you: You're not going to like me.

This account was recently presented in the *Washington Post*'s "Style" section, which noted the accuracy of Clinton's prophecy as regards the "Washington Establishment."

Nowhere is this clearer, than in the reaction to the President's Aug. 17 televised address to the nation. The American population was in general satisfied with the President's explanation, tired of the whole thing, and most wanted to hear nothing more about it—in fact, many said they already knew more than they wanted to, about the President and Monica Lewinsky.

The American public wants to let the President be the President, to deal with the pressing issues of the day. This is particularly urgent, because the Presidency is under attack at the point where we are facing an onrushing global economic and financial collapse, and the responsibilities of the office of the Presidency are perhaps greater than at any time since the administration of Franklin D. Roosevelt.

The Gore factor

To make matters worse, the situation within the administration is reported to be intensely factionalized—and not only around the Lewinsky matter.

Several highly placed sources in Washington have informed *EIR* that, over the weekend of Aug. 22-23, Vice President Al Gore, from his vacation site in Hawaii, placed a series of phone calls to Russian leaders and to President Clinton, in the following sequence. First, the Vice President called Russian Prime Minister Sergei Kiriyenko. Next, he called Viktor Chernomyrdin; then, President Yeltsin; then Chernomyrdin again. And, only at that point did the Vice President contact President Clinton. These sources hypothesize that Gore neglected to tell President Clinton that the first call in the sequence was actually to his "friend" Chernomyrdin.

The net effect of Gore's intervention into the Russia crisis—before consulting with the President and before President Clinton had even formulated a U.S. position on how to deal with the worsening Russia collapse—was to amplify the international crisis. It was in effect an attempt to damage Clinton administration policy.

Furthermore, Gore's actions came in the context of public attacks against President Clinton on the part of the Chairman of the Democratic National Committee, former Sen. Sam Nunn (Ga.), current House Minority Leader Richard Gephardt (Mo.), and others, around the Monica Lewinsky affair. This kind of behavior can destroy the world. In this moment of global financial meltdown, everything depends on what action is taken by the President of the United States.

'Elites' enraged at Clinton

After his Aug. 17 speech, Clinton was savaged by the editorial writers and the talking heads of television for not crawling and grovelling, and for not being sufficiently "contrite" and apologetic. But what enraged the media and "inside the Beltway" crowd the most, were the President's attacks on Kenneth Starr.

What Clinton had done, was relatively mild, when compared with what Starr actually deserves. (See, e.g., "Kenneth Starr's Hidden Conflict of Interest," *EIR*, Aug. 28.) But the next day, the *Washington Post* complained that "this was no *mea culpa* speech," and criticized the President for being "as defiant as he was contrite."

The *Post* was not alone; almost uniformly, the editorial writers fired away at the President, singling out his attacks on the independent counsel. The infamous "fourth branch" of the government worked itself into a frenzy over the fact that the overwhelming majority of the American people were not following its lead in calling for the overthrow of the U.S. President.

By the end of the week after the President's speech, the *Washington Post* filled its Aug. 21 editorial commentary page with no fewer than five attacks on the President. Leading the pack was neo-conservative Charles Krauthammer, who growled that Clinton "actually had the insolence to put the blame for the 'spectacle of the past seven months' on Ken Starr"—as if Starr would have packed up and gone home in January, had Clinton acknowledged a relationship with Monica Lewinsky back then.

Most revealing was a surprisingly frank analysis in the same day's *New York Times*. "Inside Washington, pundits and editorial writers excoriated a destroyed Presidency," said the *Times*. "Outside Washington, most people tell pollsters that they are tired of hearing about Monica S. Lewinsky. They want to the country to move on."

The *Times* bemoaned the "schism between the real world and the self-styled political elites" on which, it said, the White House is banking. But, not giving up yet, the *Times* laid out its strategy, which is premised on the hope that "days of scathing commentary from Washington insiders—and snippets on television of Mr. Clinton lying about his relationship with Ms. Lewinsky—will finally penetrate the public's hitherto intense resistance to examine the tawdry details and cause Americans to rebel against the President and his party."

Sooner or later, one side or another—the elites, or the people—will prevail, said the *Times*, and it quoted Thomas Mann of the Brookings Institution: "Either elites will shape public opinion over the next several months and bring the public to the view that the President must go, or the elites will discover the wisdom of the public's continued support of the President."

The blood-thirsty mood of the media was even striking to Ambrose Evans-Pritchard, the former Washington correspondent of the London *Sunday Telegraph,* who did so much in the early years of the Clinton administration to create and orchestrate the scandals against the President—particularly the Paula Jones case which Pritchard boasted that he personally instigated.

"There has been a tectonic change in the political landscape," Evans-Pritchard wrote in the Aug. 25 *Daily Telegraph*. "Having just returned to the U.S. after a year in Britain, I am dumbfounded by the insurgent mood of the Washington media," the admitted British intelligence stringer admitted. "Indeed, it is downright putschist. Former cheerleaders for the Clinton White House are on the television every night fulminating against the President, cursing him with the fury of the betrayed."

The traitorous 'New Democrats'

By the first weekend after the President's address, the unrelenting news media assault was having its effect—not on the population, but on much of the leadership of the Democratic Party and even on the President's own circle of advisers. The Congressional Democratic leadership was openly critical, and on Aug. 25, House Minority Leader Gephardt said the President's conduct was "reprehensible," and openly discussed the possibility of impeachment. Two days earlier, former Sen. Sam Nunn, one of the party's elder statesmen, took to the pages of (where else?) the *Washington Post,* to call upon the President to resign, falsely blaming Clinton for "dragging this nation through seven months of preoccupation with the Monica Lewinsky story."

Almost no one was to be found among Congressional Democrats who would step forward and demand that the President be allowed to be the President, to deal with pressing matters of state, such as the financial collapse, without the distractions being thrown at him by Kenneth Starr and the news media. Where were the Democrats who would tell the truth about Starr: that he was conducting an illegal and unconstitutional crusade against a President who was elected and re-elected by the American people? The "New Democrats" were more interested in "triangulating" among the news media and the commentators, than in defending the Presidency from such a unconstitutional and treasonous attack.

Exemplary are the comments of Rep. James Moran (Va.), the co-chair of the "New Democratic Coalition," who is telling New Democratic candidates to "disavow" the President, saying that the his admissions about Lewinsky will especially hurt right-of-center candidates in suburban swing districts.

The *Washington Post* did what it could to stoke the internal dissension within the administration, with its lead story on Aug. 27 claiming that "President Clinton's political advisers have reached virtually unanimous agreement that he must say more about his relationship with Monica S. Lewinsky"—but, the *Post* sadly noted, the First Family does not agree.

The *Post* cited anonymous "White House aides" as saying that the dilemma is that, although polls show that a large majority of the public is weary of the scandal and accepts the President's acknowledgment that his behavior was wrong, "many elected officials and editorial commentators feel that Clinton's attack on Starr showed that he was not genuinely taking responsibility."

"The public was fine, the elites were not," an unnamed adviser is quoted as saying. "You've got to let the elites win one."

National News

Oregon euthanasia law claims ten victims

Oregon's "Death with Dignity Act," which allows physicians to prescribe lethal doses of medications to presumably terminal patients, has now claimed ten lives, according to the Oregon Health Division. The agency claims to meticulously collect information about compliance with the law, but, according to the confidentiality clauses of the act, Oregon physicians can provide or withhold whatever information they wish.

In the first known case of "assisted-suicide" since it was passed in November 1997, the law has already been broken. According to the act, patients seeking suicide drugs must be considered mentally competent by two physicians. According to Compassion in Dying's medical director, Peter Goodwin, the first person to die under the law was a woman in her eighties with cancer. She requested suicide help, but was turned down by both her longtime physician and a second physician, because her despression was a major factor in her presumed desire to end her life, and accordingly they considered her "*not* a candidate."

Goodwin, whose organization lobbies hard for legalized euthanasia, decided that her doctors were wrong: Without seeing or treating the patient, he determined that she was not depressed, but just frustrated and feeling powerless, and put her in touch with a suicide doctor, to prescribe for her the drugs she needed to kill herself. She used them on March 24.

Gingrich attends GOP convict's fundraiser

Speaker of the House Newt Gingrich attended a Washington State Republican Party fundraiser at the estate of Thomas J. Stewart, who pleaded guilty to violating campaign finance laws. Stewart confessed that he had doled out $100,000 to employees of his Services Group of America and directed them to make contributions to certain Republican candidates. His scheme violated the law, which limits individual contributions to $1,000 per candidate, and prohibits corporate contributions. Stewart was fined nearly $5 million, and sentenced to two months of home detention (he lives on a lavish estate on Vashon Island), and 160 hours of community service.

Stewart spent at least $100,000 on Washington State's Republican Party fundraising picnic on Aug. 22. Gingrich, who attended as part of an 18-day fundraising marathon, had planned to break the Guiness record for the number of people with whom one is photographed in one day.

The *New York Times,* which reported the story on Aug. 22, did not mention that Gingrich himself had used tax-exempt "educational" foundations as fronts to pay for hundreds of thousands of dollars worth of campaign costs for himself and other favored Republicans. In late 1996, Gingrich's "ethics" lawyer, Ed Bethune, arranged a deal with his buddies at the Department of Justice and with a House Ethics subcommittee that the DOJ would immediately stop all investigations into Gingrich's fundraising shenanigans. Bethune is now the FBI Agents Association lobbyist, in charge of stopping the McDade-Murtha bill, which would protect Americans from DOJ abuses.

Reno pressed to probe into Clinton-Gore funds

With all the major media pressing Attorney General Janet Reno to appoint yet another independent counsel, this time to probe alleged campaign finance illegalities in the 1996 Clinton-Gore campaign, on Aug. 26, Reno opened a 90-day preliminary investigation of Gore campaign fundraising. The probe will look into whether Gore lied to Justice Department officials looking into the campaign finance scandal. Her probe could lead to the appointment of an independent counsel.

The *New York Times* commented on Aug. 20 that such an independent counsel probe would probably mean the end of Al Gore's 2000 Presidential ambitions.

Gore was originally cleared by Reno in December, but now faces an investigation of whether he misled DOJ prosecutors and FBI agents during an interview on Nov. 12, 1997, when he said he understood that a massive Democratic media campaign in early 1996 was going to be financed entirely by "soft money." The *Times* cited a Nov. 21, 1995 White House memo with handwritten notes that allegedly show Gore was lying when he delivered his account of campaign fundraising calls to the Attorney General after the 1996 elections. The *Times* said the notes suggest that Gore was part of discussions aimed at diverting Democratic Party "soft" money contributions to the Clinton-Gore campaign.

Maryland Dems lash out at LaRouche slate

The Maryland Democratic Party made a potentially fatal mistake, lashing out against the slate of LaRouche Democrats running in the state primary. In a memorandum to "All Democratic Primary Candidates," dated Aug. 4, which regurgitates the lies of the discredited former Democratic National Committee (DNC) chairman Don Fowler, State Chair Peter Krauser highlights the "List of Candidates filed on the Marylanders for Justice slate (LaRouche). As you can see, some areas have quite a few LaRouche candidates filed, particularly for Central Committee. The DNC does not recognize LaRouche candidates as *bona fide* Democrats. We need your help in making sure that the right candidates are elected."

The enclosure does not mention that Fowler's exclusion of popularly elected LaRouche delegates from the 1996 national convention is the subject of a civil rights suit, charging Fowler, the DNC, and several state committees with violation of the 1965 Voting Rights Act.

A spokesman for the LaRouche slate called the party to point out that LaRouche Democrat Lawrence Freeman, who is seeking the Democratic gubernatorial nomination, has repeatedly admonished another candidate, Eileen Rehrman, for her divisive personal attacks on incumbent Gov. Parris Glendening (D), for his opposition to allow-

ing slot-machines at the state's racetracks, on the pretext of "funding education." Although Rehrman withdrew from the race, two of her leading supporters, Baltimore Mayor Kurt Schmoke (who also backs drug legalization) and Prince George's County Executive Wayne Curry, continue to bash the Governor.

Democratic organizations are continuing to invite the Marylanders for Justice to their candidates forums, and several have said they intend to complain to party officials about the memorandum's "divisive nature."

USWA blasts IMF, but backs some conditions

In a speech which makes clear the AFL-CIO's mixed stance on the international financial crisis, USWA President George Becker, speaking to 3,000 steelworkers at their national convention on Aug. 10 in Las Vegas, denounced the International Monetary Fund's austerity policies and called for enforcement of "labor, human rights and environmental" standards in the recipient countries.

In his keynote address, Becker said that the IMF's plan to solve the crisis in Asia is "by shipping it here in a flood of cheap imports. Here's how the scheme works. Instead of stimulating demand and putting people to work in the Asian countries, the IMF insists that, in return for recovery assistance, these countries must adopt what are called 'austerity measures' and currency devaluation policies that together drive down the price of their export products. The aim is for them to export their way out of the mess and get dollars in exchange for their products so they can repay their loans.

"These policies are a disaster for Asian workers—some of whom have already taken to the streets—and it's a disaster for workers in the U.S. and Canada. Economists are forecasting a $100 billion increase in the U.S. trade deficit. We are already seeing the signs. That increase translates into the loss of 1.1 million jobs, the vast majority in the manufacturing sector.

"Well then, what is the solution? Many hold the view that U.S. taxpayers ought not to contribute any more to this bailout. Why insulate bankers and speculators from the consequences of their own bad decisions? Isn't that what the so-called 'free market' is all about?"

Becker said that any further U.S. funding of the IMF should be "conditioned on a commitment by recipient nations to vigorously enforce international labor, human rights and environmental standards. . . . If we can't get these conditions, we must fight reprimming the IMF pump with taxpayer dollars. Why should our members finance the destruction of our own jobs?"

Prison budgets outpace states' education funding

State prison budgets are growing twice as fast as spending on public colleges and universities, a recent ABC News analysis has found. Texas leads the nation with increases in prison spending. During 1977-95, Texas prison funding grew 5.7 times faster than spending on higher education. Arizona was second, tripling the growth of its corrections spending over increases for higher education. California prison funding grew 794%, while higher education funding grew 296%, or 2.68 times faster. Nationally, spending on state prison systems increased by an average of 823% over that period, according to Census Bureau data, while budgets for higher education increased by 374%.

A 1998 study found that over the last seven years, Maryland has spent $147 million more on jailing people and $29 million less on higher education. During the 1990s in Maryland, more African-Americans entered the prison system than entered full-time, undergraduate public universities.

According to various reports put out by the Education vs. Incarceration Clearinghouse, 1995 was the first year in which states collectively spent more to construct prisons than universities. In fact, there was almost a dollar-for-dollar trade-off that year, with prison construction funds increasing by $926 million (to $2.6 billion), while university construction funding dropped by $945 million (to $2.5 billion).

Briefly

CHINA TELEVISION interviewed *EIR* Washington correspondent William Jones on Aug. 24, regarding a "U.S. view" of the flooding in their country. Jones detailed the importance of replicating the success of the Tennessee Valley Authority in China's own Three Gorges Dam, as the key to avoiding future devastation.

FBI DIRECTOR Louis Freeh cut short his trip to Africa, after the U.S. air attack on Sudan and Afghanistan. He was investigating the Kenya and Tanzania embassy bombings. In Kenya, there was a joint FBI/Kenyan raid on the Mercy International Relief Agency, an allegedly Saudi charity, in connection with the embassy bombings investigation.

THE AFL-CIO has called for Washington to revoke Cambodia's special trade status under the Generalized System of Preferences, after buying into the charges of Sam Rainsy, a "human rights" darling of the GOP's International Republican Institute. The IRI is a component of the National Endowment for Democracy, which gained notoriety during the investigation of the George Bush/Oliver North Iran-Contra scandal.

PRISON GUARDS plan to demonstrate against the private prison firm Corrections Corp. of America, (CCA), *EIR* was told by Lance Corcoran, vice president of the California Correctional Peace Officers Association. The march will be on Oct. 15-16 in front of the Nashville headquarters of CCA, as part of a nationwide campaign against prison privatization.

GEOFFREY FIEGER, Jack Kevorkian's attorney, who won Michigan's Democratic gubernatorial primary, while trying to distance himself from his client "Dr. Death," is winning support from "Merian's Friends," a pro-euthanasia group backing an "assisted-suicide" initiative for the November ballot. However, Fieger is having problems rustling up a running mate for the lieutenant governor post.

The case of Classical motivic thorough-composition

Appendix to 'The Substance of Morality'

by Lyndon H. LaRouche, Jr. (***EIR***, June 26, 1998)

A report compiled, under the direction of Anno Hellenbroich, by Liliana Celani, Ortrun and Hartmut Cramer, Bruce Director, Anno Hellenbroich, Stephan Marienfeld, Mindy Pechenuk, John and Renée Sigerson, Jonathan Tennenbaum, and Kathy Wolfe

Contents

Lyndon H. LaRouche, Jr. (left), with Professor Norbert Brainin, Primarius of the legendary Amadeus Quartet.

Introduction

Music, education, and morality

by Lyndon H. LaRouche, Jr.

July 16, 1998

The following ***EIR*** Special Feature on the subject of the connection between the principles of Classical musical composition and morality, fulfills the requirements specified earlier for this appended report to the June 26, 1998 ***EIR*** edition's "The Substance of Morality." We add here the following three summary remarks on the subject of the musical report itself.

Firstly, we stress to the reader, that at the very outset of the report, authors Liliana Celani and Kathy Wolfe restate that report's primary mission most compactly, in the following words: "Composition of Classical music according to the Italian Renaissance principle of *bel canto* ('beautiful singing'), is one of the best examples of mankind's ability to discover an existing physical principle, and to use that discovery to create new works of science and art, which then increase mankind's power to build civilization."

The report fulfills that mission by providing the reader what has become, in recent decades, otherwise rarely available essential material on the subject of music itself. This lesson from music is presented by emphasis upon selected material of a type which, otherwise, happens to be essential for two classes of ***EIR*** readers. For professional musicians and other educators engaged in programs of teaching music to pupils at the elementary and secondary schools levels. On the first count, this report guides the reader to reenact, in his or her own mind and experience, that process of discovery of those principles which represents the essential core principles of singing and interpretive performance. In addition, for even those amateurs who previously qualified to follow only parts of the musical concepts presented, this provides much-needed guidance to those parents and others who must choose the kind of musical educational program which must be restored to today's severely distressed, almost destroyed, public education systems.

Secondly, it is important that the reader be reminded of

the purpose and scope of the (***EIR,*** June 26, 1998) Feature in whose province the present report is situated. Classical musical composition, otherwise termed, generically, "motivic thorough-composition," was developed chiefly in the span from Johann Sebastian Bach through Johannes Brahms. This form of composition and musical performance, which emerged out of the continuation of the Fifteenth-Century practice of *bel canto* singing, has an essentially moral function. This form of development in music traced from Classical Greek roots, uses the special features of the musical medium to cultivate in both the musician and the audience certain moral qualities of passion, qualities which naturally tend to spill over, in other ways, from musical composition itself, into the development of the character of the musical audiences. To accomplish that purpose, it is necessary to begin regular *bel canto* training of the singing voice with young children; music is a language, which is best learned beginning the age the child should acquire the rudiments of a literate form of native language. Furthermore, it is not possible to account adequately for the moral collapse erupting today among adolescent and younger pupils, without recognizing that much of this moral decay coincides with the recent, virtual eradication of most of what used to be even a minimum standard of literacy for musical programs in public schools.

Thirdly, unlike so-called "popular musical" entertainments, this moral quality of Classical motivic thorough-composition, expresses the same specific kind of principled potentialities of the individual human mind, the which are also expressed by those same cognitive processes without which no experimentally validated discoveries of new physical principles could occur in, or outside of classrooms.

The connections of this third point should be recognized by the reader who compares the case for music developed by the authors of this report with my argument on the subject of mathematical economics ("An American Century Seen as a Modular Mathematical Orbit," ***EIR,*** July 24, 1998).

Chapter 1

The tradition of Florentine *bel canto*

by Liliana Celani, Kathy Wolfe, and Stephan Marienfeld

Composition of Classical music according to the Italian Renaissance principle of *bel canto* (beautiful singing) is one of the best examples of mankind's ability to discover an existing physical principle, and to use that discovery to create new works of science and art, which then increase humanity's power to build civilization. Today, *bel canto* signifies the physical principle, discovered in the Fifteenth Century by Leonardo da Vinci (1452-1519) and his collaborators, that the human singing voice is innately endowed with differentiated voice *registers* and other qualities, which allow a composer to create a unique density of new ideas in a musical work.

This density of new ideas is essential to Mozart's 1782-1785 "musical revolution" of *Motivführung,* as LaRouche has indicated in a number of writings.[1]

Book I of *A Manual on the Rudiments of Tuning and Registration,* Lyndon H. LaRouche's 1991 music textbook, documents that for 400 years, from the 1430 Florentine Golden Renaissance to the death of Beethoven in 1827, the basic principles of *bel canto* were taught as a form of mass literacy to all children who learned to read and write.

Bel canto shows itself in many ways to be a physical principle naturally embedded in the human voice, a physical principle which the Renaissance masters discovered, rather than manufactured. The most familiar example is that of the opera singer, who, with his or her voice alone, fills with sound a hall of 4,000 seats, without amplification. *Bel canto* also exhibits the quality of "least action," in which the smallest physical effort produces the most powerful result. Renaissance teachers would place a candle before the student's mouth, and note that when a *bel canto* tone is produced, the flame does not move, even if the tone is a very powerful one.

The basic elements of *bel canto* training are elevation, roundness of sound, vibrato, and clear registration. All of these are produced using physical attributes of the universe, including the human mind and body, which exist for us to discover.

Bel canto as physical principle

Contrary to widespread opinion in the music world, *bel canto* is not merely the Italian opera repertoire connected with Vincenzo Bellini (1801-1835), Gaetano Donizetti (1797-1848), up to Giuseppe Verdi (1813-1901); rather, it is a scientific technique of singing, which makes such repertoire possible, and which composers such as Bellini and Verdi, but also J.S. Bach (1685-1750), Wolfgang Amadeus Mozart (1756-1791), Ludwig van Beethoven (1770-1827), up to Johannes Brahms (1833-1897), had in mind when they composed their vocal works—not only choral works and operas but also *Lieder* (art

songs)—which latter are the "Rosetta Stone" of music, since they unify the beauty of singing with the beauty of a poetic text, consciously using all characteristics of the human singing voice (its differences in registers, color, dynamics, accents) in order not only to reflect, but even to enrich the poetic text.

The precondition for true *bel canto* is *impostazione,* or placement of the voice (from the Italian word *posto,* "to place"): which means that with *bel canto,* the singer finds the best place to amplify the voice, simultaneously mobilizing all resonating chambers (chest, throat, and, particularly, head). The balance between such resonating chambers will vary according to the natural registers of the voice, the first register (also known as the "chest" register) with more chest resonance than head, the second, or center register, with a mixture of both, and the third register (also called *registro di testa,* or head register) with a predominance of the head voice. This is the register which requires most elevation of the voice, or singing *in maschera,* in the mask, which means exploiting to the utmost the bones and sinus cavities above and around the eyes.

The Renaissance genius Leonardo da Vinci was the first to study how the voice resounds in the head, in different locations according to the vowels used, which each have a different natural pitch and a different placement in the head, and his drawings were incorporated in a treatise on the voice, "De Vocie," which was unfortunately separated into different sections, some of which are still included in the *Codex Atlanticus.* A famous *bas relief* by another Renaissance genius, Luca della Robbia, kept in the Museo del Duomo in Florence, shows a group of children singing *bel canto,* and one can tell from the expression of their faces which ones are singing in the third, high register, concentrating the sound in the head, and which ones are singing the medium and low parts.

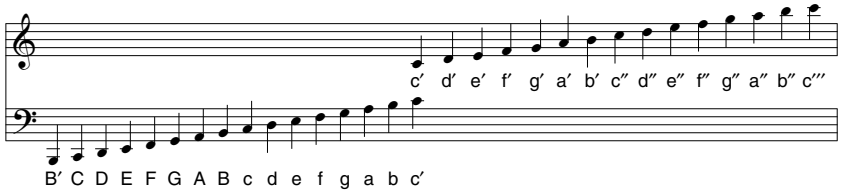
The second element of *bel canto,* besides the scientific use of the natural registers of the voice, and the conscious balance between elevation (singing in the mask) and *appoggio* (support, which means supporting the sound *sul fiato,* "on the breath"), is the ability to obtain a round sound by "covering" it, using round vowels such as "o" (as in "mode") or even "u" (as in "mood") in the third register. *Aperto ma coperto* ("open but covered") used to be the iron rule of the old school of *bel canto* singing—an only apparent contradiction, since it means that the mouth has to be open, but the sound covered.

The third element, which confers particular freedom and beauty to singing, is vibrato, which should not be confused with either tremolo or the trill. Vibrato, the fleeting oscillation of the voice between two pitches on either side of the conceived tone, is natural to the voice, and is the effect of correct *impostazione* (placement). The trill, which is a true half or whole step sung alternately in very rapid succession, has the same musical meaning in singing as it has in instrumental, or piano compositions; namely, to maintain a certain suspension before going back to the tonic, or as a leading tone just before a modulation. The presence of a tremolo, which comes from the Italian *tremare,* or trembling (of the voice), is a clear indication that the singer is suffering from a vocal-technical problem. Tremolo is diametrically opposed to a normal vibrato, and is generally caused by a lack of *appoggio,* or support of the voice, and indicates a problem of intonation. (In most cases, singers who "go flat" or whose voices tremble, lack either elevation, or support, or both.)

As Leonardo da Vinci[2] indicated in his treatise on the human voice, *bel canto* singing can be compared to painting, because of the conscious use of "colors" in the voice, either as natural colors (conferred by the different registers), or as a conscious change of color for purposes of interpretation. (For example, great singers are able to make their voice darker while singing a part in a *Lied* corresponding to a change in the poetic text, or a change from major to minor, or to make it lighter in a particularly joyful part.) Generally, the audience will perceive a clear register shift from the second to the third, high register (particularly in the tenor voice, which is stronger), as a change of color. Third-register notes, if sung with the right *impostazione,* have a particular brilliance, which they lose if they are shouted, or sung in the throat, where they become opaque. First-register notes, being sung mostly with a chest resonance, are perceived

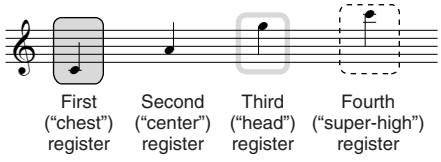
Concerning our musical terminology

When specific notes are referred to in the text and in the musical examples, the following nomenclature is used:



There are instances when not a specific note in a specific register, but, rather, a general member of the scale is being referred to. In such instances, a capital letter is used.

Vocal registers are indicated in some musical examples. The chart below shows how the first ("chest") register, the third ("head") register, and the fourth ("super-high") register are marked. There is no special marking for the second ("center") register. See Figure 1.2 for the specific register-shifts in each of the six species of human singing voice.



Other passages of special interest in the musical examples, are highlighted by horizontal brackets:

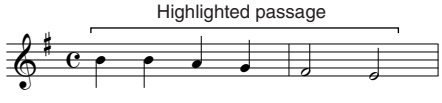
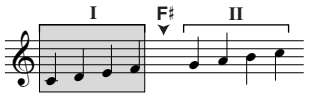


FIGURE 1.1
The child's universal division of the c′-c″ octave



as darker notes. This implies that each note of the scale does not have the same value for singing.

For example, middle C (c′) is a high note for a bass singer, who shifts to his high register on d′. The same note is a center-register note for the tenor, and is a low, chest-register note for a soprano or a mezzosoprano, and, as such, it will be perceived differently by the listener, depending on who sings it.

As the following musical examples demonstrate, great composers such as J.S. Bach, Mozart, Beethoven, and Verdi were aware of these differences in registration when they wrote their vocal works, and developed the well-tempered scale based on this palette of vocal colors. Not only notes, but also intervals have a different value according to the register and scale in which they are sung.

For example, the same interval creates more or less musical tension as the distance between the tonic and the note corresponding to the register shift is smaller or greater. In the mode of C major/C minor, a diminished fifth, or Lydian interval (c′ to f♯′), corresponds to a register shift for a tenor and a soprano, in two different octaves; while the interval corresponding to a register shift for a baritone voice is that of a third (c′ to e′). But in another key, the register shift of both voices corresponds to a different interval (closer or more distant from the tonic).

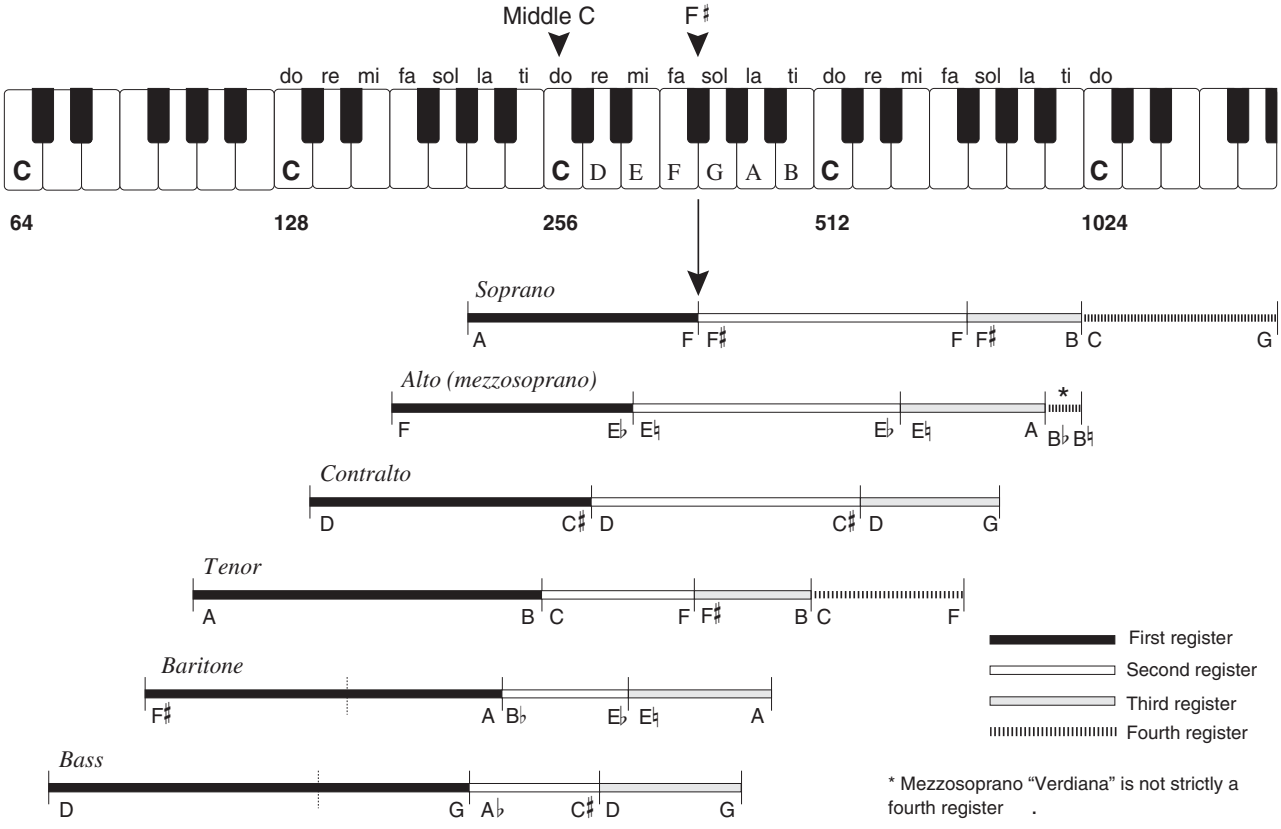
Composers chose the key for their arias or *Lieder* with the awareness that certain intervals would correspond to the natural register shifts of the voice-species of the intended singer. Since instruments are an imitation of the *bel canto,* singing voice, they echo the natural registration of the six species of voices, the only difference being that they introduce a new degree of freedom, often allowing motivic development, by moving from one voice to the next (a 'cello can, for example, start out as a baritone voice, and can then move to a tenor voice, with its different array of registers).

It was found that the average child's voice develops best when taught to shift to a new register on the second half of this scale **(Figure 1.1)**. It was, in fact, in this way that "middle C" became middle C: Only the octave of eight diatonic notes which starts there, will find itself divided in half, by the child's register shift, between f′ and g′, at f♯′. The register shift is natural, and the scale conforms to nature.

Voices which shift here are called soprano, and all children, if taught to sing from age five as they ought to be, experience this basic register shift for several years, until puberty.

As children mature, girls develop into adult sopranos or mezzosopranos, while boys develop a lower octave and become tenors, baritones, or basses. But the intervals of each voice remain divided into three or four qualities of distinct voice register **(Figure 1.2)**. In addition to the first register,

FIGURE 1.2
The six species of human singing voice, and their registers



shown here as a solid black bar, and the second register, shown here as a white bar, there are also the higher, third and fourth registers, each with its own different register-shift point.

Thus, when a composer goes to construct a musical composition, he has six species of the adult singing voice—soprano, mezzosoprano, contralto, tenor, baritone, and bass—each containing three or four different registral "voices," a well-defined palette of colors, with which to "paint."

Bach's *St. John Passion* is a good example of both *bel canto* singing and *Motivführung,* since it uses voices and instruments (as imitation of human voices) in a musically dense and profound dialogue, starting with the instrumental and choral introduction, which is one of the most beautiful works ever written. The orchestra and the singing solo instruments (oboe I and II, and transverse flute) introduce the four voices of the choir on the initial invocation "Herr, unser Herrscher" ("Lord, our Ruler"), which already in the first few measures **(Figure 1.3a)** traverses the entire palette of vocal registers and colors of the four choral voices (soprano, alto, tenor, and bass) in four different combinations of notes and of intervals, corresponding to vocal registers. In the first one and a half measures of the choral entrance, four third-register notes are sung, in succession, first by the sopranos (on g″), next by the tenors (on another high g′), and finally by the tenors and basses together (the tenor on f♯′ and the bass on an e♭′). The audience will therefore perceive not a simple repetition of the invocation "Lord," but rather an increasingly dramatic invocation, with the sopranos emerging first on the high note, the tenors most prominent on the second, and the basses on the third. The second invocation, in measure 23 **(Figure 1.3b)**, is again transformed, because of a modulation, with the soprano emerging first on the high g″, and the tenor jumping at the end from a central-register e′ to a very high a♭′ on measure 24, which will be heard even more by the audience, since high notes in the tenor voice (assuming that the tenors in the choir are singing *bel canto*) have a particular brilliance. The invocation "Lord, our Ruler" will therefore sound different all four times; and if one were to mark the four vocal parts with colored pencil, the vocal palette would shift four times, as if in a time-lapse weather map.

Mozart's *Lied* "Das Veilchen" is an example of how music can not only reflect, but even enrich a beautiful poetic text, as in

FIGURE 1.3
Register shifts in opening of J.S. Bach's *St. John Passion*

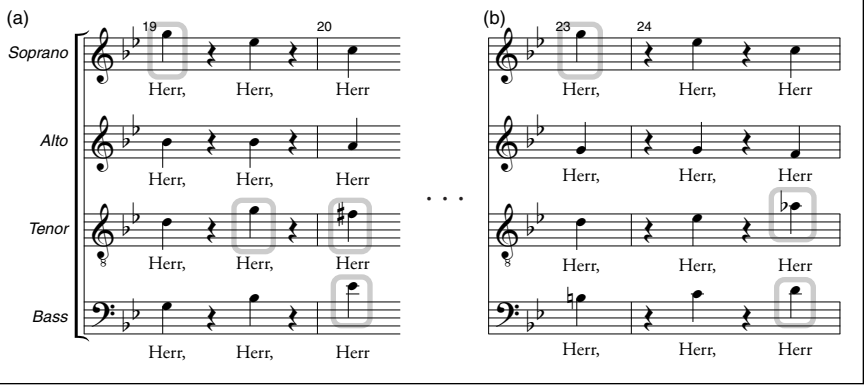
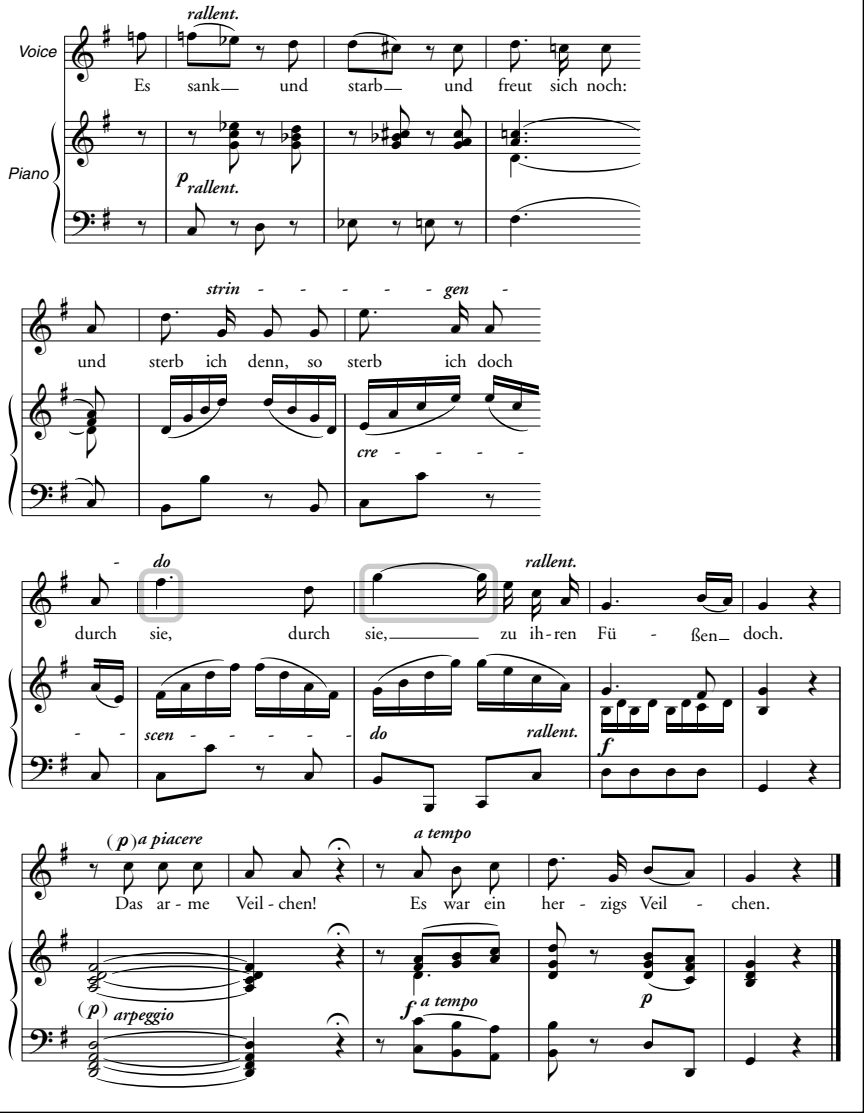


FIGURE 1.4
Conclusion of Mozart's 'Das Veilchen'



this case with a poem by Johann Wolfgang Goethe. In two short pages, Mozart develops almost a small comic opera, based on two main characters: the little violet, described in the "Allegretto" opening, and the shepherdess, passing by "with light step and merry heart, and singing" (at which point the piano accompaniment sings a merry tune for her). The irony of the poem lies in the fact, that the violet falls hopelessly in love with the shepherdess, and wishes to be plucked up by her; but, in the second part of the *Lied,* which suddenly turns dramatic, the shepherdess does not see the violet, and steps right on top of it. The transformation of the poem, and the song, happens at this point **(Figure 1.4)**, because the violet "sinks, dies, *but* is happy about it nevertheless," declaiming, in a final "stringendo" (which means accelerating in speed), that "even if I die, so I'll be dying because of *her,* at her feet!"

Musically, this transformation of the poetic text is emphasized by the main register shift of the soprano, on the f♯″ of "durch *sie*" ("because of *her*"), which is not justified by a modulation (the key is G major), but simply as an ironic dissonance, resolved immediately afterward by a second "durch *sie*" on a high g″. To make the ironic transformation of the poetic text even more so, Mozart adds a final stanza which is not in the Goethe original: "The poor violet! It was a dear little violet."

One of the most profound among vocal works is Mozart's *Lied* "Abendempfindung" ("Evening Sentiment"). Composed after the death of his father, it is a reflection on the meaning of life and death, on what we shall be remembered for after our death. The key to the song is the final metaphor **(Figure 1.5)**, which goes beyond a mere simile (between the tear of the friend crying on one's grave, and "the most beautiful pearl in my diadem"), by the repetition of the word "pearl" three times, first on a low f′ (not shown), then on a g′ (a central-register tone for the soprano voice), and finally on an even lower and darker e′, in the first, chest register. This metaphor, the idea that life continues after death, pervades the entire *Lied,* not only in the ending metaphor, but also in the beginning, when the line "Shall you then cry over my grave" ("Werd't ihr dann auf meinem Grabe weinen") is rendered musically by Mozart not with sadness, but with joy.

Apart from this shift to the low register, there is no spectacular shift to the high register in this *Lied,* and for a good reason: It is intended to move the listeners, conveying to them the calm metaphor of the evening as the

FIGURE 1.5
Mozart, 'Abendempfindung'

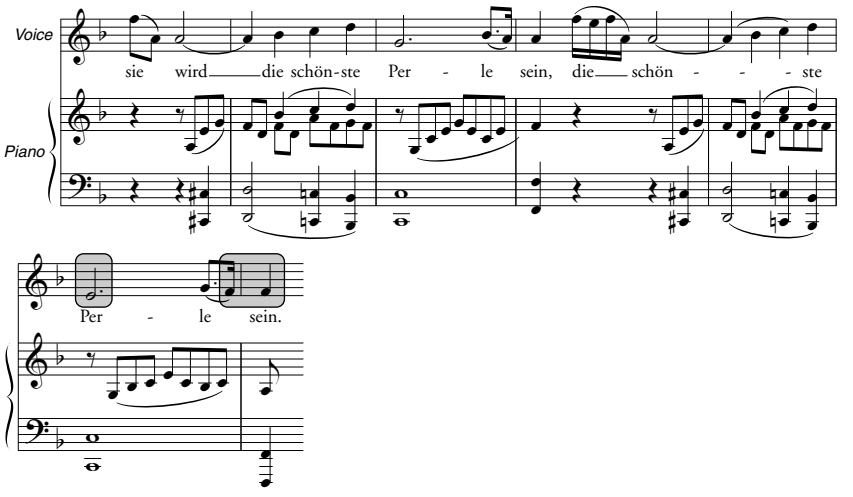
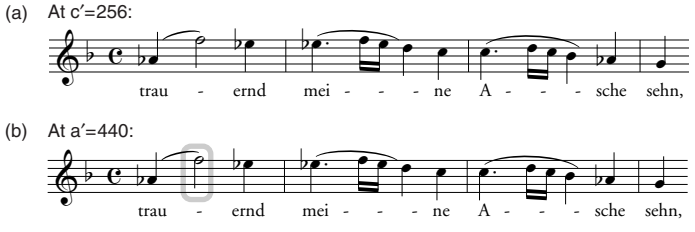


FIGURE 1.6
Mozart, 'Abendempfindung,' registration at c′=256 and a′=440



end of life, and the only dramatic jumps are the interval of a minor seventh between the g′ and f″ of "fliesset schon" ("[the friend's tear] is already flowing"), and the major sixth between the a♭′ and the f″ in the crucial, modulation section, "Werd't ihr dann an meinem Grabe weinen, *trauernd* meine Asche sehn" ("Shall you then cry at my grave, *mourning* over my ashes") **(Figure 1.6a)**. If performed with the modern, high tuning (a′=440 Hz to a′=448 Hz) **(Figure 1.6b)**, the song is completely disfigured, since all the center f″s become f♯″s, and the singer is forced to interrupt those key phrases with an unwanted shift into the high register, thereby completely spoiling the poetic interpretation.

Rather than high notes in the third register, the technical difficulty of this song, which requires a total mastery of *bel canto* technique and breathing, is the frequent rests interrupting the phrases, and in some cases even between syllables of the same word. (For example, on "mir weht, wie West—wind leise, eine stil—le Ah—nung zu," meaning that a silent presentiment of death comes upon me like a gentle west wind, with the words "silent presentiment" split by two dramatic rests, signifying the dramatic presentiment, which must be sung softly, but still with a sustained voice right after the rest.)

An example of how the same interval has different values for different voices, is the famous quartet from Beethoven's *Fidelio,* "Mir ist so wunderbar." Four of the six protagonists of the opera (Leonore, wife of Florestan, who has been unjustly imprisoned; Rocco, Florestan's jailer; Rocco's daughter Marzelline; and Jaquino, Marzelline's fiancé) sing in canon form, one after the other, the theme of the quartet **(Figure 1.7)**, while the others develop a counterpoint to it, which culminates in the final section, when all four voices crescendo, and then come together on a sudden "piano" on "wie gross ist die Gefahr" ("how great the danger is"). The theme "Mir ist so wunderbar," remains the same throughout, although the words change for each character, but the audience

FIGURE 1.7
Quartet from Beethoven's *Fidelio,* the four singers' entrances

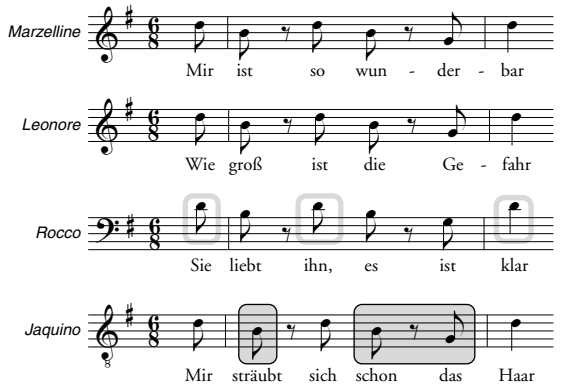


FIGURE 1.8
'Mir ist so wunderbar,' register shifts in opening interval

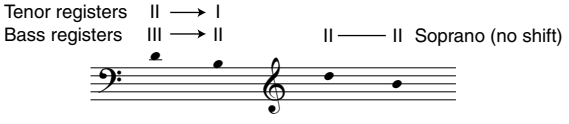
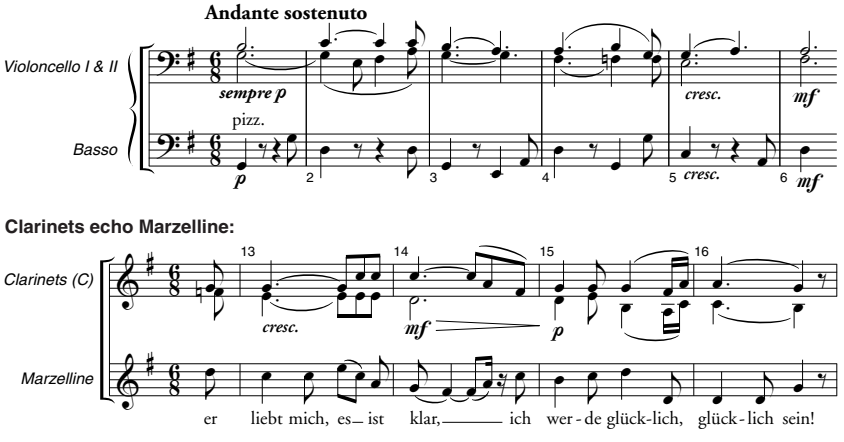


FIGURE 1.9
Instrumental voices in 'Mir ist so wunderbar' quartet



hears the beginning couplets (d″-b′ twice, and the inversion g′-d″) differently, because they are sung first by the two sopranos (Marzelline being a light soprano, and Leonore a lyric-dramatic one, with a darker timbre), then by the basso Rocco, for whom the d′-b interval is also a shift from the third to the central register (whereas for the other three singers it implies no register shift), and finally by the tenor (one octave lower than the sopranos). If one places each voice's opening two notes on the same staff **(Figure 1.8)**, it can be seen that they range through two different octaves, and two different register shifts.

A simple interval of a minor third downward, followed by a fifth upward, on which the whole quartet is built in terms of motivic development, thanks to the counterpoint supplied by the orchestra introduction, particularly the 'cello and clarinet parts, which sometimes play in counterpoint, or sometimes double the voices **(Figure 1.9)**, already supplies four different colors and two register shifts.

The songs of Franz Schubert

Every one of Franz Schubert's greatest *Lieder,* beginning with his Op. 1 "Erlkönig" ("The Elf-king") and Op. 2 "Gretchen am Spinnrade" ("Gretchen at the Spinning-wheel"), and ending with his last songs in the posthumously published "Schwanengesang" collection, is, from the first to the last note, a perfect whole. Schubert transforms the metaphor of a poem into a precise musical idea that reveals the true essence of the poem. He composes a perfect musical unity by using the method of motivic thorough-composition of Haydn, Mozart, and, especially, Beethoven.

In his compositions, Schubert not only transforms the score of the poem (strophic form, harmony of vowels and consonants, prosody, declamation, etc.) into music, but also consciously employs the characteristic quality of sound of the human singing voice. Schubert was educated as a singer. He knew the exact nature of the registers of the singing voice, and how to use their different colors in his compositions, to throw a special light on the crucial poetical concepts.

In the second stanza of the song "Gretchen am Spinnrade," Schubert takes the soprano voice into the third register only on the word "Kuss" ("kiss") on the note g″. This "Kuss," compared to the words "Zauberfluss" ("flood of magic"), "Händedruck" ("pressure of [his] hand"), and "ach" ("oh!"), has a totally different color and weight. In a musical tuning higher than a′=432 Hz, this difference disappears, because the soprano has to shift into the third register already on f″.

The use of the shift from the second to the third register within the song as a whole, is very interesting. The ritornello "Meine Ruh ist hin" ("My calm is gone"), which is repeated twice, has no shift into the third register. The first strophe **(Figure 1.10a)** only touches the third register at "mein armer Sinn" ("my poor mind"); in the second strophe there is only one shift into the third register on "Kuss" **(Figure 1.10b)**, and in the last strophe **(Figure 1.10c)**, the third register is used several times up to "vergehen" ("to swoon") on the highest note a″. Schubert increases the density of the register shifts in each strophe, which perfectly corresponds to the idea of the poem.

In the song "Du bist die Ruh" ("Thou Art Calmness"), only in the final strophe does Schubert take the soprano (or tenor) voice

into the third register **(Figure 1.11)**. Only the stressed syllable of the word "erhellt" ("illuminated") in the line "von deinem Glanz allein erhellt" ("illuminated by thy brilliance alone") on the notes g″-a♭″ (or, for the tenor, g′-a♭′) is sung in the third register. In this way, Schubert highlights the idea of the entire poem. "Aug' und Herz" ("eye and heart") are filled with the brightness of the voice's third register.

The first three stanzas of the song "Gute Nacht" ("Farewell"), which is the first in Schubert's song cycle "Winterreise" ("Winter Journey"), are musically set in essentially the same way (except for some variations in the third stanza). The tenor voice begins each stanza with an f′ in the second register, and takes the phrase down into the first register **(Figure 1.12a)**. But in the fourth and final stanza, this is changed. Schubert sets the last stanza in D major, as opposed to the D minor of the first three stanzas. The tenor must now begin the phrase on f♯′ in the third register **(Figure 1.12b)**. In the first three stanzas, the lonely wanderer looks in wistful resignation at the gloomy world. His "fein Liebchen" ("dear beloved") loves another, and he was turned out and driven away. In the last stanza, there arises once again a faint glimmer of hope, "damit du mögest sehen, an dich hab ich gedacht" ("so that you might see, that I've thought of you"). But it is only a self-delusion, and the wanderer painfully knows it. In the last line of the song, Schubert sets "an dich hab ich gedacht" ("I've thought of you") for the first time on f♯′ in the third register; and then a second time, as a resigned echo of the first one, on the note f♮′, back in the tenor's second register **(Figure 1.12c)**.

As with Mozart,[3] Giuseppe Verdi also confided to his contemporaries that, when he was writing a piece of music, the idea of the music first came to his mind as a single thought, as a "one" unifying the "many" aspects of it (voices, instruments, registers, etc.). To cite from a letter by an Italian member of parliament, Quintino Sella, who was a friend of Verdi's (besides being a composer, Verdi was also a patriot and a member of the Italian Senate): "One day I asked him, 'When you compose some of your beautiful pieces of music, how does the thought come into your mind? Do you first have the main theme, then you combine it with the accompaniment, and then you study the nature of the accompanying voices, flutes, violins, etc.?' 'No, no, no,' the famous maestro interrupted me with great animation, 'the thought comes to my mind in a complete form, and I know immediately whether the note should be from a flute or a violin. The difficulty lies in writing it down quickly enough to be able to express the musical thought in its integrity, as it came to the mind.' "

Verdi was perfectly aware of the *bel canto* characteristics of the singing voices, and this is why, in 1884, he promoted legislation in Italy to return to the scientific tuning of c′=256 Hz (corresponding to a′=430-432 Hz), because already then, as today, many opera theaters had tuned up to a′=450.

Many of Verdi's famous opera roles were written for a specific singer whom the composer had in mind. In the case of *Aida,* the aria "O cieli azzurri" ("O azure skies") (written for a darker, lyric soprano voice) changes completely if it is sung in the modern high tuning. This problem was demonstrated in

FIGURE 1.10
Schubert, 'Gretchen am Spinnrade'

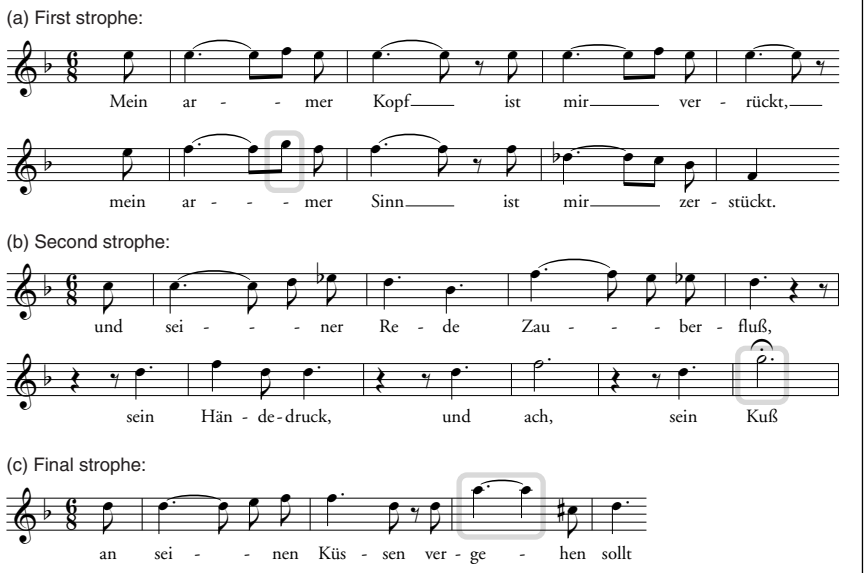


FIGURE 1.11
Schubert, 'Du bist die Ruh'

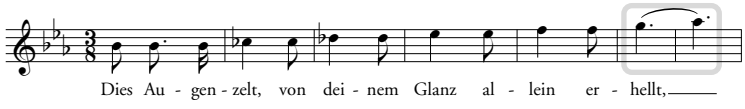


FIGURE 1.12
Schubert, 'Gute Nacht' from *Die Winterreise*

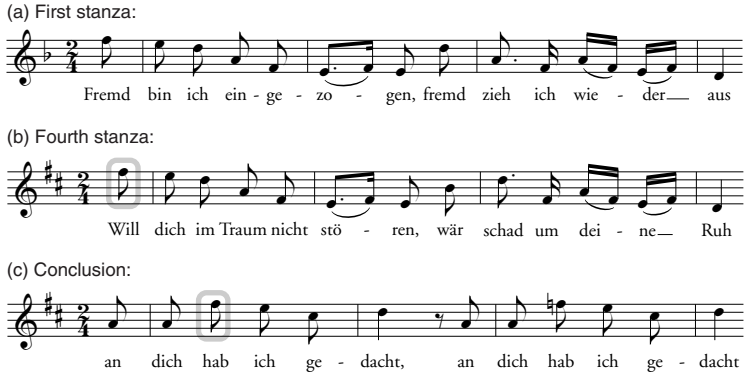
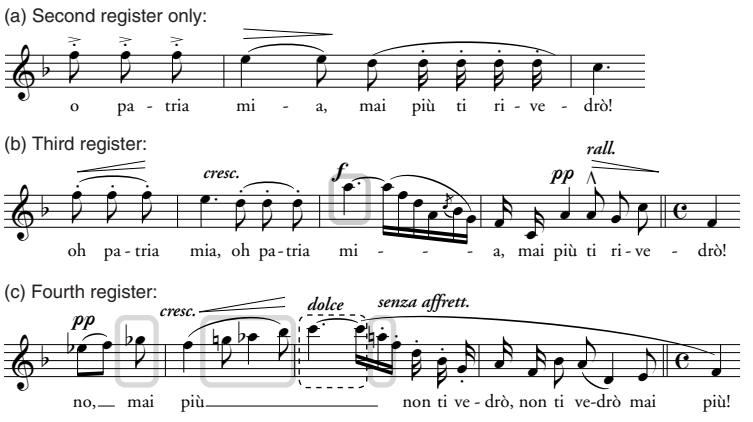


FIGURE 1.13

Phases in 'O cieli azzurri' from Verdi's *Aida*



November 1997 by dramatic soprano Antonella Banaudi, at a presentation of the newly published *Canto e Diapason,* the Italian edition of Book I of the Schiller Institute's *A Manual on the Rudiments of Tuning and Registration,* held at the Casa Barezzi in Verdi's home town Busseto, with the famous Verdi tenor Carlo Bergonzi, the famous Verdi baritone Piero Cappuccilli, the organist Arturo Sacchetti, and Lyndon H. LaRouche as main speakers. Before going up to a super-high c‴ in the fourth register (the so-called "chest C" or *do di petto*), the soprano Aida repeats the phrase "oh patria mia" ("oh, my fatherland") three times on an accented f″, always with a crescendo on "patria mia" **(Figure 1.13a)**. The choice of the f″ on frequent enunciation of the vowel "a"—a vowel which is generally difficult to sing properly in the third register—indicates that Verdi wanted this phrase kept in the center of the voice, and that the shift to the high register should only follow on the third repetition of "oh patria mia" with a jump to the high a″, sung *forte* **(Figure 1.13b)**. If sung in the modern high tuning, as Antonella Banaudi demonstrated at her presentation in the Casa Barezzi, first on a modern piano, and then back at Verdi's tuning on Verdi's own fortepiano, all those f″'s become f♯″'s, and are either sung already in the third register, or else are shouted, reducing the possibility of the singer to jump up to the high a″, and then to the super-high c‴ of "mai più" **(Figure 1.13c)**.

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1. The notion of *Motivführung* (motivic thorough-composition) was introduced by Professor Norbert Brainin in the early 1990s, in order to characterize the "totally new, special kind" of composition, with which Joseph Haydn had announced his Op. 33 "Russian" Quartets in 1781. Brainin pointed to the fact, that with this method, Haydn had unleashed a true revolution in the mode of composing string quartets, a method which was immediately picked up by Mozart (especially in his six string quartets dedicated to Haydn), and was later perfected by Beethoven (especially in his late quartets). Lyndon LaRouche, with whom Brainin discussed the concept of motivic thorough-composition intensely in the following years, pointed especially to the influence of J.S. Bach on Mozart's deepening of this method of composition of Haydn, and in numerous publications, demonstrated the significance of this concept not only for the entire domain of Classical music, but also for science in general. See Lyndon H. LaRouche, Jr., "That Which Underlies Motivic Thorough-Composition" (***EIR***, Sept. 1, 1995) (Vol. 22, No. 35); "Behind the Notes" [introduction to the forthcoming Book II of *A Manual on Tuning and Registration;* see reference note 3], ***Fidelio,*** Summer, 1997 (Vol. VI, No. 2); and other locations.

2. Fragments of Leonardo's treatise on the human voice, contained in the *Codex Atlanticus* (which is kept in the recently restored Biblioteca Ambrosiana in Milan), are observations on acoustics (creation and propagation of sound, how intervals are heard by the human ear), and prove the fundamental principle of the connection between art and science. For example, Leonardo compares sound waves to water waves, or the way intervals are heard not as single notes, but as a harmony between notes, to the way the rays of the sun are held in the eye: "like the note in the ear, which, unless it preserved the impression of the notes, could never derive pleasure from hearing a voice alone; for, when it passes immediately from the first to the fifth note, the effect is as though one heard these two notes at the same time, and thus perceived the true harmony which the first makes with the fifth; but if the impression of the first note did not remain in the ear for an appreciable interval of time, the fifth, which follows immediately after the first, would seem alone, and one note cannot create any harmony, and consequently any song whatsoever occurring alone would seem to be devoid of charm." See Emanuel Winternitz, *Leonardo da Vinci as a Musician* (New Haven: Yale University Press, 1982), p. 123.

3. Wolfgang Amadeus Mozart, in 1790, described how the idea of a *Lied* came to his mind: "This inflames my soul, whenever I am not disturbed. It grows continuously, and I broaden it even wider and brighter, and the thing becomes truly almost complete in my head, even if it is long, so that from that point on, I view it with a single glance, exactly like a beautiful picture of a pretty girl, from above, in my mind. And in my imagination I don't hear the parts successively, one after the other, but I hear them all at once." (Quoted in a letter published by Rochlitz.) See *A Manual on the Rudiments of Tuning and Registration,* Book I, ed. by John Sigerson and Kathy Wolfe (Washington, D.C.: Schiller Institute, 1992), p. 204.

Chapter 2

J.S. Bach and inversion as a universal principle of development in the continuum of musical composition

by Jonathan Tennenbaum

In his article "The Substance of Morality," Lyndon LaRouche presents a conception of the Universe as a multiply-connected manifold of the type (*N*-manifold)/(*M*-manifold). "*M*" signifies an ever-expanding array of principles of development of human culture, and "*N*" signifies a growing array of principles of physical action. These two sub-manifolds, of order "*N*" and "*M,*" do not exist apart from each other, but are multiply-connected by Man's culturally-determined action upon the physical Universe, and the impact upon cultural development of changing physical conditions of human society's existence in the Universe. The inner developmental characteristic (curvature) of physical "*N*-manifold" is called *anti-entropy,* and the characteristic curvature of the "*M*-manifold" of human cultural development is *agapē.* The two are inseparable, necessary expressions of the Principle of Creation (God).

Before turning to the musical side of this question, it will be useful to clarify the meaning of "multiple-connectedness," and in what manner we are to conceive of a manifold that is governed by not one, but a growing multiplicity of developmental principles. To make a short work of this, I emphasize only some key points, followed by an elementary illustration from astronomy, which leads us directly to music.

It is impossible to reduce the relationship of events in multiply-connected manifold, by any deductive or similar means, to a single formal principle. Rather, action in the manifold is governed by a multiplicity of principles, none of which can be reduced to or derived from the others in a formal-deductive manner. Any process in the manifold is simultaneously co-shaped by each and all the principles in any arbitrarily small region of action. The active principles, mutually irreducible and incommensurable in the just-mentioned sense, constitute true *singularities*—individual existences underlying the whole structure of the manifold. We encounter such singularities in physics in the form of creative fundamental discoveries of principle, and in music as entirely analogous discoveries of principle of *bel canto*-anchored motivic thorough-composition. The following sections will review some of them, such as Haydn's discovery of *Motivführung,* and Mozart's breakthrough on the significance of the "Lydian" major/minor mode, first explored in the late works of J.S. Bach.

In first approximation, one might be tempted to think of each active principle as analogous to a coordinate axis in an *n*-dimensional space, *n* representing the number of an irreducible array of principles governing the manifold at a given stage of development. In reality, however, the principles of development, while mutually irreducible in a formal sense, are never independent of each other in the manner implied by the Cartesian coordinates or the use of "independent variables" in a formal mathematical representation. As an "*n*-manifold" develops to an "*n+1*-manifold" and so forth, the integration of each newly discovered principle *modifies* the entire previous array of active principles.

Indeed, this process invariably involves the generation of *paradoxes* and *anomalies:* events are demonstrated to occur in the Universe, which are incompatible with the given set "*n,*" point to a flaw or at least an inadequacy in that existing set of principles. Generally speaking, the newly hypothesized principle does not replace or supersede the existing ones; rather, the latter must be reworked and redefined from the standpoint of the new discovery. Thus, the process of lawful generation and resolution of dissonances through motivic cross-voice development in well-tempered polyphony, mirrors the universal features of development of any multiply-connected manifold.

The growing array of principles is subsumed within a higher principle of generation (a "One"), whose essential characteristic, anti-entropy/*agapē,* is located in the process of *change* from the lower- to the higher-order manifold. Although that process involves the successive integration of singularities, each formally incommensurable with the others, that higher principle of creative self-elaboration remains everywhere self-similar to itself. The proper measure of the ordering of development is not "number of dimensions" in the formal sense, but rather increasing *cardinality* or *power* in the sense developed by Georg Cantor.

The *ordering* of the process of development of the manifolds by increasing Cantorian cardinality, does not at all coincide with *time* in the ordinary chronological (i.e., clock-time) sense. On the contrary, *time* and *space* are merely subsumed physical principles, which are ironically multiply-connected with the Cantorian axis of development. We know this negatively, from the sad witness of rise and decline of civilizations or even human culture as a whole. We also know this positively, by the fact that all acts of creative discovery involve some or another degree of apparent "time reversal." Rigorous composition always proceeds *backwards* from the effect to be achieved—which exists, as it

were, outside ordinary time—to the means and temporal pathway of events required to achieve that effect. Thus, music and drama are typified by ironic anticipations and premonitions, and other expressions of *temporal inversion.*

Music and Keplerian astronomy

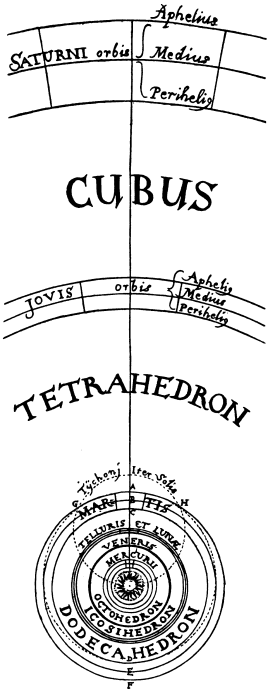
The development of astronomy, from the most ancient times up to Kepler and Gauss, provides the most direct access to the notion of a multiply-connected manifold, just sketched above.

The study of the motions in the heavens leads to the discovery of more and more *astronomical cycles* as *principles of motion.* Thus, observing the rising and setting of the Sun and the stars, we conceive the cycle of the *day.* Noting, however, that the path of the Sun shifts slightly from day to day, we discover the longer cycle of the *year.* What at first glance appear to be very slight discrepancies in the yearly cycle of the Sun with respect to the stars, reveal a much longer cycle of the *precession of the equinoxes.* Later, additional cycles emerge, connected with the non-uniform (elliptical) motion of the Earth around the Sun. In addition to these solar-terrestrial and stellar cycles, we must also take into account the cycles associated with the motions of the planets. The latter reveal themselves, upon closer examination, to involve more complex considerations, going beyond the principle of simple circular action.

Thus, as astronomy develops, we discover new principles of motion not only as new cycles per se, but also as internal principles of organization of the cycles, and principles of multiple-connectedness or "colligation" among the cycles. Thus, Kepler's discovery of the "area law" of motion in conic-section orbits, and his discovery of the harmonic principles underlying the entire array of orbits.

The observed motion of any planet or other heavenly body is the resultant of all cycles and related principles acting conjointly. So, for example, even though the equinoctial cycle has a length of some 26,000 years, it acts efficiently within any arbitrarily small time interval, to produce a *distinct,* implicitly measurable modification of any observed motion. The manner in which the characteristics of any planetary orbit are reflected in any arbitrarily small interval of the observed motion, was demonstrated by Carl Friedrich Gauss in 1801, when he determined the orbit of the unknown planet Ceres from only three, very close-spaced sightings.

FIGURE 2.1
Kepler's determination of the harmonic ordering of the solar system, from his *New Astronomy*



This concept of "curvature in the infinitely small" of astronomical motions, has an unavoidable, paradoxical feature: The motions we observe, embody not only the cycles which are *known* to us at any given time, but also those *we do not yet know* explicitly—cycles whose future discovery is inherent in the self-similarity of the principle of creation underlying the Universe as a whole. Hence, the curvature in the small, as reflected in the fine "articulation" of the heavenly motions, contains an element of *creative tension,* associated with the anti-entropy/*agapē* of a Universe constantly developing $M \rightarrow M+1, M+2, \ldots ; N \rightarrow N+1, N+2, \ldots$.

As Kepler demonstrated in detail for the case of the solar system, the higher coherence of the astronomical "*n*-manifold," is reflected in *harmonic orderings,* of the same type as characterize *artistic beauty* in the domain of human Classical culture. In the dialogue *Timaeus,* Plato refers to this common higher principle underlying astronomy and Classical art, by declaring the Universe to be a continuously unfolding composition of "God the Composer."

Reflecting this, Kepler's determination of the harmonic ordering of the planetary orbits specifies certain band-like regions or corridors as the location of the planetary orbits, and not fixed algebraic values **(Figure 2.1).** The exact orbits of the planets, while remaining within their harmonically "quantized" corridors, are constantly changing and evolving together with the Universe as a whole, in a manner Kepler likened to the performance of a polyphonic composition.

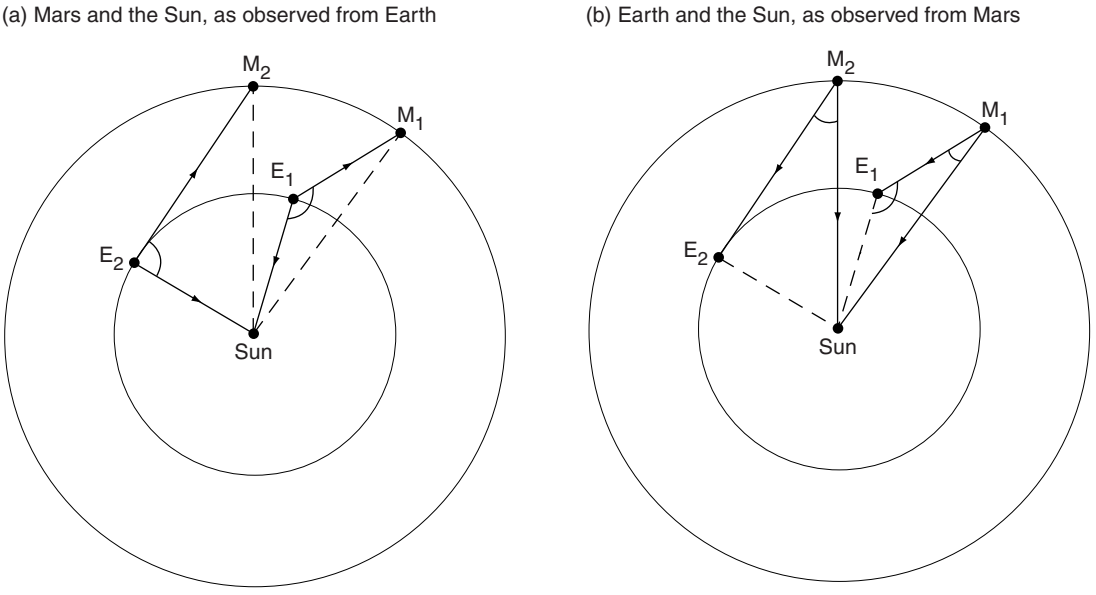
Kepler's astronomical inversions

In his *New Astronomy,* Johannes Kepler presented a series of devastating anomalies which overturned the prevailing assumption, that the planetary motions were based on nothing but the Ptolemaic-Aristotelean notion of uniform circular motion as the basic physical principle. In order to determine the actual motions of the planets, however, Kepler had to overcome the difficulty, that the orbital motions of the planets, including of the Earth itself, cannot be adduced in any direct manner from the observed motions as they appear to an observer on the Earth. Indeed, as already remarked above, the *apparent* motion of any planet, is the resultant of a complex combination of motions, including the Earth's rotation, the Earth's motion around the Sun, and the true orbital motion of the planet. The true motion of the Earth around the Sun, which we can neither see nor sense in any direct way, can only be determined by reference to the actual motions of the other planets; but, to disentangle the real from the apparent motions of those planets, it would seem necessary to first know the motions of the Earth, from which we observe the planets. How do we get out of this circular paradox? Kepler's ingenious solution was based on a method of inversion, closely akin to J.S. Bach's method of well-tempered polyphony.

Kepler asked the hypothetical question: How would the Earth's motion appear, relative to the apparent motion of the Sun, if we were to observe the Earth and the Sun from Mars? An observer would have a different solar calendar, whose basic cycle (the Mars year) makes a specific ratio to the Earth year. At first glance, such a hypothetical shift of *locus of action*—analogous to a modulation or more general *inversion* in music, as we shall see below—seems only to compound our ignorance. Kepler, after all, had no means to actually place himself on Mars! Yet it was exactly by juxtaposing the motion of Mars as seen from the Earth, with the motion

FIGURE 2.2

Transformation of angular intervals by change of locus of observer



of the Earth as seen from Mars (all relative to the Sun as "tonic"), that Kepler was able for the first time to determine the orbits of *both* the Earth and Mars! **(Figure 2.2)** By thus exloiting the additional dimensionality provided by the Mars orbital cycle, Kepler was led to the discovery of the elliptical form of planetary orbits, and a revolution in astronomy. The key here is the *transformation* between two or more sets of angular intervals (e.g., observations referenced to the Earth's cycle, versus observations referenced to the Mars cycle).

Kepler was fully aware of the kinship of his method with the Platonic dialogue and the polyphonic principle in music. Just as one can only know one's own mind and the assumptions which shape it, in the mirror of our interaction with other minds; so, in well-tempered polyphony, the motivic idea emerges only through a process of contrapuntal inversions; and so in astronomy, the motion of our Earth would never be known—Kepler loved to say—had God not given us Mars and the other planets as celestial companions.

The well-tempered system, briefly

Turning to musical composition, remember that the "*n*-manifold" of musical development lies entirely *outside* the audible domain of musical tones per se. One might say, that musical ideas themselves *are soundless.* Yet these soundless entities generate all the events in the audible domain and rule over it absolutely. For example, as the performances of Wilhelm Furtwängler and Pablo Casals demonstrate most forcefully, a musical interval is not something determined by a pair of tones, like a line segment drawn to join two points. Rather, the interval *precedes* the tones, both ontologically and in the consciousness of the composer and great performer, just as the idea of the composition precedes the ordering and shaping of all intervals in a composition. Lyndon LaRouche emphasizes that the least "unit" coherent with the expression of a musical idea, is a *pair of intervals* in the sense of an *interval between intervals.*

The mere acoustician will puzzle over the paradox: What could be the difference between merely *playing tones,* playing intervals, and *playing the intervals between intervals,* in the manner Furtwängler brought his orchestras to do? Where resides the difference, given that the instruments themselves produce nothing but tones? The "extra" which distinguishes the performance of *intervals between intervals* from the mere sounding of a succession of tones, is clearly heard in the mind, but is otherwise a virtual *infinitesimal* in acoustical terms—often nothing more than a barely perceptible, specific shaping of the tones in a musical line.

That shaping of the tones by musical intervals, and intervals by intervals of intervals, embodies the same principle by which the well-tempered system as a whole is determined by the *curvature* of the evolving manifold of *bel canto*-based motivic thorough-composition. That development is bounded by the requirement, that the creative principle embodied in the conception of the *bel canto* singing voice, be extended in a self-similar manner to an *ensemble of bel canto voices* having differing registration. In this process, the harmonic principles of *bel canto* vocalization, investigated by Leonardo da Vinci and described in part in the preceding section of this report, are "turned inside-out," as it were, to become principles of well-tempered vocal polyphony.[1]

The result, evolving in the course of a long, implicitly still-ongoing historical development, is the Classical well-tempered system, with its various species of harmonic intervals (octaves, fifths, fourths, thirds, etc.).

The mature chorus and orchestra ensemble, as understood by Beethoven and Brahms, must sing as a *single voice,* even while performing the most intricately articulated polyphony. Conversely, instrumental and choral polyphony are nothing but a self-similar extension of the polyphonic principle inherent in the single *bel canto* human voice with its characteristic registral differentiation.

This is exactly the conception underlying Johannes Kepler's famous derivation of the

musical intervals and scales, by harmonic division of the circle and sphere, which were crucial to his investigation of the musical principles governing the multiple-connectedness of the planetary orbits (see Kepler's *Harmony of the World,* Book III).

Unfortunately, Kepler's constructions are often misread to signify nearly the opposite of what they were originally intended to demonstrate.[2] The modern reader must never forget, that the *circle* and *sphere* of Kepler signify something very different from the mere geometrical shapes which carry the same names. Kepler explicitly refers to Nicolaus of Cusa, and the latter's discovery of the *ontological* significance of the circle's relationship, as a higher species, to its inscribed and circumscribed polygons. Cusa and Kepler stressed two elementary points in this context: First, the polygons and the discrete whole numbers associated with them, do not exist self-evidently, apart from circular action; and there is no valid determination of the polygons which does not originate in the circle. Second, while the polygons are generated and everywhere bounded by circular action, it is impossible to go backwards and derive the circle from the polygons, even if the number of their sides were increased beyond any limit.

Exactly in this sense, the generative principle or *curvature* of the *n*-manifold of *bel canto*-based motivic thorough-composition, bounds the process of successive discovery of principles of composition, including the system of harmonic intervals, tuning, keys, modes, and everything else. There can be no self-evident algebraic determination of musical intervals, nor any valid construction based on "empirical facts" concerning acoustics and the physiology of hearing, as Helmholtz claimed. The well-tempered system is everywhere bounded by the creative process of musical development.

Thus, contrary to a nearly universal misunderstanding, the well-tempered system not only does not prescribe an algebraically-fixed set of pitches and intervals, but it *absolutely forbids any such "fixing"! Bel canto*-based well-tempered composition dictates the *necessity* for a specific "shaping" of each and every tone and interval in a composition—including lawful *variations of pitch* within the harmonically-ordered "corridors" identified with the scale-steps, in such a way that the infinitesimal "curvature" of each moment of articulation expresses the creative tension underlying the composition as a whole.[3] Unfortunately, the capability of distinguishing such small but crucial nuances, possessed by composers and to a large extent even the educated musical audiences of Beethoven's time, has virtually died out.

By contrast, the concept of strict mathematical equal-tempering, is a fallacy rooted in the vain attempts to collapse a multiply-connected manifold into the "flat" space of a single (monophonic) formal principle.

Inversion of intervals

As indicated, *inversion* is a universal principle of musical development. To gain some insight into this, we can start by examining the manner in which Classical composers employ elementary inversions of *intervals* as instrumentalities of the process of motivic-polyphonic develop-

FIGURE 2.3a

J.S. Bach, *Jesu, meine Freude,* opening chorale

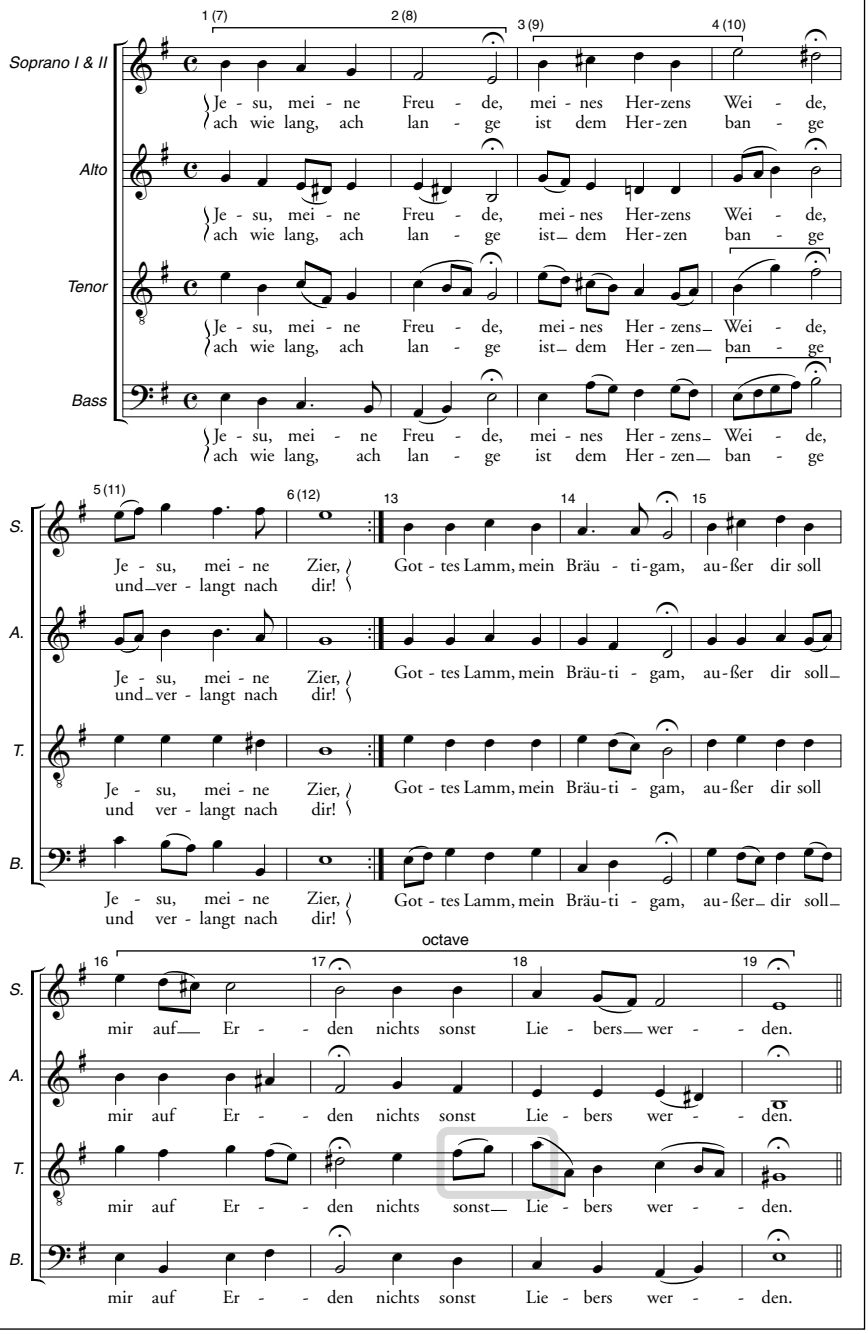
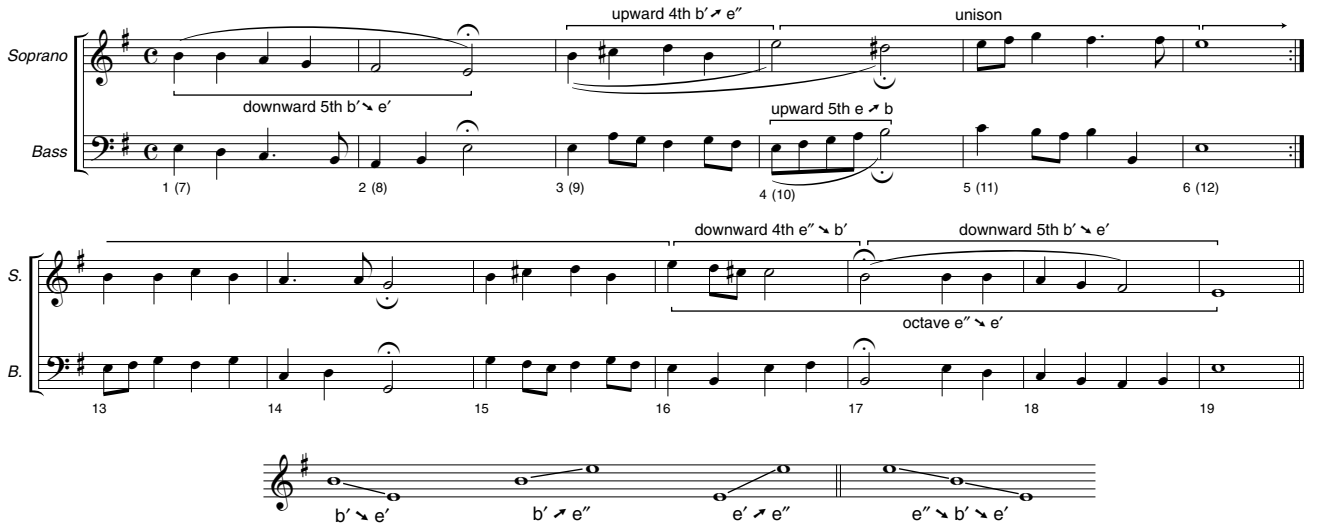


FIGURE 2.3b

Schematic of J.S. Bach, *Jesu, meine Freude,* opening chorale



ment. As we move forward in this series of articles, we will work upward from the simplest cases, discussed here, to the higher conception of inversion which underlies the late compositions of Mozart and Beethoven. In the process, we must constantly reflect on the way our minds "hear" both the explicitly stated intervals, and those which are only implied by the composer, and which are often even more important than the stated ones. These distinctions, reflecting changes in assumption governing any given phase of a composition, must be expressed in performance, by the articulation and "shaping" of tones and intervals "in the small" (including lawful nuances in pitch intonation).

In its very simplest formal manifestations, inversion involves one of three forms of *transformation* of an interval subsuming two tones:

(1) By sounding one or both of the tones in a different octave, voice, or register; usually in such a way, that the higher of the two becomes the lower in pitch, and the lower becomes the higher, while retaining their values within the scale (inversion of order in pitch). So, for example, a soprano and bass singer. In this case, the magnitude of the interval is changed; a fifth becomes a fourth, a major third becomes a minor sixth, and so forth.

(2) By reversing the *direction* of the interval's motion, as taken from either of the tones regarded as the origin, i.e., from upward to downward and vice-versa, while retaining the relative magnitude of the interval. In this case, not only the relation of higher and lower in pitch is reversed, but also the scale-value of one of the tones. So, the fifth from middle c′ *upward* to the g′ above it, inverts to the *downward* fifth from middle c′ to the f below it. (Note: this kind of inversion is more than a simple transposition of the interval; the *directionality* is also changed.)

(3) By reversing the *temporal order* of the two consecutive tones, so that the later now becomes the earlier, and vice versa, while maintaining their pitch values.

It is important to bear several things in mind: First, each event of inversion, constituting a *transformation of intervals,* involves no less than a *pair* of intervals—the original and its inversion. Inversion can thus be considered as a special type of *interval between intervals.* In many cases (see below) the original interval is merely implied, but not explicitly stated; or vice-versa, the original interval may be stated explicitly, and the inversion only implied. Sometimes *neither* of the two are stated explicitly, but are unmistakably implied. Related to this, inversions can occur for intervals which span entire sections of a composition, rather than merely consecutive tones, and so forth.

Now let us look at some examples of elementary forms of inversion in compositions of J.S. Bach. I want to emphasize that the following remarks by no means amount to an adequate analysis of any of these compositions. They are intended to open doors for an appreciation of the role of inversion in composition, starting from the very simplest sorts of cases, and working upward toward the more complex and profound.

J.S. Bach's motet *Jesu, meine Freude*

The first two measures of the opening chorale of J.S. Bach's motet *Jesu, meine Freude* **(Figures 2.3a and 2.3b)**, present us with an anomaly: The soprano voice describes in stepwise motion, the *descending fifth* b′-e′, while the bass moves downward from e, and then back to e. Consistent with this and the motion of the inner voices, we hear e as the base-tone and the downward fifth b′-e′ as a return (from where?) to the base tone. The whole motion of the voices is more like the *end* of a statement, than the beginning.

Now glance at the intervening development. From measure 3 to the beginning of measure 4, the soprano voice goes upward from b′ to e″, spanning an *upward fourth* b′-e″, which is the *inversion* of the *downward fifth* b′-e′ of the initial measures. Thereby, in our mind we "hear" the octave e′-e″ as confirming an implicit development e′-b′-e″, in which the first interval has been time-inverted in the opening statement.

The movement e′-b′-e″ would have achieved a certain closure, but that the soprano, instead of resting at the newly gained e″, falls back to the adjacent d♯″; while the bass voice articulates the *upward fifth* e-b, which is an *inversion* of the soprano's *descending fifth* in measure 1. At this point, we reach a maximum tension, associated with the unresolved juxtaposition of the intervals b′-d♯″, b-f♯′ (in the tenor

voice), and the expected closure e′-e″. The resolution to e′-e″ is achieved in measures 5-6, by the soprano—anticipated already by the tenor's motion in measure 4—breaking into the third register to reach e″ from above, via the g″ and f♯″.

With the consolidation of the octave e′-e″, the chorale moves downward to its conclusion. Then, after some preparation in measures 13-15 (themselves expressing an inversion), in measures 16-17 the soprano moves stepwise down to b′ (inverting the upward fourth b′-e″ of measures 3-4), from which it descends the remaining downward fifth b′-e′ to close the descending octave e″-e′ and end the chorale. That downward fifth, quoting the initial statement of the chorale—albeit with a shift in meter and a significant change in the tenor voice—resolves the original paradox: The beginning originated from the end!

All of this is nothing more than the most elementary kind of intervalic inversion, associated with the natural strophic organization of the chorale. The point is to see how the counterpoint developed by Bach in the bass and inner voices, defines and brings out the *changes in meaning* associated with the indicated inversions of what is at first glance one and the same interval.

J.S. Bach's *The Art of the Fugue*

We concentrate first on just a few measures of the opening statement of the fugue. (See **Figure 2.4a** for the entire fugue, and **Figure 2.4b** for conceptual sketches of it.) What we are about to point out would be immediately perceived by any musical audience in Beethoven's time. Today, however, the same things would pass unnoticed by most listeners, on account of their lack of grounding in composition. Hence the need for the following, relatively minute examination.

The fugue begins with a first statement of the theme (measures 1-5) with an initial contrapuntal elaboration through measure 8. Our initial hearing of the fugal theme is dominated by the statement of the *upward fifth* d′-a′ in measure 1. In measure 2, the upward motion is reversed; a *downward third* f′-d′ is stated, closing back to what we have already sensed to be the base-tone (tonic) D. At that moment, we "hear" in our mind *two additional, implied intervals:* first, an implied *unison* between the initial d′ of the first measure and the final d′ of the second measure; and second, an implied *downward fifth* a′-d′, which is the reversal of the upward fifth d′-a′ of the first measure. This is the *first reversal/inversion.*

Our initial hearing of the following two measures 3 and 4, is dominated by the *down-*

FIGURE 2.4a
J.S. Bach, Fugue I from *The Art of the Fugue*

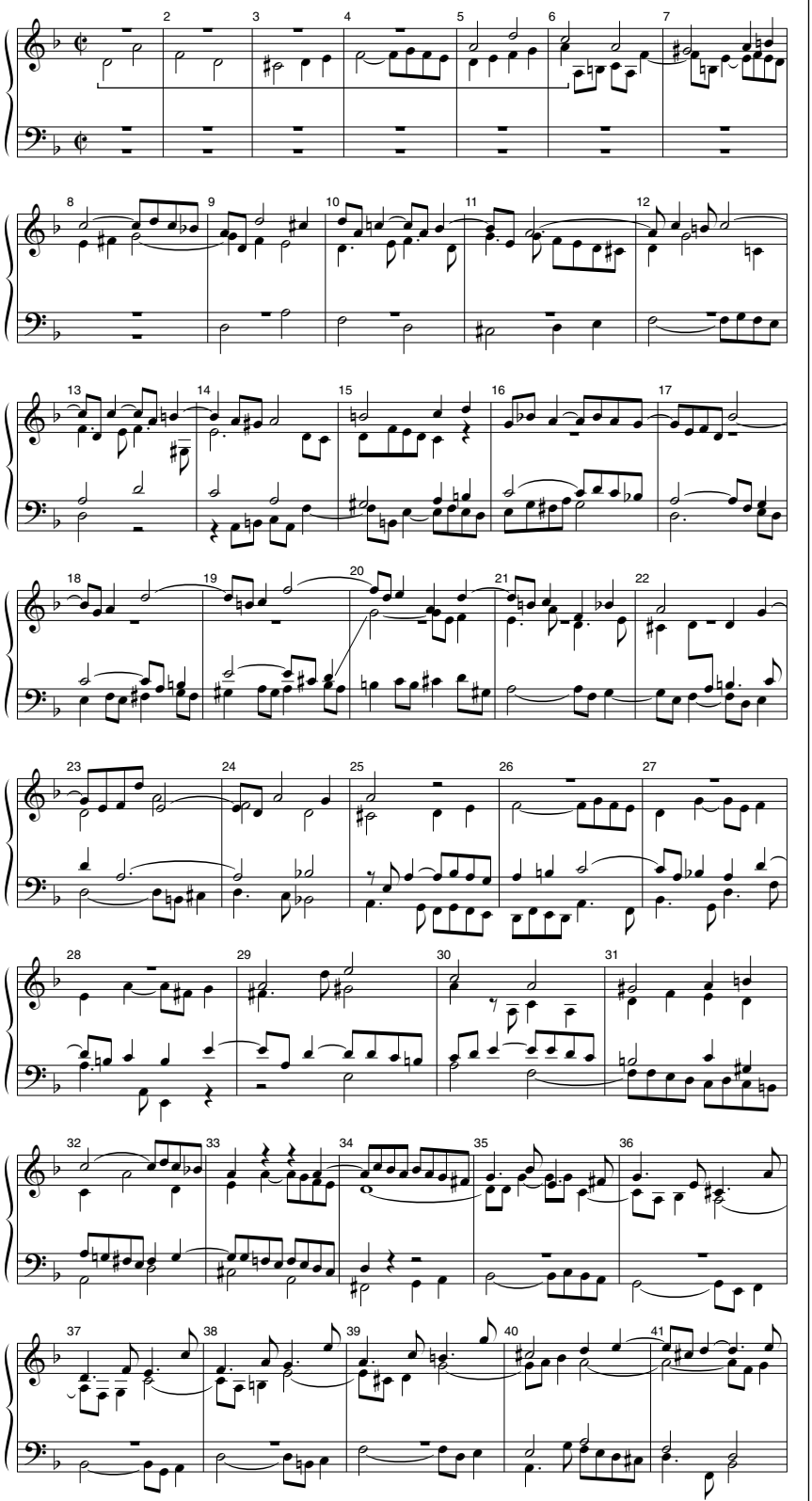


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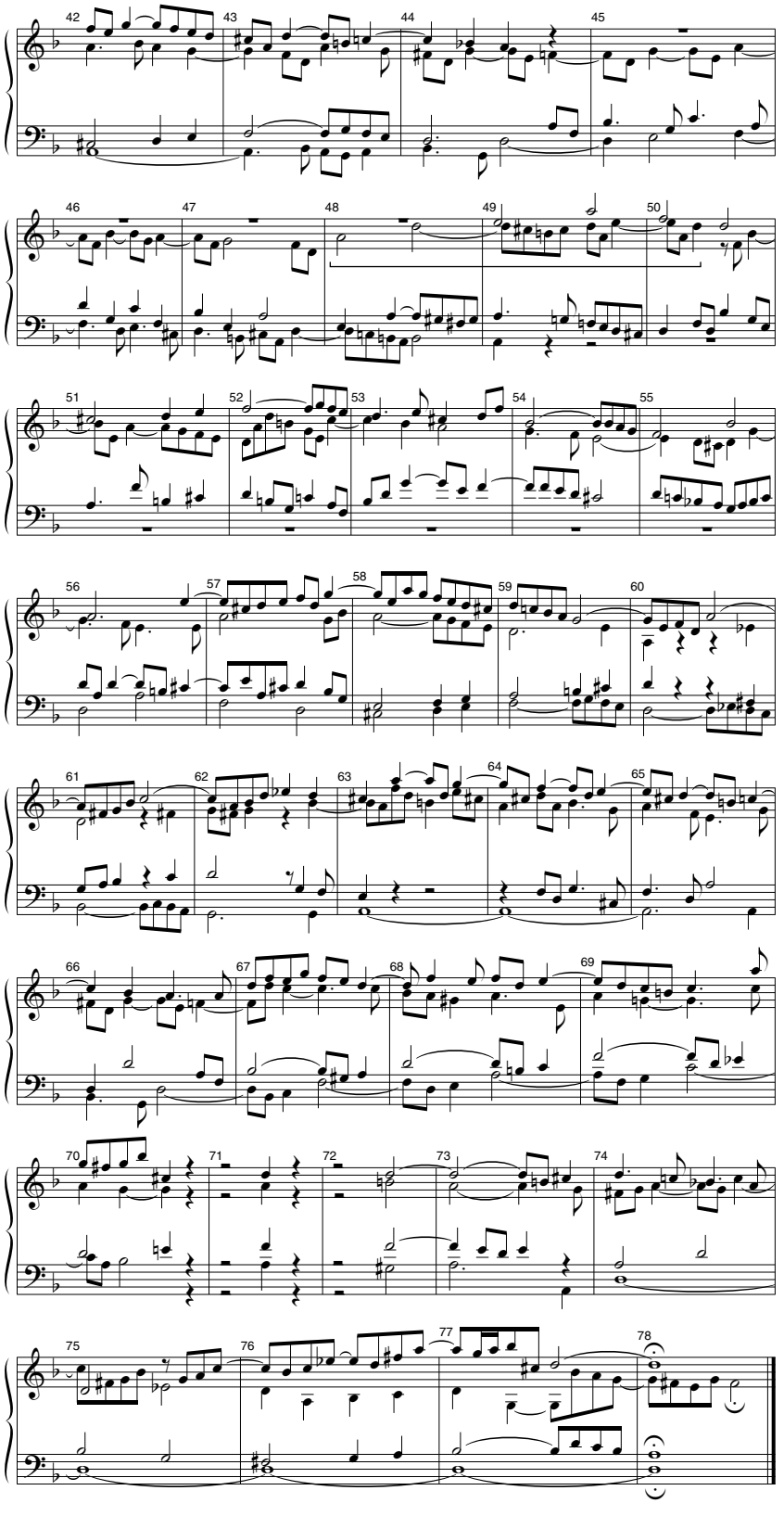
FIGURE 2.4a *(continued)*



ward half-step d′-c♯′, from the end of measure 2 to the beginning of measure 3, and the fact that the reversal of that interval (i.e., c♯′-d′), which the earlier reversal d′-a′, a′-d′ makes us expect to hear, is not really accomplished until we reach d′ in measure 5. Indeed, although c♯′-d′ occurs nominally already in measure 3, the d′ is sounded off the beat, as a quarter note—too short and with too much the character of a passing note, to fully resolve the preceding d′-c♯′, which was stated strongly in half-notes and with c♯′ on the beat. In any case, the relationship between d′-c♯′ (measure 2 and 3), and the c♯′-d′ implied between the c♯′ of measure 3 and the d′ at the beginning of measure 5, constitutes a *second inversion.*

The intervening passage, from measure 3 to the beginning of measure 5, is somewhat inconclusive at first hearing; what stands out is a *third reversal/inversion* implied between the sequences c♯′-d′-e′-f′ *upward,* g′-f′-e′-d′ *downward,* in measures 3 and 4 respectively. The latter is clearly heard as quoting the *downward third* f′-d′ of measure 2, and the former as stating its reversal/inversion. However, the sense of reversal is "modulated" by the intervention of neighboring tones c♯′ in the first case and g′ in the second, plus the syncopation and acceleration of motion. Many things are suggested by this articulation, which are only actualized later in the fugue, and in later fugues of the entire *Art of the Fugue* cycle. Finally, note that all three reversals/inversions pivot on the common d′ (as, in a sense, a pedal-point), strengthening our sense of d′ as the hypothesized pivot or base-point of the whole composition.

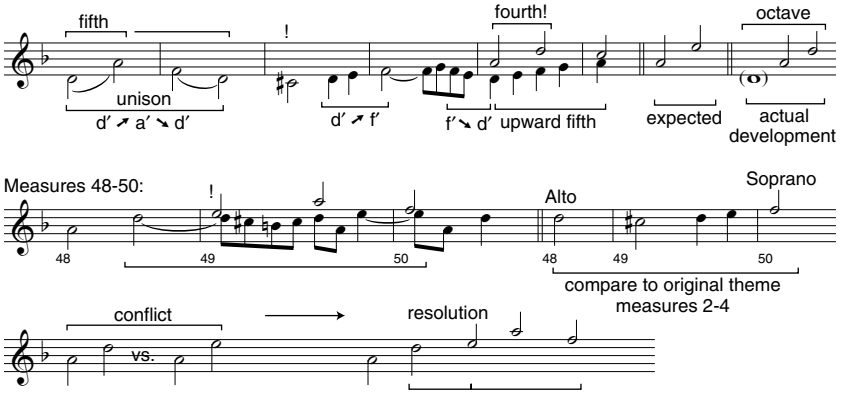
All of this is preparatory to the second entrance of the theme, in measure 5. At the sounding of the a′, we immediately "hear" an implied unison with the a′ of measure 1, and recall the initial upward fifth d′-a′, which the initial (lower) voice now once again quotes in stepwise motion from the beginning of measure 5 to the beginning of measure 6.

At this point a potential conflict appears.

In the original theme, the upward fifth d′-a′ subsumes an implied register shift (relative to soprano registration), from first to second register, establishing a′ initially as the dominant tone in that register. This already creates the sense of a′ as a second potential pivot-point or focus of the developmental action. This potential focal-point function is strengthened by the reversed pair of intervals d′-a′ upward, a′-d′ downward, which can be heard from the standpoint of either d′ or a′ as the pivot-point. As

FIGURE 2.4b

Two key passages from Fugue I of J.S. Bach's *Art of the Fugue*



a result, our mental ear already "hears" as a strong implication the *upward fifth* a′-e″; it is implied as the inversion of the *downward fifth* a′-d′ and as the transposed quotation of the *upward fifth* of the fugal theme to a′ as a new focus.

On the other hand, other strong reasons point to an *upward fourth* a′-d″ as the lawful sequel at this point. In fact, if d′ remains the focal-point, then already the first upward fifth d′-a′ in the very first statement of the fugue, calls for its continuation in the upward fourth a′-d″, which would thereby complete the octave d′-d″. In this way, the original reversal, namely:

> d′-a′ (upward fifth) reversed to a′-d′ (downward fifth) in the statement,

would be quoted via the second voice as:

> d′-a′ (*upward fifth* implied by placing the second entrance the theme at a′, against d′ as a pedal-point), inverted to the *upward fourth* a′-d″ as the first interval stated by the second voice.

In other words, the original motion d′-a′-d′ becomes d′-a′-d″.

We therefore have a *dissonance* between two (as yet unheard!) inverted intervals: an upward fifth a′-e″, and an upward fourth a′-d″, both of which are inversions of the interval that commences the composition. Which of them will actually occur? Bach, in fact, chooses a′-d″; but the dissonance with the implicit a′-e″ is still heard in the mind, and acts to drive the development forward.

Let us briefly note some features of the rest of the fugue, which confirm this reading of the indicated passage.

First, the upward fourth a′-d″, which is an inversion of the original interval of the theme d′-a′, becomes the ever-more-dominant motif throughout the subsequent development. It is first echoed in the counterpoint in measure 7, and is taken up as a subsumed motif in subsequent counterpoints and especially the interludes of measures 17-21, 36-40, and 44-46. It evolves into the increasingly powerful counterpoints of the second half of the fugue, in the turning-point in measures 48-53 (and sequel), as well as the final development of measures 66-70, leading to the coda, where it is compressed to a new figure in the soprano voice.

Second, the turning-point beginning in measures 48 and 49. Here, the original upward fourth a′-d″ is stated again, as if to repeat the fugal statement at a′. But the listener is surprised: what follows instead is the dramatic entrance of the soprano voice with a second upward fourth e″-a″, reaching into the soprano's third register and initiating the statement of the fugal theme in the highest register-range of the fugue. The dissonance between the intervals a′-d″ and a′-e″, now explicitly re-created by the juxtaposition of the fourths a′-d″, e″-a″, is effectively resolved by the f″ in the upper voice of measure 50, by completing the upward sequence d″-e″-f″. Note how the alto counterpoint adds c♯″ to yield c♯″-d″-e″-f″, which is exactly the original statement of the third measure of the fugal theme, stated one octave higher.

J.S. Bach's *Mass in B minor*

One of Bach's most condensed masterpieces of vocal counterpoint, is the six-part double fugue "Gratias agimus tibi" in the "Gloria" of Bach's *Mass in B minor* (the four-part vocal chorus is expanded, in the second half of the fugue, by two trumpet voices). The same figure recurs in slightly altered form as the final section of the mass, "Dona nobis pacem."

The initial statements of the fugue **(Figure 2.5)**, introduced in a "canon of canons" between the two sets of voices (bass-tenor and alto-soprano), appear at first glance to be dominated by the notion of d as the base-tone, the upward major third d-f♯ and fourth d-g in the fugal theme, and the rising fifth d-a between the bass entry and tenor entry. The inversion a-d′ of the latter interval, is stated by the tenor (measure 2) itself, and between the tenor and alto entry in the same measure, and is then repeated in different registration between the alto and soprano entries (measures 2 and 3).

However, the rhythmic and contrapuntal arrangement of the voices also implies *other* intervals and inversions. Prominent among these are the intervals d′-b and b-d′, implied, for example, in the tenor voice line (measure 2) and variously in other registers between the bass, tenor, and soprano (measures 3 and 4). All these intervals are heard in the initial section essentially from the standpoint of d as a kind of pedal-point. However, beginning in measure 10, and decisively in measure 13, the appearance of b in the bass line, redefines the entire set of relationships, now obliging us to hear the original sequence d-e-f♯-g from a completely different standpoint, defined by an *inversion* of the original relationship of d and b which places b as the pivot in the bass (see also the discussion below).

The moment of this redefinition coincides with an implied bringing-together of the two double-fugal themes, already implied by the bass line's reference to the second fugal theme in measures 10 and 11, and in measure 13. The basic movement of the second theme, which is first stated in measures 5-6 and recurs in various major/minor variations in the course of the fugue, is the repeated initial note, followed by a cascade of sixteenth notes which elaborate a descending sequence a-g-f♯-e. This is referenced by the bass with its descending sequence b-a-g♯-f♯ in measures 10 and 11, sounded against the rising major tetrachord d′-e′-f♯′-g′ in the alto. The second reference is in measures 13-15, where the descending scale steps are inverted to b-d in the elaboration by eighth notes. The second reference confirms the first one.

The special significance of this juxtaposition of the ascending major tetrachord d-e-f♯-g against the descending minor b-a-g-f♯, is that the two sequences are *exact inversions of each other:* they contain the

same sequence of steps, but in the opposite directions.

The same inversion is reaffirmed at a crucial transition, in measures 25-27 (not shown), where the bass voice's descending motion is continued to a decisive statement of b-d, thereby reversing the original inversion d-b and restoring d as the basetone.

This fugue is a good example of the absurdity of all formal definitions of "key." To the question, in what key the fugue is actually written, the textbook answer would be, "in D major, of course." Yet, such an answer is incompatible with the entire effect of the fugue. Nor could we characterize the composition adequately by simply calling it B minor. It were more accurate to speak of a B minor seen through D, or a D major/B minor "mode," developing through inversions around the interval b-d.

Inversion and the Lydian/major-minor mode

To conclude this discussion of inversion, let us look ahead toward the genesis of the more advanced conception which is exemplified by such later works as Mozart's C major/minor Fantasy K. 475, and Beethoven's late string quartets.

Those compositions embody a fundamental discovery, which integrates the major and minor modes of the well-tempered system into a *new principle of composition,* sometimes called the "Lydian major/minor mode." That discovery, which involves not one, but many principles of composition, will be elucidated from various angles in the following sections. Here, we focus on one aspect of the relationship of major/minor with the principle of inversion.

First, we should emphasize, that the entities we call "keys" and "modes" are not formal constructs, but—to the extent they mean anything at all—signify sets of assumptions or hypotheses governing specific phases of composition. The difficulty is, that the assumptions involved, cannot be identified with specific scales or other literal feature in some formal, "algebraic" fashion. Thus, it is easy to demonstrate that the most elementary and ubiquitous features of J.S. Bach's music are incomprehensible from the standpoint of any formal notion of musical key. The assumptions and hypotheses are not located in the notes, but in the thinking process "behind the notes."

That said, the characteristic distinction of hypothesis between (for example) C major and C minor would seem to lie in the

FIGURE 2.5a

J.S. Bach, 'Gratias' from *Mass in B minor*

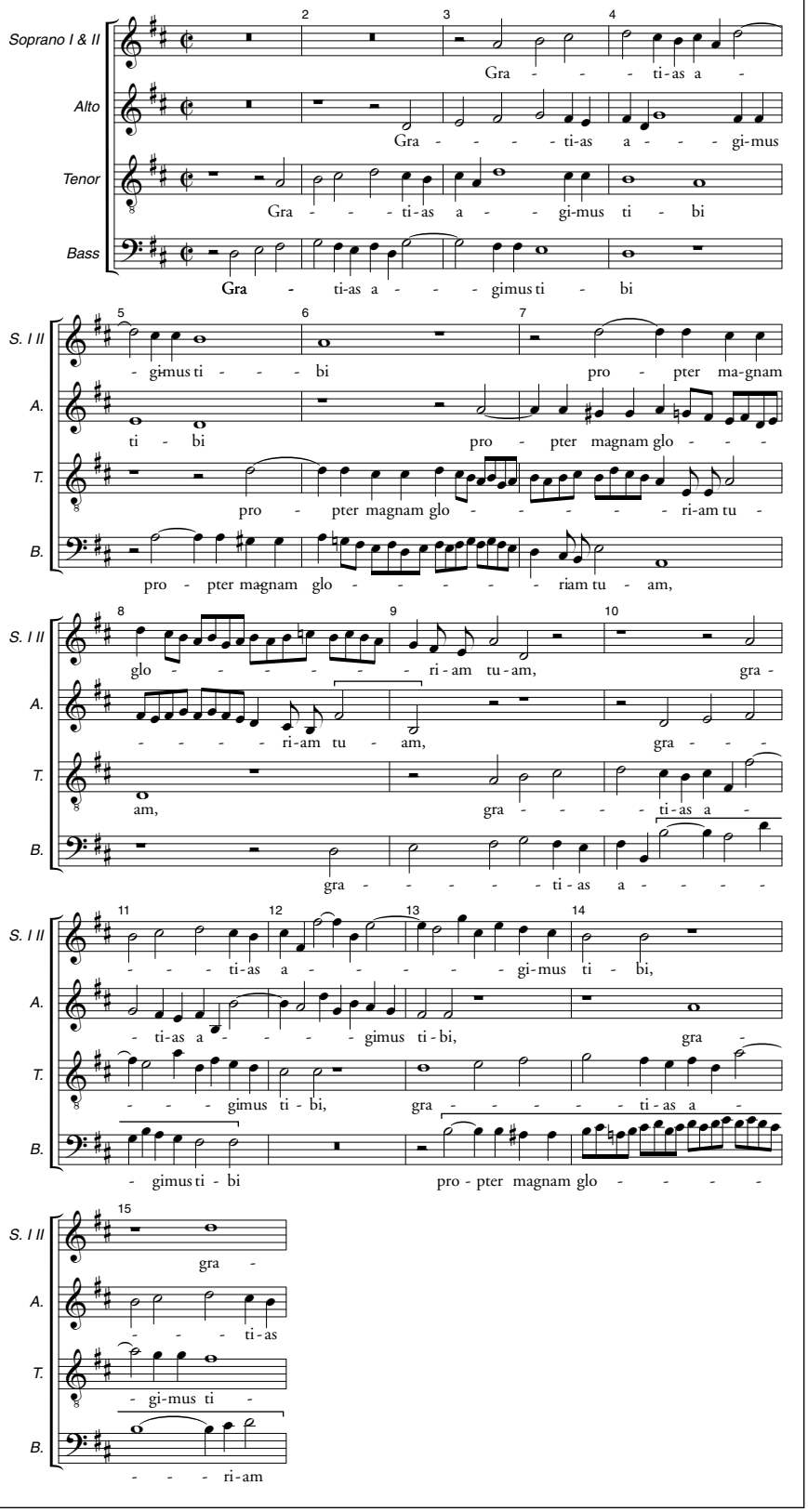
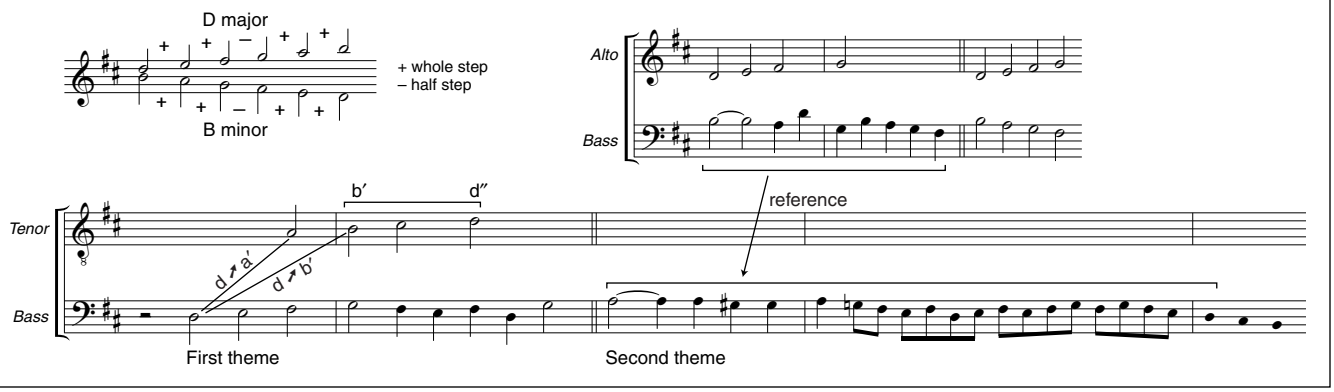


FIGURE 2.5b

Schematic of 'Gratias' from J.S. Bach, *Mass in B minor*



different manner of forming *thirds* from C and its closest relations, F and G. So, C major features the major thirds (more appropriately termed in German "*große Terzen*" or "great thirds") C-E, F-A, G-B; while C minor features the "*kleine Terzen*" ("small thirds") C-E♭, F-A♭, G-B♭. Looking at the intervals between these intervals, note that E, A, and B are neighbors by fifths, as are E♭, A♭, and B♭. Moreover, the first group is related to C by a series of successive upward fifths:

C-G-d-a-e′-b′,

while the second group is related to C by a downward or inverted series of fifths (i.e., by fourths):

c″-f′-b♭-e♭-A♭.

Related to this, the *downward* tetrachord in C minor, C-B♭-A♭-G, is the exact inversion of the *upward* tetrachord in C major: C-D-E-F. In this sense, C major and C minor appear related to each other by a series of inversions.

The crucial missing singularity, needed to bring together C major and C minor in a closer unity, is expressed in F, or rather the *interval* C-F, which is the pivotal singularity of the whole musical system, corresponding to the arithmetic-geometric mean of the octave C-c and the anchor for the whole array of *bel canto* register-shifts. If we adjoin F, then we obtain a notion of C major/minor as a multiply-connected manifold which "grows" from c′ in both directions, ascending and descending fifths, as follows:

(ascending)
C → G → d → a → e′ → b′ → f♯″

(descending)
c‴→ f″→ b♭′→ e♭′→ a♭→ d → G♭,

the latter (F♯ and G♭) belonging to the same tonal corridor in the well-tempered system. Thus, the coherence and connectivity of the manifold lies in the so-called Lydian interval, C-F♯, which is the anchor of our new major-minor mode.

The upper set of tones forms a scale

C-D-E-F♯-G-A-B-c,

which coincides with the so-called *Lydian mode* in the ancient Greek musical system, and is characterized by the crucial interval C-F♯. The lower set of tones forms a second scale

C-D♭-E♭-F-G♭-A♭-B♭-c

which is the exact inversion of the first, Lydian scale.

Now, some might shrug their shoulders at this, pointing out that all this is nothing more than the "circle of fifths" producing a perfectly symmetrical, chromatic, twelve-tone scale. This absurd conclusion completely ignores the *bel canto* principles determining a non-algebraic, non-equal-tempered system, principles which determine the unique, pivotal role of C-F♯.

The result, as the use by Mozart and Beethoven of this "Lydian major/minor mode" demonstrates, is not to *lessen* the sense of *tonality* in music, but actually to greatly *strengthen* it. This remark is extremely important, owing to the widespread, but totally fallacious claim, that Classical music evolved "naturally" toward the atonal cacophony of so-called modern music. In fact, far from being a step *toward* arbitrary chromaticism, the C-F♯-based Lydian mode, as understood by Mozart and Beethoven, achieves an enormous increase in the "Cantorian" ordering-power of tonal composition. Thereby it became possible to eliminate any remnants of arbitrary chromaticism that might otherwise be hiding between the toes of the earlier major-minor system.

1. What is commonly referred to as "melody," including so-called solo melody, is nothing but a derived feature of vocal polyphony. Strictly speaking, *monophonic melody does not exist.* What we call the melody of a solo voice, for example, is nothing but that voice's singing of an intrinsically polyphonic composition. A relevant reflection of J.S. Bach's views on the polyphonic principles of so-called melodic (or better, motivic) development, is contained in the first biography of Bach, written by Nicolaus Forkel ["On Johann Sebastian Bach's Life, Genius, and Works," in The Bach Reader, ed. by Hans T. David and Arthur Mendel (New York: W.W. Norton, 1966)]. Otherwise, the cases of Gustav Mahler and Richard Wagner typify the way in which, as soon as composers depart from the rigorous principles of well-tempered polyphony, their melodies degenerate into nothing but ugly groaning.

2. In Book III of his *Harmony of the World,* Kepler polemicized against the empiricist, mechanical theory of musical consonance and dissonance, which had been put forward by Vincenzo Galileo, the father of Galileo Galilei. Vincenzo is regarded as the pioneer of the reductionist musical theory later associated with Jean Le Rond d'Alembert (1718-1783) and Jean-Philippe Rameau (1683-1764), which became virtually hegemonic by the end of the Nineteenth Century, thanks to Hermann Helmholtz (1821-1894).

3. Further exploration of this point might usefully focus on the significance of vibrato in the *bel canto* singing voice—a vibrato which, in strong contrast to the Romantic's pathetic tremolo, is defined as a variation of pitch within a well-tempered pitch-corridor. Apart from the role of vibrato in the technique of *bel canto* singing, one can demonstrate how passages sung without the vibrato, i.e., at a "mathematically fixed" pitch, are correctly heard as *wrong,* destroying the fabric of explicit and implied cross-voice relationships.

Chapter 3

The scientific discoveries of Bach's *The Art of the Fugue*

by Renée Sigerson

Johann Sebastian Bach's *The Art of the Fugue* forces us to become aware of the ontological character of the relationship, in musical composition, between the principle underlying generation of the Lydian mode, and broader applications of the principle of inversion. To most readily appreciate this, it is important to grasp the term "principle" in respect to LaRouche's conception of revolutionary axiomatic progress, whereby the development of man's knowledge of discovered and realized Classical-artistic principles advances, anti-entropically, as expressed by the function $(m+1)/m$.

Usually, musicians only consider inversion as a "technique" of counterpoint, or as an "element" of composition, and not as bearing upon *principles* of discovery. Thus, the import of Bach's work in *The Art of the Fugue* has until now been appreciated only by a few great composers. While there are certain difficulties that need to be overcome to know this composition, it is nonetheless a transparent composition, which excellently illustrates LaRouche's discussion of the generation of new, valid metaphorical principles.

The progress of hypotheses in the composition occurs, in first approximation, as one moves from one fugue to the next in the series, and from one set of fugues to the next. The current discussion focusses on the discovery unveiled in Fugue IV, relative to Fugue I, with some reference to Fugue III.

Preliminarily, it is possible to summarize that discovery as follows: Bach demonstrates, in the "unfinished business" left over from Fugue I and realized in Fugue IV, the generative significance for *all* keys, of the F♯ *major/minor* mode, which is derived from the register shift of the soprano voice. The F♯ major-minor modality is demonstrated as an *extension* of the simple Lydian modality. In other sections of this report, we show that the simple Lydian modality, centered on F♮, arises from inverting the C major scale. In Fugue IV of *The Art of the Fugue,* Bach demonstrates that there is a higher principle involved, in the deceptively simple effort to shift the F♮ Lydian modality to the locus of F♯, the soprano register shift.

As W.A. Mozart clearly grasped (although he reportedly never saw *The Art of the Fugue* manuscript itself), Bach's conception of inversion, exemplified in this extension of the Lydian principle, allowed for a much greater density of lawful change. Bach's use of inversion *across voices,* incorporating the significance of registral transformation and inversion as a unified, single type of principle embedded within the well-tempered system, had a far-reaching impact upon Mozart's own ideas.

The introduction of a manifold of keys around F♯ minor occurs in the critical passage beginning measure 72 of Fugue IV, resolving to C major in measures 86-87 (see below). The discovery and situating of the F♯ mode, is the product of a revolution of axiomatic principles, which begins with the paradoxical implications of a discovery in Fugue I. Any ensemble of musicians attempting to play Fugue IV necessarily experiences the referenced passage as having bearing upon Ludwig van Beethoven's late string quartets.

As we present the musical demonstration of this discovery, it will be useful to keep the following excerpts from Lyndon LaRouche's main essay, "The Substance of Morality," in mind:

"With Plato, one begins with propositions being entertained as prospective theorems, and then follows the approach taken in his dialogues, as a way of searching out discoverable fallacies in those underlying presumptions. . . . The challenging of such prejudices, provides the user of Plato's method with what appears to be, for the moment, a refined array of mutually non-contradictory definitions, axioms, and postulates; this refined array, taken as a whole, is an *hypothesis.* . . .

"The method of Plato starts with the recognition that all . . . hypotheses, including what were previously the most refined ones, must include some significant, axiomatic fallacy of some kind. . . .

"Truth, then, does not lie in any one choice of hypothesis. . . . Truth lies in the always radically revolutionary process, by means of which valid new principles are generated, new principles which take into account the contradictions inhering in the previously proposed hypothesis."

Later in the same essay, LaRouche writes:

"We have to consider the cases, in which a particular colligating set of principles is in error only because it lacks some additional principle."

Relationship to *A Musical Offering*

According to all accounts, *The Art of the Fugue* was composed by J.S. Bach in the year of his death. It consists of 19 fugues. It was written less than two years after his *A Musical Offering. A Musical Offering* centers around a *six-voice* fugue; *The Art of the Fugue* contains fugues with four, three, or two voices. Many musicians have complained about the form in which the manuscript was written, in "open score," with each part on a separate line, and its own unique clef. This makes it difficult to play the composition, at sight, on keyboard. However, it was necessary for Bach to leave the primary manuscript in that form. It forces the musician working with the composition to always think of the individual part as associated with a voice species, such as soprano, alto, tenor, or bass. Usually, which voice is intended, is adequately indicated by the clef and line

on which the voice appears. That, however, is not *always* the case, so that sometimes the top voice may in fact be indicating an alto part, for example. The reason is that in the actual working through of the composition, sometimes Bach is working, implicitly, with the full *six* voices of the *Musical Offering* in mind.

The unifying thread of development across the 19 fugues, is encompassed in the seeming irreconcilability of the opening, and the concluding ideas of the entire work. That opening idea is the deceptively simple, seemingly inconsequential four-measure phrase that opens Fugue I **(Figure 3.1)**.

FIGURE 3.1
Opening of Fugue I from J.S. Bach's *The Art of the Fugue*

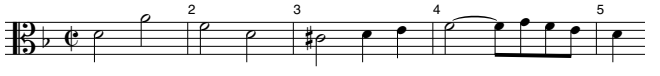
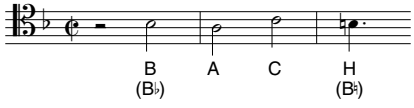


FIGURE 3.2
Counter-subject of Bach's final fugue



By Fugue XIX **(Figure 3.2)**, Bach has arrived at what was undoubtedly his originally intended goal, a fugue containing a countersubject spelling out his own family name.

When thinking of the great distance one will traverse, from the opening statement, to that conclusion, there is to be remembered the awe-inspiring inscription engraved by Bach's son, Carl Philipp Emanuel, onto the original manuscript plate: "N.B. While working on this fugue, where the name BACH appears in the countersubject, the composer died." (In German, the letter "H" denotes B♮, and "B" denotes B♭.) Thus, when we think of *The*

Comments on Bach's fugues by contemporaries

"He who is not acquainted with Bach's fugues cannot even form an idea of what a true fugue is and ought to be. In fugues of the ordinary kind, there is nothing but a certain very insignificant and sloppy routine [*Schlendrian*]. They take a theme, give it a companion, transpose both gradually into the keys related to the original one, and make the other parts accompany them in all these transpositions with a kind of thorough-bass chords. This is a fugue; but of what kind? . . . Bach's fugue is of quite another kind." (Johann Nicolaus Forkel, "Biography of J.S. Bach," in *The Bach Reader,* ed. by Hans T. David and Arthur Mendel [New York: W.W. Norton, 1966], p. 324.)

"In composition, [Bach] started his pupils right in with what was practical, and omitted all the *dry species* of counterpoint that are given in Fux and others. His pupils had to begin their studies by learning pure four-part thorough-bass. From this he went to chorales; first he added the basses to them himself, and they had to invent the alto and tenor. Then he taught them to devise the basses themselves. He particularly insisted on the writing out of the thorough-bass in parts. In teaching fugues, he began with two part ones and so on." (Letter from Carl Philipp Emanuel Bach to Forkel, in *The Bach Reader, op. cit.,* p. 279.)

"The true fugue is two sorts, distinguished according to their treatment of the fugue subject:

"(A) A strict fugue, *fuga obligata,* is one in which no other material than the subject is treated throughout, i.e., in which the subject after the exposition . . . makes its appearance in one entry after another, so to speak, and in which, consequently, all the counterpoints and interludes are derived from the principal subject or from the counterpoint that first appears against the answer, by means of division, augmentation, diminution, contrary motion, etc.; all this however, being bound together through imitation and a coherent and solid harmony. When such a strict fugue is worked out at length, and all kinds of other artifices (made possible by the many kinds of imitation, double counterpoint, canon, and change of key) are introduced in it, such a piece is called by the Italian name of *Ricercare* or *Ricercata*—an art fugue, a master-fugue. Such is the nature of most of the fugues by the late Capellmeister Bach.

"(B) A free fugue, *fuga libera, soluta, sciolta,* is a fugue in which the principal subject is not continuously treated; that is, in which it does not make its appearance in one entry after another, although often enough, and in which, when the principal subject is abandoned, a brief, well-chosen interlude is worked out by imitation and transposition—which has a similarity to the principal subject or to the counterpoint that first appears against the answer, and is related to the same, even though it is not always derived from it. Such is the nature of most of the fugues by Handel." (Friedrich Marpurg, 1753, quoted in *The Bach Reader, op. cit.,* p. 254.)

(Note: Marpurg was no friend of Bach's. While his distinction between free and strict fugue is somewhat useful, he, a typical musicologist, thinks in terms of form, not ideas. In fact, *A Musical Offering* is of the character he indicates, but the fugues of *The Art of the Fugue* are much more groundbreaking and complex. The useful distinction to be made, is between Bach's type of thinking, and the sort of fugues Haydn wrote, before 1782. Examine, for example, Haydn's String Quartet in F minor Op. 20, No. 5: Every entrance is on a Lydian interval, but the principle associated with the Lydian mode is not even referenced.)

Art of the Fugue, we are virtually compelled to remember that Bach immersed himself in this composition, in his final moments, giving to future generations the benefit of his knowledge. In that respect, Bach exemplifies LaRouche's view of a world historical personality.

Now, we enter upon the demonstration.

In all of the opening four fugues, the opening four-measure statement is always followed by a fragment, which is essential to the unfolding of a manifold of ideas. In the case of Fugue I, that fragment is, with one change, lifted directly out of the 1748 *Musical Offering* composition **(Figure 3.3)**. Note the difference introduced in the later fragment. In the *Art of the Fugue,* the f♮′ at the top of the phrase descends by a *Lydian interval* downwards to b♮. Thus, the material has been transformed to incorporate the principal discovery of the *Musical Offering,* the Lydian principle, as a point of reference.

In Fugue I, as each voice enters, an inherent paradox emerges, showing that the original idea was not as "inconsequential" as may have appeared. The half-step motion into the third measure of the theme (e.g., in the first statement, d′ down to c♯′) generates a sequence of paradoxical cross voices, dominated by the Lydian interval. The purpose of the original "fragment" revised from the *Musical Offering* becomes clear: to prepare the mind for the sequence of Lydian intervals that will occur—for example, in the passage shown in **Figure 3.4a**—or, when all four voices have finally entered, on measure 15, the voices form a double Lydian interval of f-g♯-d′-b′ **(Figure 3.4b)**.

The tension between the original idea, rooted in D minor, and the Lydian intervals, which imply motion toward any number of potential modes, requires the introduction of a new idea, to forge progress. The idea introduced by Bach is a rising fourth, which begins to predominate and shape the direction of the earlier material. The rising fourth becomes pervasive throughout the entire fugue.

The passage beginning measure 36 **(Figure 3.5)** exemplifies this approach, in the way the bass voice is organized. Do not think that this is somehow the first time the fourth appears in the score, for it is not. That is not the point. Rather, the emerging predominance of the fourth occurs in the same way that, in a drama, a character in the background—perhaps a member of a crowd—suddenly steps forward and plays an important role. Bach's determination

FIGURE 3.3
From *A Musical Offering* to *The Art of the Fugue*

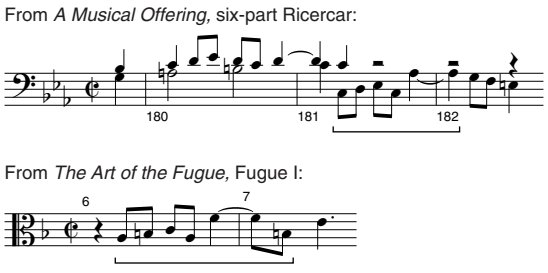


FIGURE 3.4
Lydian intervals introduced in Fugue I

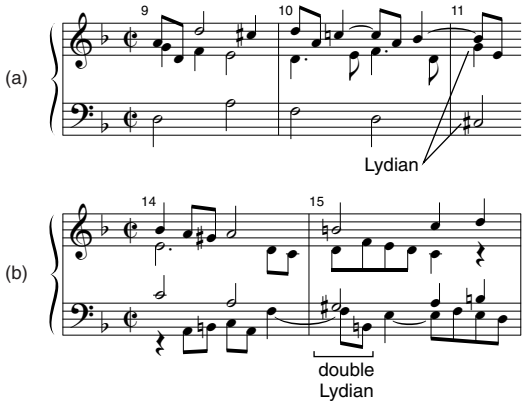


FIGURE 3.5
Fugue I, measures 36-40

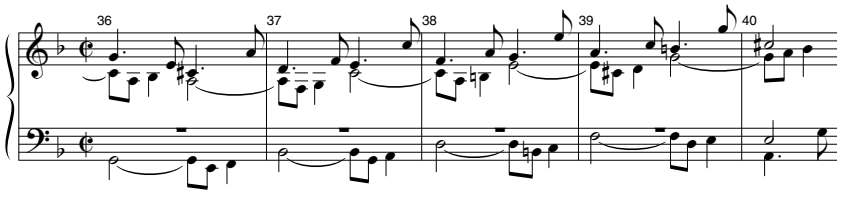


FIGURE 3.6
Fugue I, theme introduced in highest voice

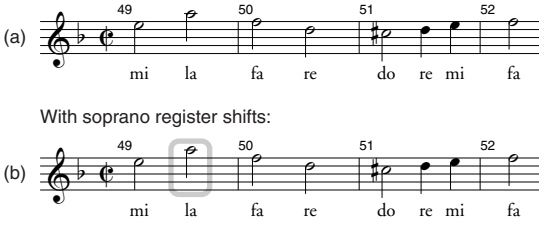


FIGURE 3.7
Conclusion of Fugue I

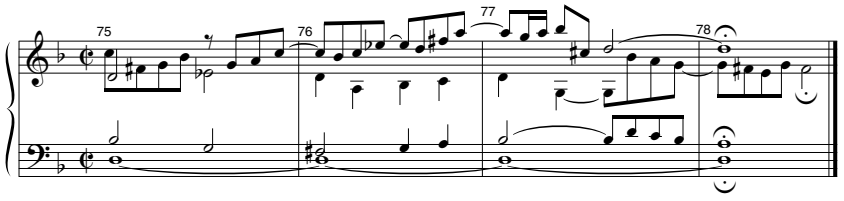
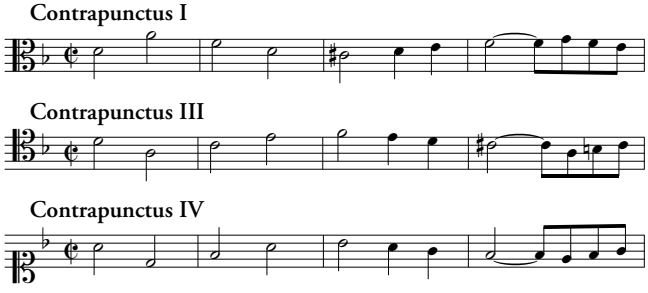


FIGURE 3.8
***Art of the Fugue* theme and elementary inversion**



that a *third* idea must always be introduced in these fugues, underlines the difference between his concept of fugue, as well as of music overall, relative to lesser composers.

Prior to Bach, many other composers "used" the Lydian interval, but only as "another" device, or "element" of composition. The underlying principled importance of the Lydian as discussed in other sections of this report, eluded them. Unlike Bach, they confined themselves to writing "strict" fugues, where the theme would be repeated, then inverted, or changed rhythmically; but there was no ordering principle governing the *ideas* of the composition.

Let us take another example, in which the role of the fourth becomes even more significant. The passage in measures 36-40 **(Figure 3.5)** concludes with a very strong resolving interval: in which e in the bass voice moves *downward* by a *fifth* to A. This is very important, for the following reason: The *inversion* of that interval, e moving upward a *fourth* to a, is the high-point of the movement. In measure 49 **(Figure 3.6a)**, the topmost voice introduces the theme, though this time introduced by the interval of the fourth, situated as e″ moving upward to a″. Thus, the soprano *inverts* the earlier bass voice resolution, referenced above (the last beat of measure 39 going into measure 40). This soprano *inversion* of the bass voice resolution is a turning point in the movement. These are the "highest" tones on which the soprano voice introduces the theme. Even more significantly, in this position, the uppermost voice is presenting the theme, for the first time, in such a way as to *cross* from the second to third register of the human soprano singing voice **(Figure 3.6b)**.

This coupling of inversion with registral differentiation—including across two different voice species, namely bass to soprano—is essential to what is meant by *ontological principle* in musical composition. Although these fugues are "instrumental" works, the underlying conception is entirely consistent with the *bel canto*-trained "chest" of human voices. Vocal registration is an ontological characteristic of musical art (see Chapter 1). As we shall see, Bach was intently focussed on the implications of the *difference* implied between a particular interval, that interval in respect to its inversion; and that pair of inverted intervals relative to changes of vocal registration, in different voice parts, as reflecting *ontological principles* of musical composition.

The importance Bach attributes to the shift in soprano vocal registration, is indicated by the final four measures of Fugue I **(Figure 3.7)**, in which the soprano voice evokes a *cadenza* passage. Though there is a d pedal-point in the bass, the soprano voice is spelling out an ascending C minor "scale." This "scale" is actually composed of the identical material upon which the *Musical Offering* is based, namely, the paired Lydian intervals of C-F♯ and E♭-A. (Note, furthermore, the downward diminished seventh from the high b♭″ to the c♯″ at the end of the phrase, again an interval readily identified with the *Musical Offering*.)

Now, to have a clearer view of the principle indicated—and to experience its profound implications—we turn to Fugue IV.

First, a chart which simply situates the reader in respect to the material **(Figure 3.8)**. In Fugue I, the theme is ascending. In Fugues III and IV, the theme is *inverted* to assume its *descending* form. The *inversions* denote the onset of more developed hypotheses, inclusive of the emergence of new constructive principles of composition. Bach's recognition that *inversion* required such a development of new hypotheses, is what distinguishes his concept of fugue, from schoolbook versions of "strict fugue."

In private discussion, Lyndon LaRouche has pointed out that *The Art of the Fugue* properly situates what is often called "chromatic" motion. Throughout the composition, Bach shows that "chromatic" motion is not some kind of sensual effect, but rather is a necessary *theorem of inversion.* This is particularly evident in the canonical duet, Fugue XV, not shown here.

Important to our investigation, is that both Fugues III and IV, which are inversions of the opening idea, introduce as companions to the root theme, *chromatic* countersubjects, that is, phrases based on motion by half-step.

To make this clear, we show again the opening measures of Fugues III and IV **(Figure 3.9)**, accompanied by their *fragment* countersubjects, which are quite different from the fragment discussed in respect to Fugue I. Consider for one moment the "chromatic" fragment attached to Fugue IV: Implicitly this is a statement of inversion. The middle tone is a root. The half-step above and below the middle tone are moving in inverted directions from one another (i.e., the g♯ at the end of measure 5 moves back *up* to the a).

Immediately, the propositions being presented in Fugue IV are more densely organized, per interval of action, than those in Fugue I. That should not surprise us,

since what Bach is pursuing here, is to further develop the "unfinished" question left over from Fugue I.

This greater density of principles is exemplified by the soprano voice in measure 13 **(Figure 3.10)**. At this early point in the composition, the soprano voice moves into the third register, directly referencing the poetic high-point of Fugue I. The reference to the Fugue I is explicit. The soprano moves exactly as before, upwards by a fourth, from e″ to the third-register a″.

From this point on, there is a much greater density of interaction between colligating principles, relative to Fugue I. The reason for that will become clear.

For example: As in Fugue I, Bach will introduce a "new" interval, to re-situate the paradox created by the fugue theme placed against its countersubject (in this case, the step-wise [chromatic] motion). Here, the "new" interval is not a rising fourth, but rather a *descending* third, consistent with the fact that throughout Fugue IV, the overall direction of everything (except the soprano voice!) is *downward.*

Note, however, that this descending third is an interval of a more complex type than the fourth in Fugue I. Why? Because Bach always presents the third in duplicate, across two voice parts. For example, in measures 19 through 23 **(Figure 3.11)**, the soprano and alto voices are in such a dialogue. Implicitly, the paired dialogue of descending thirds is spelling out an inverted fifth, or, sometimes, Lydian interval. Thus, implicitly, the paired thirds occur as an inversion of the fourths and fifths up to this time.

There is an additional clue concerning the purpose of this process. In both fugues, there is a significant occurrence of Lydian intervals. In this fugue, however, Bach meticulously *postpones* the introduction of the interval F♯-C, until well into the development of the composition. Despite one early reference to C-G♭, the interval F♯-C *only* occurs in respect to the soprano voice entering the third register!

For example, the passage beginning the second half of measure 34, through 37 **(Figure 3.12)**, illustrates this pairing of the Lydian interval c″-f♯′ with the evoking of the soprano third register. In the course of measure 37, for the first time, the double Lydian sequence a′-e♭′-c″-f♯′ occurs, explicitly spelled out in the bass and alto voices. The soprano voice, meanwhile, is entirely in the third register!

This occurs yet again, in measure 63-64

FIGURE 3.9
Fugues and fragment counter-subjects, III and IV

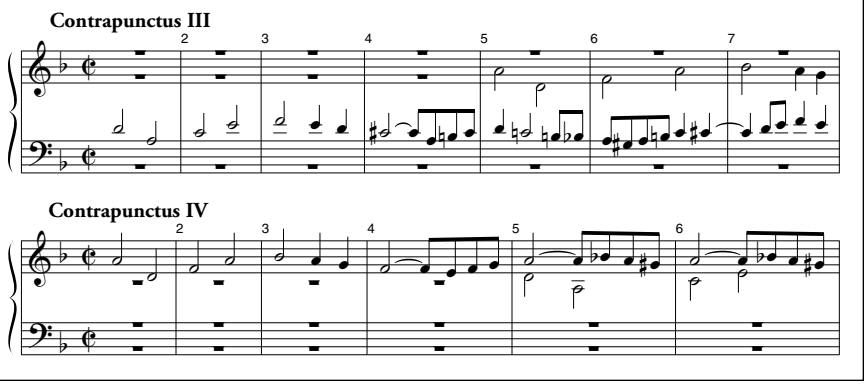


FIGURE 3.10
Soprano and alto voices, Fugue IV, measures 13-14

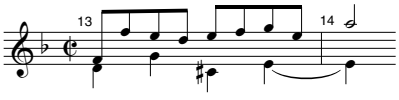
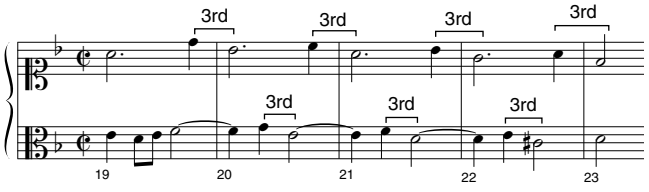


FIGURE 3.11
Pairs of descending thirds in Fugue IV



(Figure 3.13). The soprano is crossing back and forth between the second and third registers. As it does so, the *tenor* voice executes a remarkable Lydian interval: e♭′ down to a (obviously closely related to the ascending soprano e♮″ up to a″). As it enters on the a, the same double Lydian sequence occurs across the four voices: f♯-a-c′, with the e♭′ from the tenor's previous tone implicitly included in the paired Lydian intervals.

Now, we have arrived at the "*punctum saliens*" of this fugue. Something fairly remarkable is about to occur.

According to different source materials, Ludwig van Beethoven copied several measures from this section of Fugue IV into a notebook associated with his late string quartets. His entry includes measure 61, then a double slash on the staff to indicate a jump, and then three and a half measures beginning with the second half of measure 72. (See **Figure 7.2** for a transcription of these passages from Beethoven's notebook.)

The passage beginning with measure 72, through to the C-major resolution in measures 86-87 **(Figure 3.14)**, records a demonstration of the process whereby a new principle is introduced to the manifold of validated metaphorical discoveries [*(m+1)/m*], not merely as such discoveries have bearing within a particular musical composition, but, rather those higher order discoveries which bear upon the entire domain of musical art.

What Bach shows, is that the "solution" to the unresolved crossroad of the relation of the soprano register shift to the set of contrapuntal problems posed thus far, lies outside the domain of what might be called "contrapuntal" considerations. Beginning

FIGURE 3.12
Fugue IV, measures 34-37

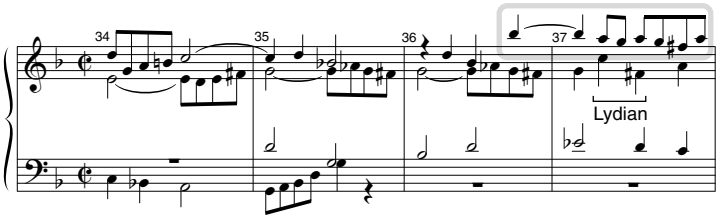


FIGURE 3.13
Fugue IV, measures 63-64

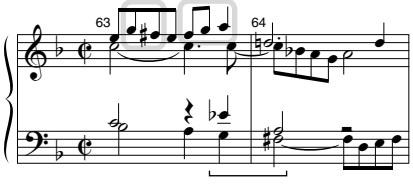
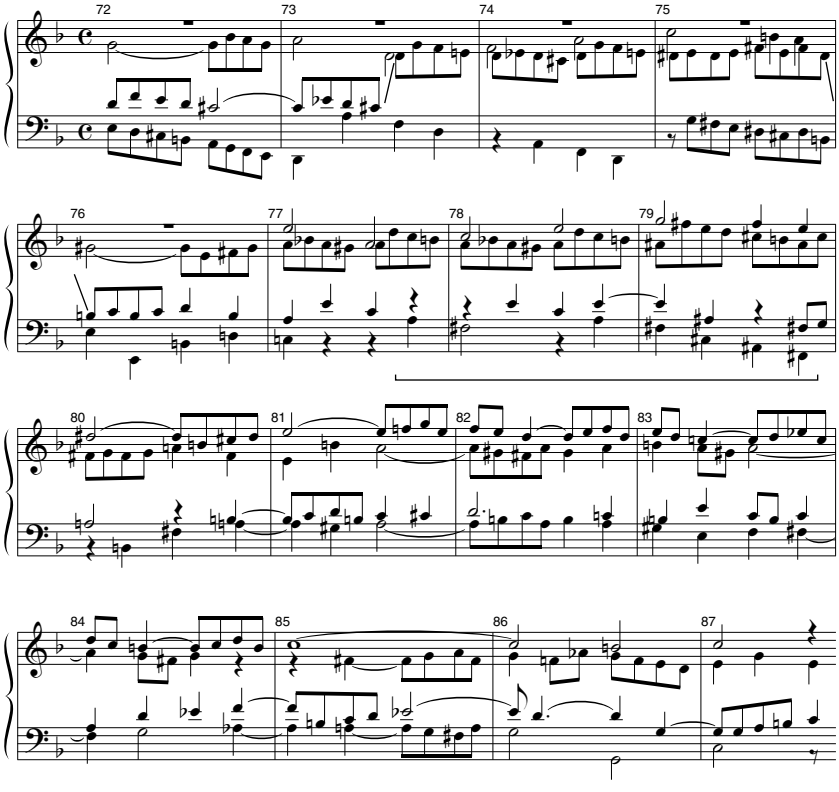


FIGURE 3.14
Fugue IV, measures 72-87



with the measure copied by Beethoven, the bass voice descends to the lowest pitch for its voice in this composition, a low D. Against the backdrop of two references to the interval C-F♯, for the next seven measures, the composition becomes, in stages, increasingly "blurry." It is almost as if each of the voices "has a mind of its own," typified by the soprano in measure 75 sounding c″, against the c♯ in the bass.

For several measures, there is a keyless mode, until the soprano enters, asserting the opening theme, in the mode of A minor. However, the outcome of this placement of the theme in the soprano voice, is the exact opposite of what one would expect. Rather than the composition becoming more simply ordered, the opposite occurs.

As the soprano moves upward, to a third-register g″, coming down to a second-register f♮″, *all of the other voices are emphasizing F♯,* the precise value at which the third register shift occurs. The blurrying motion intensifies, and a heretofore unknown mode, F♯ major/minor, against B minor, takes over. After five measures of this treatment, everything comes together around C major!

This passage evokes precisely the "eerie" quality LaRouche discusses in respect to great tragedy—where one becomes conscious that it is the ideas hovering above the individual elements of composition which are governing the development. In the case of music, at this precise moment, one cannot help but think of Beethoven's late quartets, even if one knew nothing of the passing reference to this fugue passage found in Beethoven's sketchbook.

What is Bach proving to us? Do not look for the root of great musical composition in the formalities of counterpoint, or in any *one* of the principles. Rather, seek the root of composition in the generative capacity to improve the principles which bring these elements together. It is actually the *irony* of the soprano register shift, emphasized here by the interplay across the passage of F♮ against F♯, relative to other colligating principles, which is driving Bach to focus on the underlying method of ordering these principles. Density is demonstrated by the very compact way Bach moves from the "eerie" realm of F♯ major/minor to the resolution of C major. In so doing, he has extended the notion of Lydian principle, in a most profound, and scientifically valid way, by emphasizing its ontological root in the soprano register shift. This also has extended his conception of inversion.

Chapter 4

The 'Royal Theme' from *A Musical Offering* in dialogue among Bach, Mozart, and Beethoven

by Ortrun Cramer

The idea of creative contributions by sovereign individuals of any historical era, which act upon all other contributions of the past, present, and future, can be wonderfully studied in a kind of "dialogue" among the three greatest musical composers, Bach, Mozart, and Beethoven—a dialogue on one subject, which is discussed by all of them, and where new contributions and new solutions for a discovered problem are provided by each of them, on each level. (There exist more contributions to the dialogue, both from the three composers discussed, and from other composers as well, than the examples we will discuss here.)

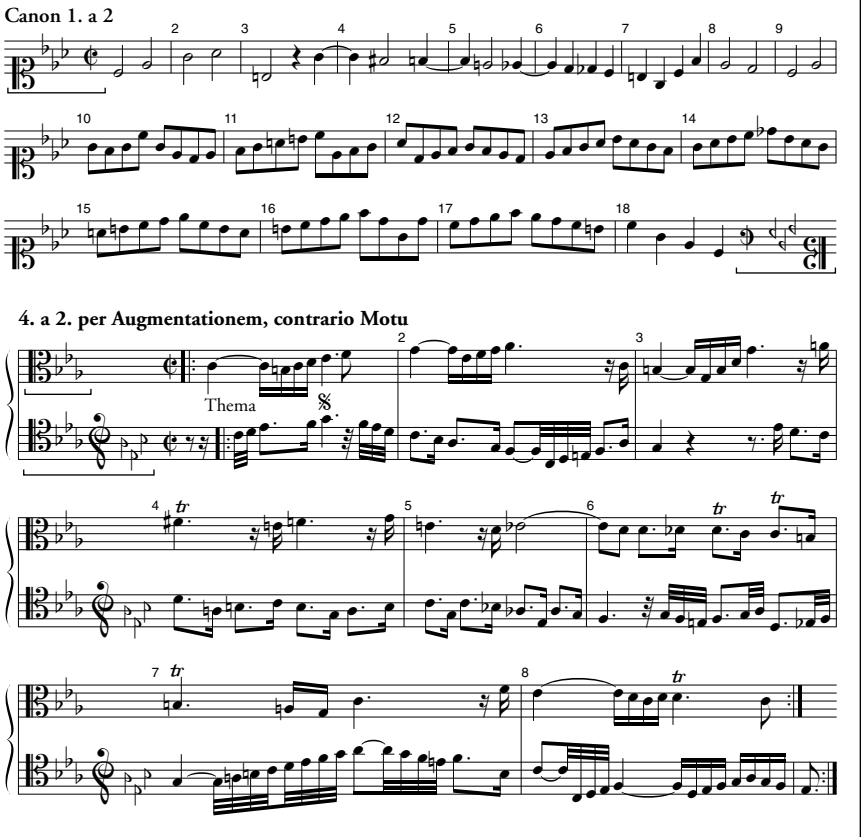
This chapter will investigate three compositions: Bach's *A Musical Offering* (1747), Mozart's C minor Fantasy for Piano K. 457 (1784) and C minor Sonata K. 475 (1785), and Beethoven's Sonata for Piano Op. 111 (1821/22). For reasons of clarity, Beethoven's Sonata for Piano Op. 13, the so-called "Pathétique" (1798/99), is briefly referenced. All these works are composed in (or, as the earlier composers would have said, "out of") the key of C minor.

'Setting the Theme': J.S. Bach's *A Musical Offering*

After some hesitation, in 1747 Bach accepted an invitation of the Prussian King Frederick II ("The Great") to visit Potsdam, where Bach's son, Carl Philipp Emanuel, had been serving as music master to the court since 1740. Bach's older son, Wilhelm Friedemann, accompanied his father on the visit, and the descriptions of the course of the visit are based on his eyewitness reports. On the first day of the visit, Frederick introduced Bach to his collection of the newly developed Silbermann fortepianos. Bach was invited to try them, and to improvise new compositions. After a while, he asked the King to give him a subject, which he started to execute immediately, without preparation.

Later, after Bach's return to Leipzig, he elaborated the subject into a 13-section

FIGURE 4.1
Two canons from J.S. Bach's *A Musical Offering*



The various clefs indicate the inversions intended by Bach, in both horizontal and vertical directions.

composition, which he titled *A Musical Offering* (BWV 1079) and dedicated to Frederick, with the following words: "In deepest humility I dedicate herewith to Your Majesty a musical offering, the noblest part of which derives from Your Majesty's Own August Hand. . . ." With respect to the subject and its elaboration, Bach wrote: "I noticed very soon, however, that, for lack of necessary preparation, the execution of the task did not fare as well as such an excellent theme demanded. I resolved therefore and promptly pledged myself to work out this right Royal theme more fully and then make it known to the world. . . ."

The work, which carries the inscription "Regis Iussu Cantio Et Reliqua Canonica Arte Resoluta" ("At the King's command, the song and the remainder resolved with canonic art"), whose first letters are an anagram spelling out the word "Ricercar," of which we find one in three parts, and later one with six parts, composed in a much freer manner. The work also includes a number of "various canons on the Royal Theme" (two of these are shown in **Figure 4.1**), which are indicative of Bach's mastery in the art of inversion. Then, finally, there is an extensive, three-movement trio sonata for flute (the instrument played by the King), violin, and bass continuo.

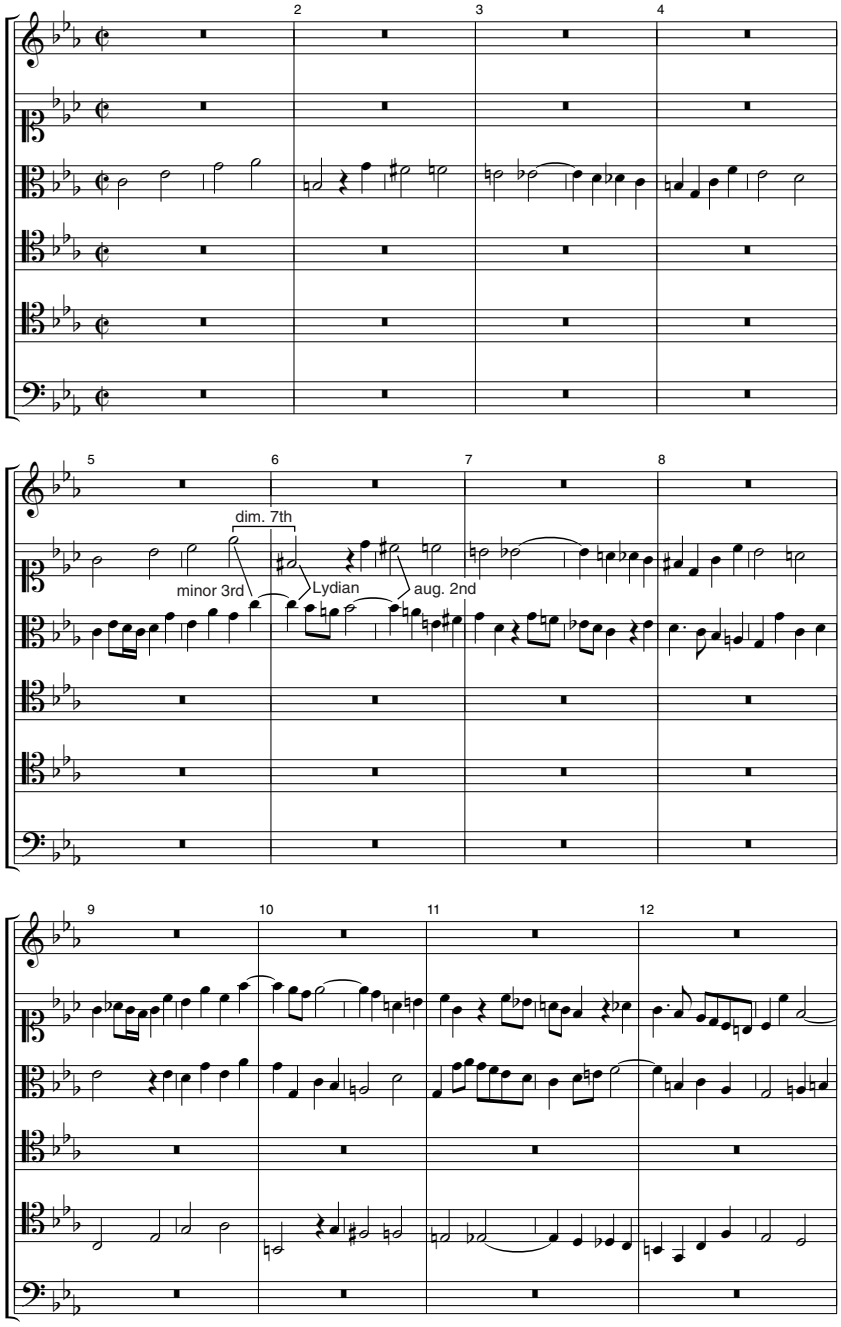
A Musical Offering later became known also as the "Prussian Fugue." A letter by J.S. Bach to his cousin Elias Bach, written in 1748, indicates, how the piece was later distributed: "I cannot oblige you at present with the desired copy of the Prussian Fugue, the edition having been exhausted just today, since I had only 100 printed, most of which were distributed gratis to good friends."

From a letter of the Austrian ambassador to the Prussian court, Gottfried van Swieten, from 1774—that is, more than 25 years after Bach's visit at Potsdam—we learn that Frederick the Great told him about Bach's visit, and "sang, in a loud voice, a chromatic fugal subject, which he had given this old Bach, who immediately made from it a fugue in four, then five, and finally in eight parts." Thus, we know, that van Swieten, who hosted Haydn, Mozart, and, later, Beethoven in his Vienna salon, knew of the *Musical Offering*.

For a better understanding of the key part of the *Musical Offering,* the six-part Ricercar, it is helpful to introduce some comments from the first biography of J.S. Bach, published in 1802, which was written by Johann Nicolaus Forkel in close

FIGURE 4.2a

J.S. Bach, six-part Ricercar from *A Musical Offering,* open-score version



The entrance of the second voice creates all the crucial intervals, which Mozart later picked up on in his K. 475 Fantasy: the diminished seventh from the "modulated" theme, the minor third, the Lydian, and the augmented second.

cooperation and correspondence with Bach's sons Wilhelm Friedemann and Carl Philipp Emanuel. In this book, Forkel writes about Bach's method of composing: "Now, when Bach began to unite melody and harmony so that even his middle parts did not merely accompany, but had a melody of their own, when he extended the use of the keys, partly by deviating from the ancient modes of church music, which were then very common even in secular music, partly by mixing the diatonic and chromatic scales, and had learned to tune the instrument so that it could be played in all the 24 keys, he was at the same time obliged to contrive another mode of fingering, better adapted to his new methods, and particularly to use the thumb in a manner different from that hitherto employed."

Bach "considered music entirely as a language, and the composer as a poet, who, in whatever language he might write, must never be without sufficient expressions to represent his feelings."

On Bach's polyphonic setting, Forkel—who often literally quotes from the letters of C.P.E. or Wilhelm Friedemann—writes: "Very different is the case when two melodies are so interwoven with each other that they, as it were, converse together, like two persons of the same rank and equally well informed. . . . [T]his kind of union of two melodies gives occasion to new combinations of tones and consequently to an increase of the store of musical expressions. In proportion as more parts are added and interwoven with each other in the same free and independent manner, the store of musical expressions increases, and finally becomes inexhaustible when different time and the endless variety of rhythms are added." And later, Forkel elaborates: "But to produce such harmony, in which the single parts must be in the highest degree flexible and yielding towards each other if they are all to have a free and fluent melody, Bach made use of quite peculiar means, which were not taught in the treatises of musical instruction of those times, but with which his great genius inspired him. These means consisted in the great liberty which he gave to the progress of the parts."

A little further on: "Hence, in the modulation of his instrumental works, every advance is a new thought, a constantly progressive life and motion within the circle of the keys chosen and those nearest related to them. Of the harmony which he already has, he retains the greatest part; but at every advance, he mixes something

FIGURE 4.2b

J.S. Bach's own keyboard reduction of the six-part Ricercar from *A Musical Offering*

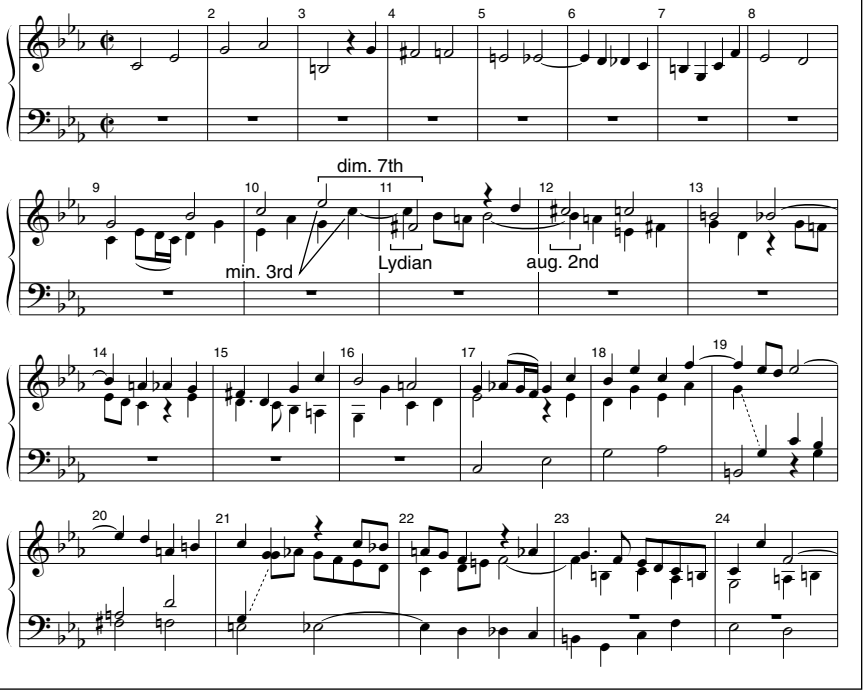
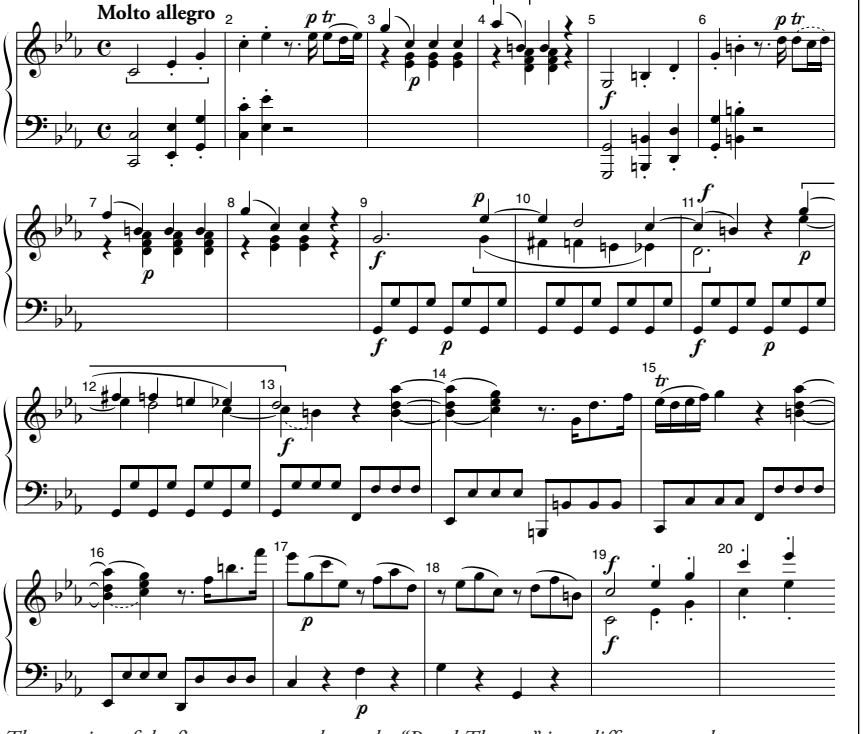


FIGURE 4.3

W.A. Mozart, Sonata K. 457, opening of first movement



The opening of the first movement shows the "Royal Theme," in a different gestalt.

related to it; and, in this manner, he proceeds to the end of a piece so softly, so gently and gradually, that no leap or harsh transition is to be felt; and yet no bar is like another. With him, every transition is required to have a connection with the preceding idea, and to appear to be a necessary consequence of it." And: "A single part never needs to force itself through, but several must, in their combination, occasionally turn, bend, and yield in a very intricate and delicate manner. This of necessity causes uncommon, strange, and entirely new, hitherto unheard-of turns in the melodies."

Concerning the composition of fugues, we read: "It fulfills all the conditions which we are otherwise accustomed to demand only of freer species of composition. A highly characteristic theme; an uninterrupted principal melody [*Gesang*], wholly derived from it and equally characteristic from the beginning to the end; not mere accompaniment in the other parts, but in each of them an independent melody, in accordance with the others, also from the beginning to the end; freedom, lightness, and fluency in the progress of the whole; inexhaustible variety of modulation combined with perfect purity; the exclusion of every arbitrary note not necessarily belonging to the whole."

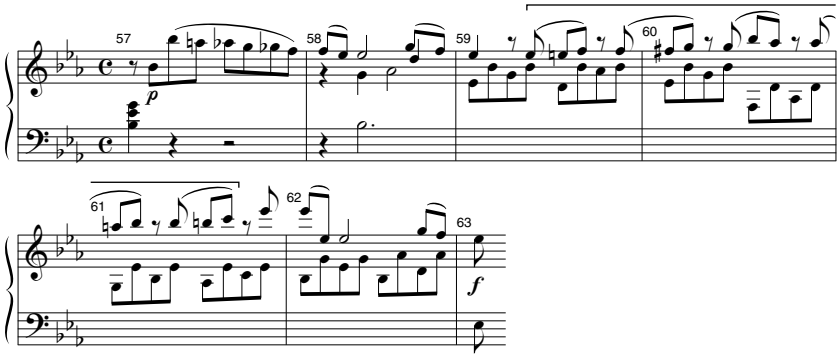
Concerning this latter point, the "exclusion of every arbitrary note," Forkel writes of Bach's method of teaching composition: "Every note was required to have a connection with the preceding: if any one appeared concerning which it was not apparent whence it came, nor whither it tended, it was instantly banished as suspicious. . . . The confused mixture of the parts, so that a note which belongs to the tenor is thrown into the alto and the reverse; further, the untimely dropping-in of several notes in certain harmonies—notes which, as if dropped from the sky, suddenly increase the established number of the parts in a single passage, to vanish in the next one following, and in no manner belong to the whole; in short, what Bach is said to have called '*mantschen*' [daubbing, or mixing notes and parts together in a disorderly manner]—is not to be found either in himself or in any of his pupils. He considered his parts as if they were persons who conversed together like a select company. If there were three, each could sometimes be silent and listen to the others until it again had something useful to say. But, if in the midst of the most interesting part of the discourse, some uncalled for and importunate strange notes suddenly rushed in and attempted to say a word, or even a mere syllable, without sense of vocation, Bach looked on this as a great irregularity, and made his pupils comprehend that it was never to be allowed."

Forkel's treatise represents an almost contemporary document, and it gives today's readers beautiful insights into how Bach's music and composition generally were thought about, in the time of Mozart, Haydn, and Beethoven.

Now, let us turn to a brief examination of the six-part Ricercar from *A Musical Offering*. This is a six-part fugue, composed in a rather free manner, in which the parts (or voices) enter pairwise, and—as is typical for Bach's treatment of the middle voices—with the third and second voices followed by the fifth and fourth. Only after a brief interlude, do the soprano and bass voices enter, and here, we can already observe a first change in the continuation of the soprano voice after the opening statement. In the subsequent development, new subjects are introduced in the various parts, which are nonetheless all derived from the original theme; they are all changed through inversion and modulation. At the end, all are interwoven, until the bass voice finally, in conclusion, represents the theme in its original form. A wonderful example of a predecessor of *Motivführung*.

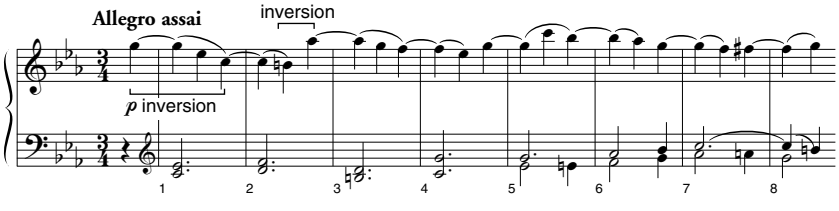
For the sake of later discussion, let us briefly look, close up, at the characteristic conflict, or paradox, that is created right at the beginning, when the second voice enters, and the first shifts to sing an additional part. The second voice, which presents the theme in a modulated form, runs into a conflict with its companion, when the modulated falling interval from e♭″ to f♯′ is contrasted to a longer c″ of the companion first voice. Here, we observe a pair of two intervals, which create a shift, from

FIGURE 4.4
Ascending chromatic sequence in Mozart's Sonata K. 457



A seemingly new element, in the exposition of the first movement, is generated by inverting the chromatic descending line from the "Royal Theme."

FIGURE 4.5
Opening of third movement of Mozart's Sonata K. 457



The opening motif of the third movement consists of an inversion of the first movement's opening theme.

the e♭″-c″ minor third, to the c″-f♯′ Lydian interval, which indicates a way out of the C minor key of the composition. Also note, that at the beginning of the next measure, we find another characteristic interval b♭′-c♯″, an augmented second, which we will meet again later on.

This paradoxical result of juxtaposing two voices—of two compositional levels, or "keys," if you wish—is also what we will meet again later, as we move on to Mozart and Beethoven.

Bach originally wrote the six-part Ricercar, as shown in **Figure 4.2a**, on six different staves, without indicating which instruments are to play them. He himself re-wrote it also, on two staves **(Figure 4.2b)**, so that it could be played on keyboard instruments. In the original open score, each staff has a different clef, indicating a different implied species of human singing voice. With the exception of a few notes in the extreme high and low registers, the fugue can be readily sung by a *bel canto*-trained six-part choir.

In general, the distinguishing characteristic of the theme lies in the connection of the minor-triad with the chromatic line, which opens up a great number of options for development—as Bach proves in his *Musical Offering*. It is an outstanding theme, especially for a musical amateur like Frederick the Great. However, C.P.E. Bach was in his service, and many researchers consider it a possibility, that he may have helped the King to formulate the theme. In 1774, C.P.E. Bach wrote in a letter to Forkel, about his father: "When he listened to a rich and many-voiced fugue, he could soon say, after the first entries of the subjects, what contrapuntal devices it would be possible to apply; and to which of them the composer by rights ought to apply, and on such occasions, when I was standing next to him, and he had voiced his surmises to me, he would joyfully nudge me when his expectations were fulfilled."

FIGURE 4.6
E♭-F♯ interval in third movement of Mozart's Sonata K. 457

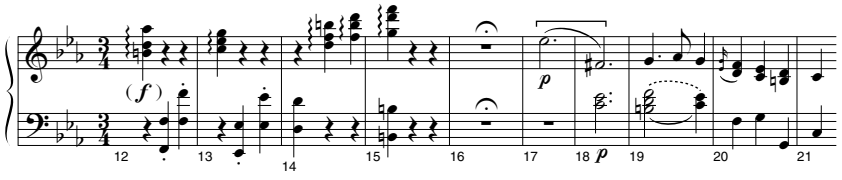
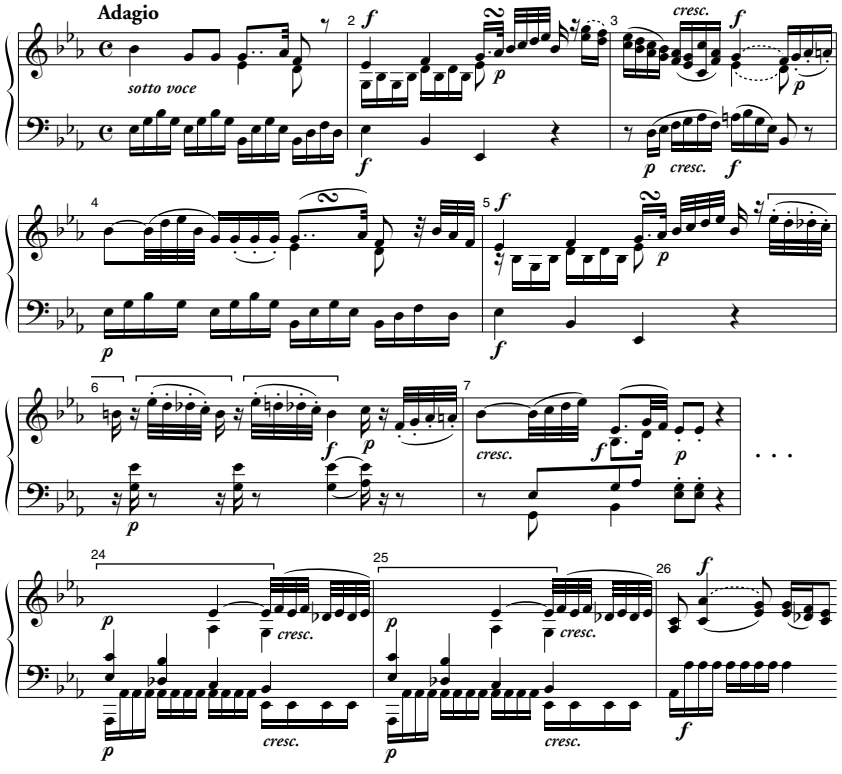


FIGURE 4.7
Opening, and second theme, of second movement of Mozart's Sonata K. 457



The second theme of the slow movement of this sonata was chosen by Beethoven as the theme for the second movement of his Sonata for Piano Op. 13, "Pathétique."

Mozart: 'Nothing is played, but Handel and Bach'

We know for a fact, that Mozart studied Bach's works in the house of Gottfried van Swieten, the already-mentioned Austrian diplomat, whose father, an immigrant from The Netherlands, had been the personal physician of Empress Maria Theresa. In 1782, Mozart wrote to his father in Salzburg: "Every Sunday at noon, I visit the Baron van Swieten—and there, nothing is played but Handel and Bach.—I am just now making a collection of the Bach fugues, of Sebastian and Emanuel and Friedemann Bach . . . ." A few days later, he writes to his sister Nannerl: "The cause of his fugue's coming into the world is really my dear Konstanze. Baron van Swieten, to whom I go every Sunday, has let me take all the works of Handel and Sebastian Bach home, after I played them through for him. When Konstanze heard the fugues, she fell quite in love with them. She will hear nothing but fugues, especially (in this field) nothing but Handel and Bach. Now, since she had heard me frequently improvise fugues, she asked me whether I had never written any down, and when I said 'No,' she gave me a proper scolding for not wanting to write the most intricate and beautiful kind of music, and she did not give up begging me until I wrote her a fugue, and that is how it came about." In the same letter, Mozart

described van Swieten's musical library as "although in quality a very large store of good music, yet in quantity a very small one."

The proof that Mozart must have known the *Musical Offering,* or at the very least its subject, is in his piano sonata in C minor, K. 457, to which he later added the C minor Fantasy K. 475.[1] The Fantasy was written in 1785, less than three weeks before the composition of the *Lied* "Das Veilchen" (see Chapter 1), which also represents a milestone in the development of musical composition.

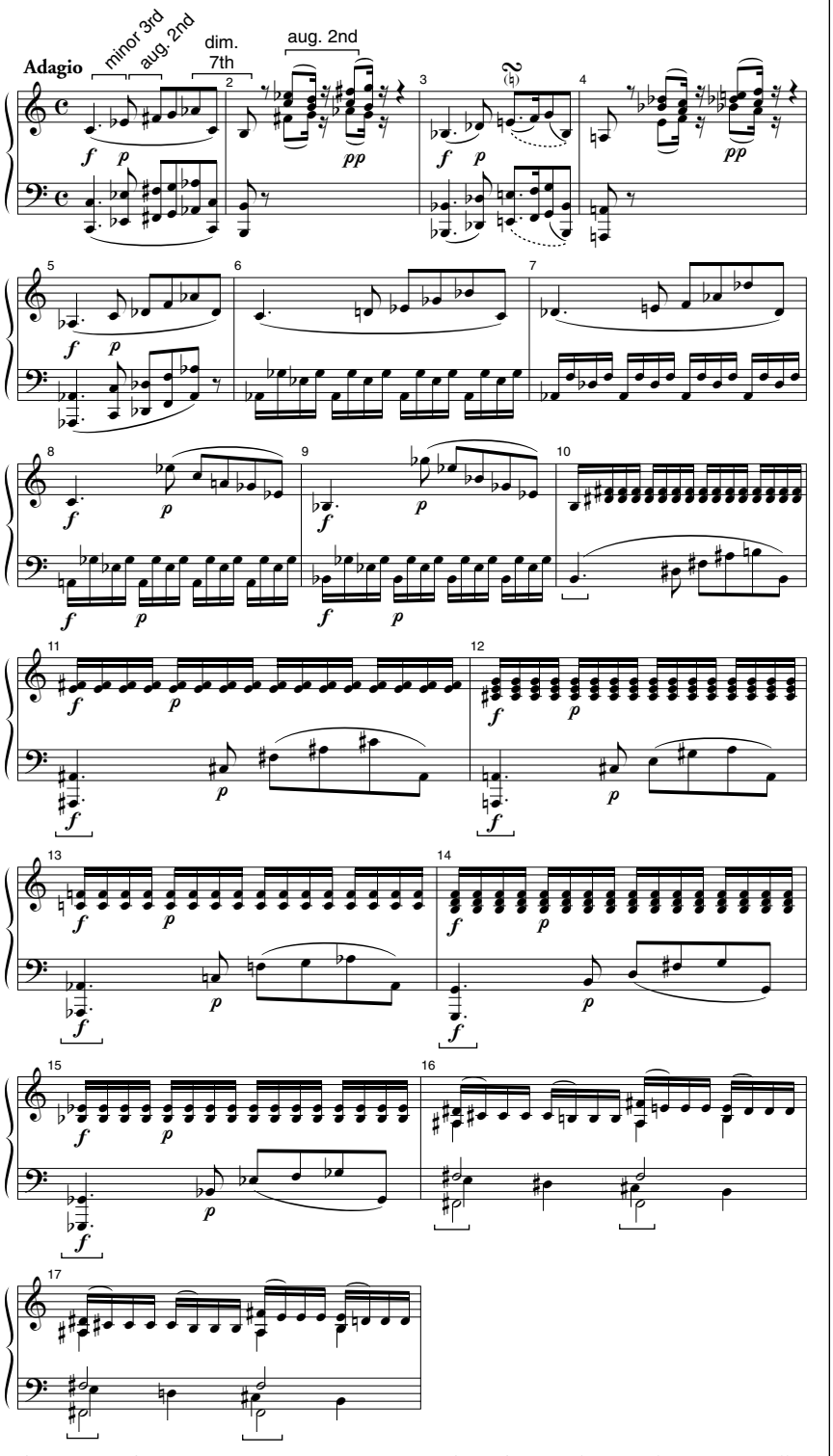
In the opening section of the sonata's first movement **(Figure 4.3)**, we find all the elements of the "Royal Theme," but in a changed presentation and registration. We also find, more elaborated, the conflict of the two parts of Bach's composition, which is now presented in the horizontal development also: a juxtaposition of the opening arpeggio in C minor, and the "repetition" a fourth lower, starting from G, and appearing as if in G major!

In the course of the exposition, one can also study how a "second subject" of the sonata is derived—according to the *Motivführung* principle—from the first, but in such a way, that it can hardly be recognized at first. In this piece, we again find the chromatic element, in inversion and rhythmically changed **(Figure 4.4)**.

The opening motif of the third movement **(Figure 4.5)** represents a direct quotation from the opening theme of the first movement, but in a doubly-inverted way. In addition, we are led to our conflict of two keys and modes, the C minor-"G major" confrontation, leading into the presentation of our "old acquaintance" interval e♭″-f♯′, now presented as a melodic line **(Figure 4.6)**.

In the sonata's second movement, Mozart again presents the *Motivführung* elements of the entire sonata, which we recognize this time in inversion and modulation of the intervals of the opening theme, and we find the chromatic element, used as a means of expression **(Figure 4.7**, measures 21-22). The second theme introduced in the movement **(Figure 4.7**, measures 5-6)—again through inversion—is later picked up, almost verbatim, as the leading theme in the second movement of Beethoven's "Pathétique" sonata. It is indicative, both for understanding the movement in respect to clear voice registration, and for the conception of the expression, that Mozart added the indication "*sotto voce*" at the beginning of this

FIGURE 4.8
Opening of Mozart's Fantasy for Piano, K. 475



The opening of Mozart's Fantasy K. 475 integrates the Lydian C-F♯ interval. It contains all key intervals generated by Bach in the interaction of the first two voices in the six-part Ricercar.

movement, as a hint to the performer and listener.

Before undertaking a brief examination of the opening of the Fantasy K. 475, let us keep in mind C.P.E. Bach's short definition of the intervals, from his famous *Essay on the True Art of Playing Keyboard Instruments* (New York: W.W. Norton, 1949): "The comparison of one tone with another, is called an *interval*" ("Die Vergleichung eines Tons mit dem anderen heißt ein Intervall"). In other words, it is the *relationship* of the tones, and not their distance, which is heard by the mind.

In the C minor Fantasy, Mozart adds qualitatively new steps, which put this piece above the K. 457 sonata, which was already a milestone in Mozart's works, in respect to its density and coherence. Here, we find him examining a problem, which we have so far met only in the interweaving of two voices: the importance of the F♯, not only as the "leading tone" to the dominant key of G minor/G major (as seen from C major/C minor), as it is usually taught, but in its importance for the C minor/C major mode, and the incredibly complex potentialities of development, which includes the entire sphere of the 24-key well-tempered domain.

In hearing the opening (**Figure 4.8**), it is more difficult to recognize the "Royal Theme," because it is changed, in a characteristic way, already at the beginning, and the chromatic line appears "only" in the harmonic progression.

We find that Mozart has integrated the F♯, which we know from Bach, and from the third movement of the sonata, into the theme itself—i.e., the paradox is now in the theme. We find the E♭-F♯ interval, now in its inversion an augmented second. The irony of the integration is underlined by the short two figures, which again repeat this interval, accompanied by half-steps in different directions, underlining the principle of inversion.

We now recognize in this opening part how this integrated F♯ becomes the pivot-point of constant change, through which the complexity of the 24-key well-tempered domain is explored: We find the F♯, and its "well-tempered twin" G♭; we find the F♯ in the context of C major/C minor, of B major, of F♯ major, and then, through a new, and surprising turn, showing up briefly as part of a clear D major (**Figure 4.9**)! Each time, the F♯ is involved, and each time, its surrounding has changed. Keep in mind the fact, that there is a scale from C, which contains the F♯—namely,

FIGURE 4.9
Pivot around F♯ in Mozart's Fantasy K. 475

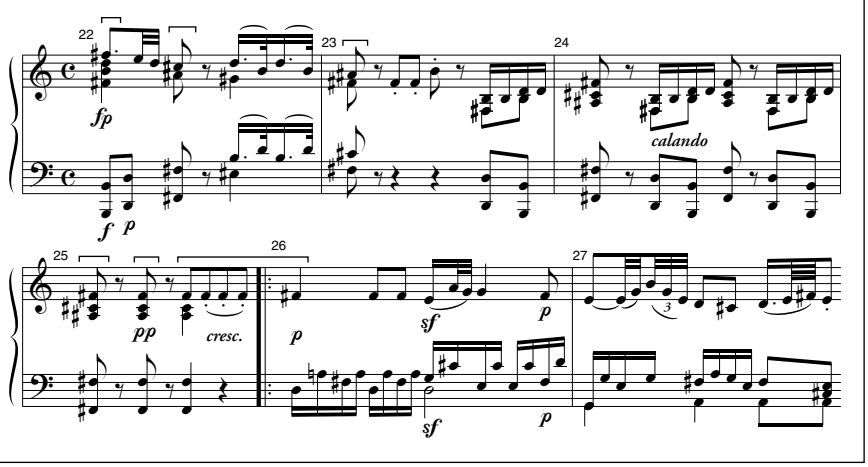
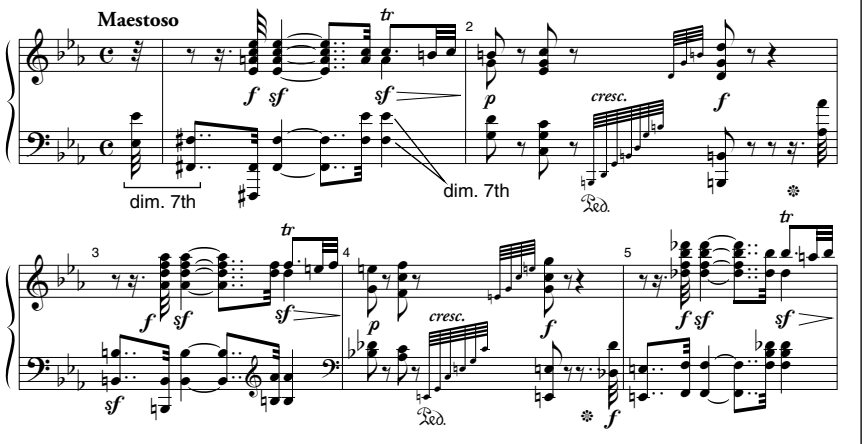


FIGURE 4.10
Beethoven Piano Sonata Op. 111, opening of first movement



Beethoven chose the key interval from Bach and Mozart as the opening of his own last piano sonata.

the famous "Lydian mode," which Beethoven so obviously picked up in all of his late works, not only in the "Heiliger Dankgesang" of his Op. 132 string quartet.

In conclusion, there is a contemporary report, which is very important, concerning the relationship of Mozart and J.S. Bach: During Mozart's last visit to Berlin, in 1789, he traveled through Leipzig, where he immediately visited the cantor at St. Thomas Church, Johann Friedrich Doles, who had been a student of Bach. A witness (most probably J.F. Reichardt) later says of this visit: "On April 22, he was heard without prior announcement, and without financial compensation, on the organ in the St. Thomas Church. He played there, for one hour, beautifully and artistically, for many listeners. The organist Görner and the late Cantor Doles were with him, pulling the stops. I saw him myself, a young man, dressed according to the fashion, and middle-sized. Doles was excited about the playing of the artist, and thought that the old Seb. Bach, his teacher, had been resurrected." At the end of his visit, Cantor Doles and the St. Thomas choir sang for Mozart Bach's motet "Singet dem Herrn ein neues Lied." According to the report, Mozart listened

FIGURE 4.11
Beethoven Piano Sonata Op. 111, opening theme

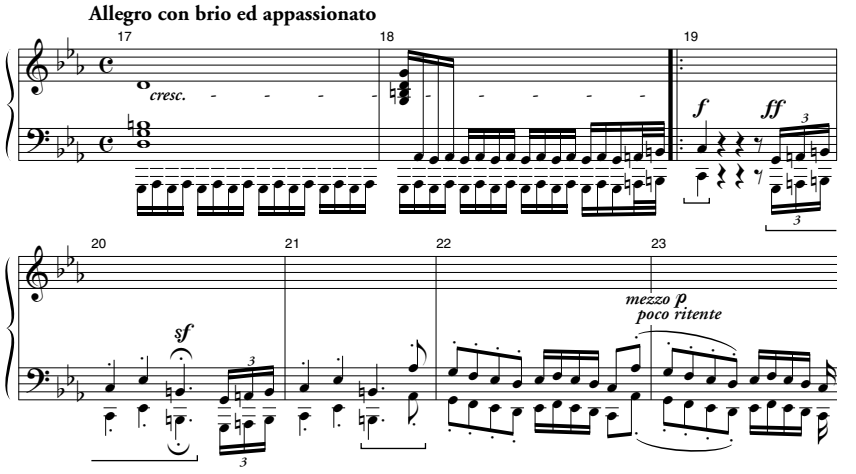
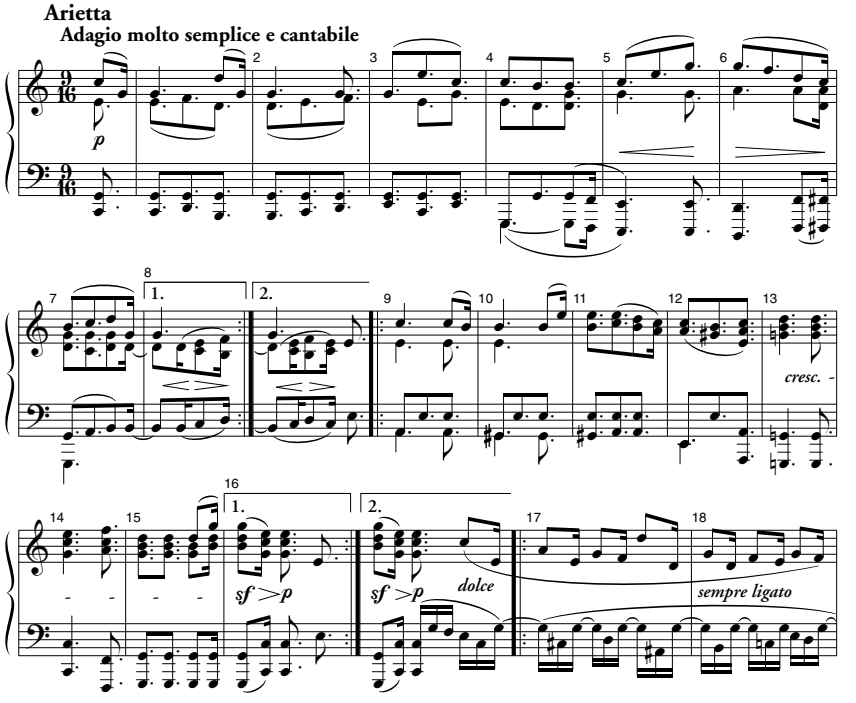


FIGURE 4.12
Opening of second movement of Beethoven Sonata Op. 111



with concentration, and then said: "This is something to learn from!" He asked for the parts—a full score did not exist—spread them all out before himself, and studied them carefully.

Beethoven: 'He could become a second Mozart'

There is a well-known pun by Beethoven, on J.S. Bach: "Nicht Bach—Meer sollte er heissen" ("He shouldn't be called Brook ["*Bach*"]; his name ought to be Ocean").

Already in his early education in Bonn, Beethoven had been introduced to Bach's works—at that time a rather exceptional experience—through his teacher Christian Gottlob Neefe. Neefe had studied law in Leipzig, but had then switched to music, and became a student of the later Cantor at the St. Thomas Church, Johann Adam Hiller. Hiller himself had been a student of Doles. In 1783, Neefe wrote in an article in Cramer's *Magazin der Musik:* "Louis van Betthoven, son of the above-mentioned tenor, a boy of 11 years, who has a talent that promises much. He plays very fluently and powerfully on the clavier, reads very well at sight, and, to say everything in a word, he plays most of the *Well-Tempered Clavier* by Sebastian Bach, which Mr. Neefe has placed in his hands. Anyone who knows this collection of preludes and fugues in all the keys (which one could almost call the *non plus ultra*) will know what that means. . . . This young genius would deserve support so that he might travel. He would certainly become a second Wolfgang Amadeus Mozart if he were to continue as he had begun."

Later, in Vienna, Beethoven was among the guests in van Swieten's salon, and he dedicated his First Symphony to him. Through his entire life, he considered Bach to be one of the greatest composers. In his conversation books, there is an exchange, where Beethoven ironically asks a visitor: "Bach, is he dead?" He asked his publishers for copies of Bach's works, and included also Bach's sons in his high estimation. In a letter to his publisher Breitkopf und Härtel in Leipzig, in 1809, he wrote: "Generally, I would appreciate, if you would gradually send me most of the scores, which you have, for example Mozart's Requiem etc., Haydn's masses, Bach, Johann Sebastian Bach, Emanuel, etc. I have only a few of Emanuel's piano works, but some of them must not only serve the artist for his pleasure, but also for his studies."

But Beethoven speaks out most clearly in his compositions, which stand in the context of the Bach-Mozart treatment of the "Royal Theme." We find elements of the problem treated in many works, but most directly first in his Piano Sonata Op. 13 in C minor, the famous "Pathétique." While the first movement, with its "*Grave*" introduction, and then the jump into the "*Allegro molto e con brio,*" appears to be a sort of synthesis of Mozart's Fantasy and the sonata's first movement, the second movement quotes explicitly from the second theme of Mozart's second movement.

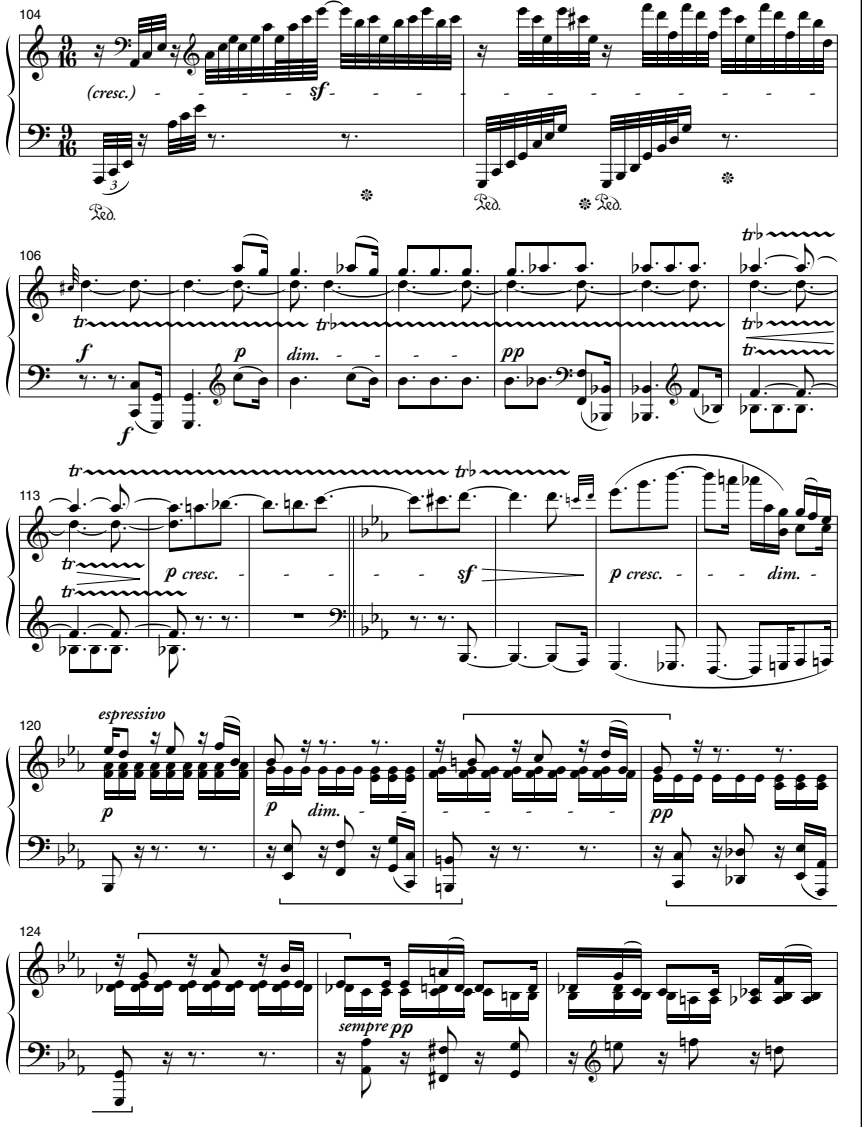
Thus, Beethoven, already relatively early on, deals with the Bach-Mozart material, and the sonata marks a key point in his own development.

The high point of the dialogue among the three geniuses, however, is found in Beethoven's final piano sonata, No. 32, Op. 111 in C minor, composed in 1821/22. Already the opening **(Figure 4.10)** attacks the core, the *punctum saliens* of the dialogue. We meet again our familiar interval E♭-F♯, this time in a falling line, played in all voices, *forte* and in unison, in the "*Maestoso*" introduction of the first movement, before the theme is introduced in the "*Allegro con brio ed appassionato*" section **(Figure 4.11).** Thus, this movement again, like the Pathétique, appears to be a kind of synthesis of Mozart's C minor Fantasy and Sonata. One is obliged to understand the entire sonata from the standpoint of Bach's and Mozart's dealing with the given problem; and, at the same time, to re-examine them from the new, higher standpoint of Beethoven, which adds new value to their effort!

In conclusion, a brief examination of the second movement of Beethoven's Op. 111 sonata provides some striking elements, in the context of the "C minor issue." The sonata has "only" two movements. The second one is a large-scale integrated variations movement, which in the course of development become more and more complex, but also free. The movement is called "Arietta," to be played "*Adagio molto semplice e cantabile*" **(Figure 4.12)**. Thus, we again find explicitly the demand, which we know from Bach's "playing in a singable fashion," something strongly reiterated by C.P.E. Bach in his book on playing keyboard instruments.

At the end of the second movement's fourth variation, which also marks the beginning of an extremely free, coda-like end section, we have the incredible triple

FIGURE 4.13
Triple trill in Beethoven's Sonata Op. 111



Immediately after the highest point of tension and condensation, in the triple trill, Beethoven introduces a remembrance of the opening of Mozart's Fantasy K. 475.

trill, never heard before, and right afterwards, with a brief shift in the key signature to the "C minor coding," we find reference to an old acquaintance: a modified form of the opening of the Mozart fantasy **(Figure 4.13)**!

From there, Beethoven proceeds to the final development of the movement (**Figure 4.14**), which ends in a unique way: We find variants of the movement's theme presented under and above a long, pedal-point-like trill, which, although the same tones are always played, is constantly changing its voice and registral characteristic. Thus, an old means of fugal polyphonic composition, the pedal-point, concludes the fugue, by giving a clear bass orientation to the conclusion of the modulations. Here, we find a "pedal-point," which itself becomes a kind of pivot-point.

Much remains to be discovered in the dialogue among these works. And, many later composers have gotten involved: even Chopin, for example.

It was not an arbitrary choice by Lyndon LaRouche, to repeatedly insist in the unique importance of the "C minor series," for understanding of the development of Classical composition. It was the process of "standing on each other's shoulders," of looking a little further or deeper, that made the successive qualitative steps possible. It will be the intense, in-depth re-living of these experiences, that will enable us, in the future, to bring forth new "partners in the dialogue."

1. The original manuscript of the fantasy and sonata was re-discovered in 1990, in Philadelphia. A facsimile of the manuscript has been published by the International Stiftung Mozarteum Salzburg, and by Bärenreiter-Verlag (ISBN 3-9500072-1-2 [Internationale Stiftung Mozarteum] and ISBN 3-7618-1041-5 [Bärenreiter]).

FIGURE 4.14
Conclusion of Beethoven Sonata Op. 111

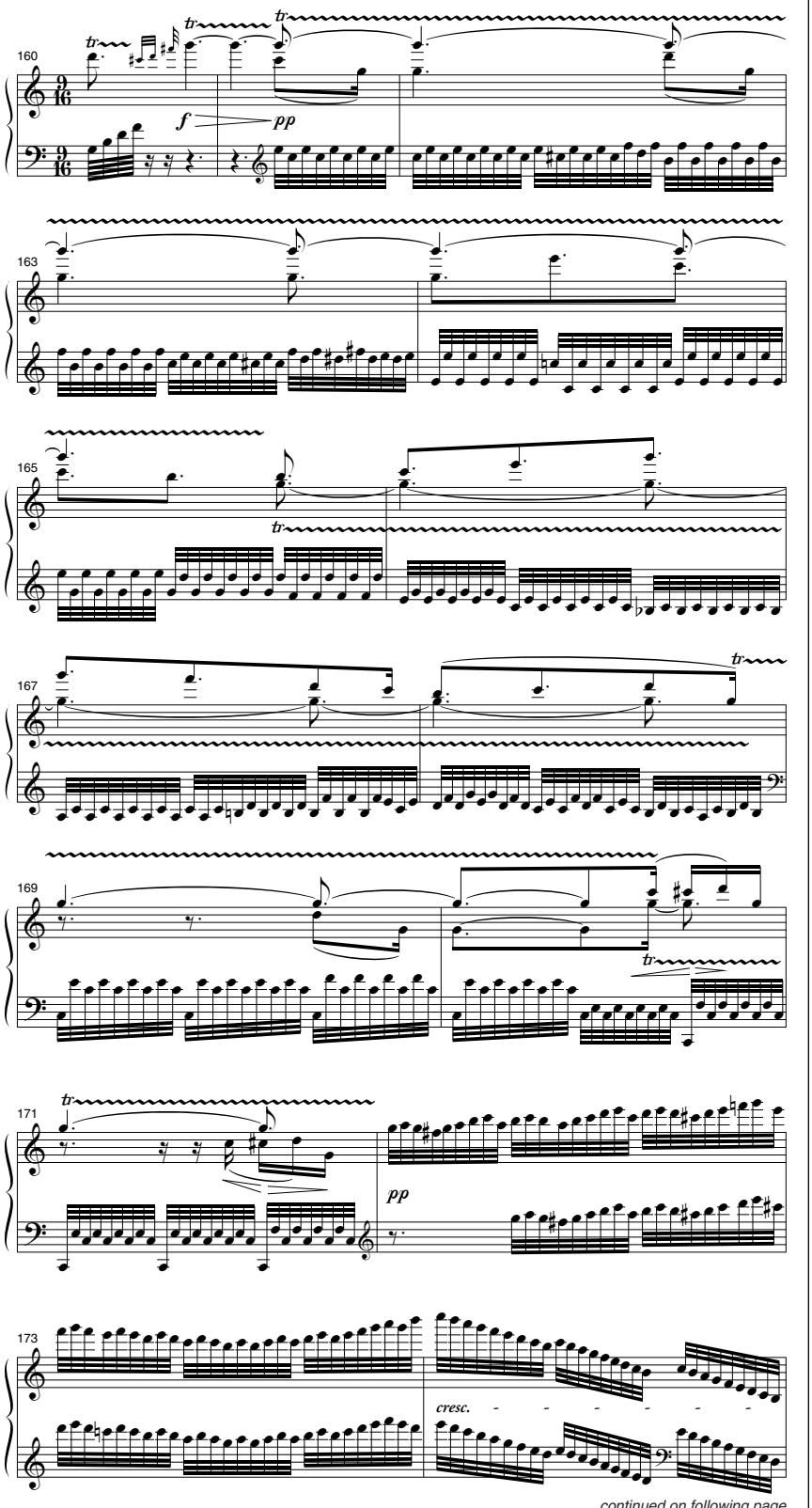


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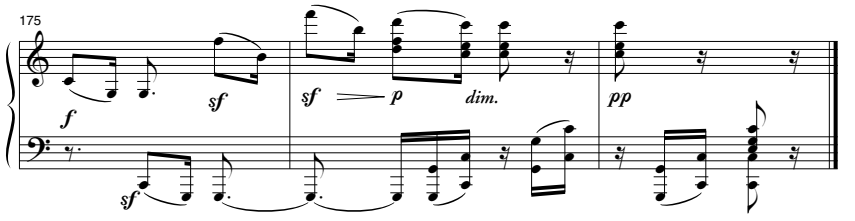
FIGURE 4.14 *(continued)*



The trill forms a higher-order "pedal point," which becomes a pivot-point of the conclusion.

Chapter 5

W.A. Mozart's Fantasy in C minor, K. 475, and the generalization of the Lydian principle through motivic thorough-composition

by John Sigerson

Let us take as our point of departure, the following passage from Lyndon LaRouche's main article, a passage that has specific bearing upon Mozart's composition of the Fantasy in C minor, K. 475, in May 1785:

"A further refinement is required. The mind hears the inversion of any interval (e.g., C-E-G heard as G-E-C), to such effect that a simple Lydian scale is derived as an inversion of a C-minor, F♯ pivotted scale. The effort to bring the intervals represented by the scale indicated by the inversion, [into coherence] with the scale which has been inverted, introduces a further degree of refinement of the well-tempering. Add, the inversion heard across the polyphonic parts to the inversions generated within each part, and a further refinement is introduced."

Mozart opens the K. 475 Fantasy with a bare statement of just such a "C-minor, F♯ pivotted scale" **(Figure 5.1)**. But before we plunge into the work itself, let us first see precisely what kinds of inversions are required to derive a "simple Lydian scale" from it. Let us represent the leading features of the original scale as C-E♭-(F♯)-G. The intervals described are an ascending minor third, followed by an ascending augmented second, and then an ascending half-step. Now, using C as our pivot, invert the direction of the intervals from ascend-

FIGURE 5.1
Opening of K. 475 Fantasy

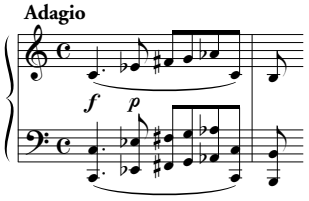


FIGURE 5.2
Derivation of Lydian scale

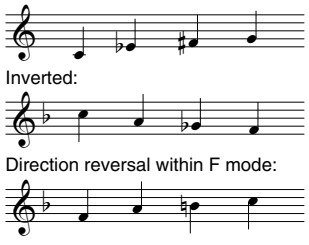


FIGURE 5.3
The six Lydian intervals

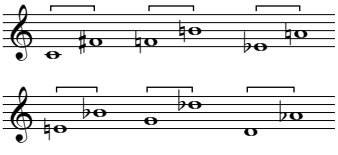
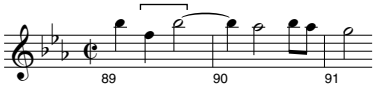


FIGURE 5.5
Displacement of fourths in *A Musical Offering*



ing, to descending. The result is C-A-(G♭/F♯)-F, a kind of F major with a G♭ hovering just above the tonic. Finally, taking F as our point of departure, take the C-G♭/F♯ interval and reverse the direction again, projecting it upward **(Figure 5.2)**. The result: F-A-(B♮)-C, a simple Lydian scale. That the mind hears such relations implicitly, is proven beyond a doubt by the power of Mozart's K. 475 Fantasy.

Another unique property of Lydian intervals should also be touched upon before we begin to grapple with Mozart's compositions in detail. Disregarding different spellings for the moment (in actual composition, they are crucial for the shaping of tone), one quickly discovers that there exist six, and only six, unique Lydian intervals in the well-tempered domain, namely: C-F♯, D♭-G, D-A♭, E♭-A♮, E♮-B♭, and F♮-B♮ **(Figure 5.3)**. These intervals are not "all alike," but flow in a certain hierarchy as we move away from C-F♯, upon which the entire well-tempered domain is pivotted. After C-F♯, come the pair F-B♮ (as we saw derived above), and close after it, E♭-A♮, by virtue of the close relation of the E♭ major scale to the C major/minor mode. (Beethoven, in the opening of Act II of his opera *Fidelio,* goes so far as to tune the two kettle-drums to precisely those two tones, E♭ and A♮!) Next we have another pair, each pivotted on other members of the C-major triad: E♮-B♭, and G-D♭. And finally, there is D♮-A♭, the most "distant" Lydian.

Just as with the hierarchy of the register-shifts of the six species of *bel canto*-trained voices, so the mind hears this implicit hierarchy of Lydians. But the relationship between Lydians and register-shifts is far more profound than that: If one makes a list of the six Lydian intervals, and cross-grids this with the six human voice species, one finds that every Lydian interval crosses at least one vocal register of each of the six voice species. Or, put another way: The introduction of any one Lydian interval, implies a register shift for *every* species of singing-voice. Other intervals larger than the Lydian also share this property; but the next *smaller* interval, the fourth, does *not* have that property. E.g., for the ascending fourth C-F, the soprano never shifts registers across this interval.

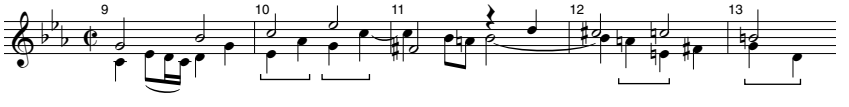
The Lydian interval, therefore, represents the minimum action required to move into the domain of multiply-connected, polyphonic vocal registration. And conversely, the interval of a fourth represents the threshold of that domain, just as the soprano's and tenor's F♮ is the threshold of the F♯ register shift.

It was implicit principles such as these—and not the mere form of fugal writing—that struck Mozart like a bolt of lightning when he was introduced to J.S. Bach's works by Gottfried van Swieten and his circles, beginning around 1782. From this standpoint, let us take yet another look at one of the works which Mozart studied intensively, the six-part Ricercar from Bach's *A Musical Offering*. Focus on the *end* of the opening statement (measures 9-11 in **Figure 5.4**): As the second voice enters, the first voice continues with a sequence of *ascending fourths.* On the first beat of measure 11, the new voice creates a Lydian interval C-F♯ with the first voice; this is followed by a series of *descending* fourths. As Bach proceeds through each successive variation, he uses inversion to increase the density of sequences of fourths; in measure 89 **(Figure 5.5)**, he also introduces a rhythmic shift, such that the first note of the pair is shifted from the "strong" beats of the measure (beats 1 and 2), to the off-beats (beats 1½ and 2½). The density of rising and descending fourths reaches its greatest in measures 180ff., where the derived cross-voices all focus to form the Lydian interval C-F♯.

The revolution in Mozart's mind, consisted in making these discovered principles into the explicit, primary subject of the composition, using the new method of motivic thorough-composition as pioneered by his friend Josef Haydn. The fruit of Mozart's compositions of those years, quickly ripened into a new *modal* method of composition, in which the Lydian-register shift plays the pivotal role. In his explorations, Mozart stuck close to the key of C minor in order to maximize his focus on working out the implications of his discovery. Examples of these efforts are the Fugue in C minor for Two Pianos, K. 426 (which he reworked five years later for string quartet), and his unfinished Great Mass in C minor, K. 427.

But greatest of them all, is his C minor

FIGURE 5.4
Entrance of second voice in the six-part Ricercar from J.S. Bach's *A Musical Offering*



Fantasy K. 475, and its companion work, the Sonata in C minor for solo piano, K. 457. Without additional commentary, Mozart had both works published together; to the educated audiences of his day, he did not need to explicitly state the obvious point, that the Fantasy was his own investigation into the principles employed in his composition of the earlier sontata. And, as we shall see below, the Fantasy indeed picks up exactly where the Sonata leaves off. (Beethoven, in many of his later works, took this approach one step further, interrupting the composition in midstream if necessary, in order to force the audience to turn their attention away from the rich externalities of the composition, to the discoveries of principles implied therein. One of the most accessible examples of this, is the baritone's recitative "O Freunde, nicht *diese* Töne!" ("Not *these* tones, my friends!") in the fourth choral movement of his Ninth Symphony.)

In order to even reach the doorknob of Mozart's Fantasy, therefore, we must first, at very minimum, take a "guided tour" of the companion sonata. For, just as it is impossible to grasp the significance of Gauss's discovery of the orbit of Ceres without working through the problem step-by-step, so it is with Mozart's discoveries here. The toil will be well worth it.

The K. 457 Sonata

The K. 457 sonata consists of three moments: the first a "*Molto allegro*" in C minor; the second, an extended "*Adagio*" in E♭ major, and the third, an "*Allegro assai*"—to which Mozart later added the word "*agitato*"—once again in C minor.

The first movement opens with a simple ascending C minor arpeggio, played *forte,* followed by a contrasting *piano* sequence consisting of a descending fifth G-C (inversion of a fourth), and a descending diminished seventh A♭-B♮—the same interval which marks the opening motivic statement of Bach's *A Musical Offering* **(Figure 5.6).** The first Lydian interval is formed with that B♮, but its significance does not go much beyond its cadential function. This is followed by a restatement of the same sequence, but beginning on G, with the B♭ changed to a B♮, in order to keep it in the mode of C minor, once again ending in a cadentially-used F-B♮ Lydian. The paradoxes only really begin with the following, second poetic couplet of the opening (measures 9-12): against an ostinato G-g in the bass, are descending fourths in two voices. The

FIGURE 5.6
Opening of Mozart Sonata in C minor, K. 457

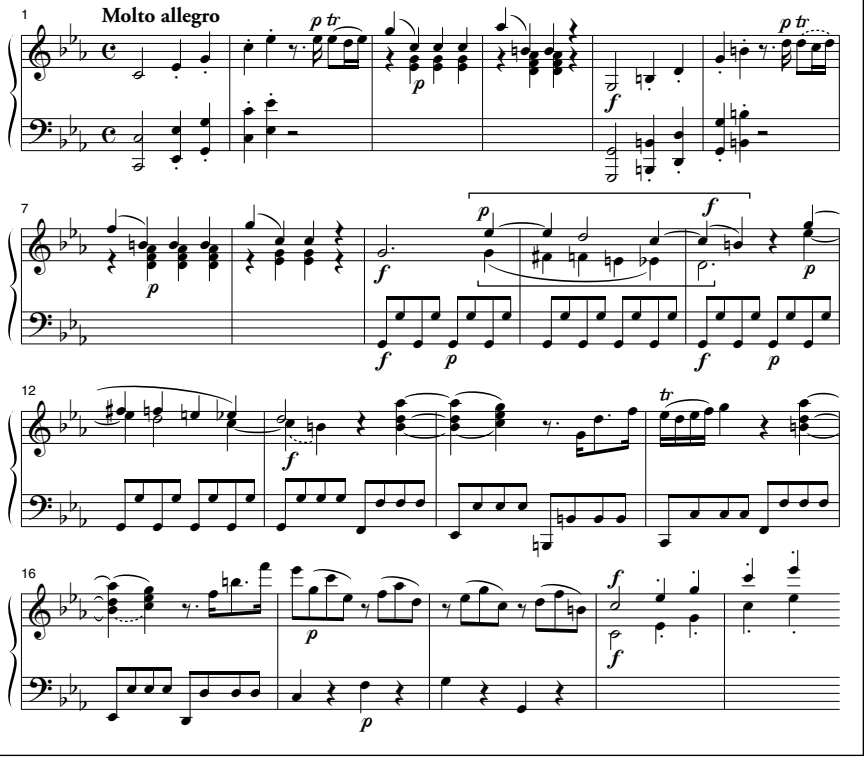


FIGURE 5.7
C major restatement in first movement of K. 457

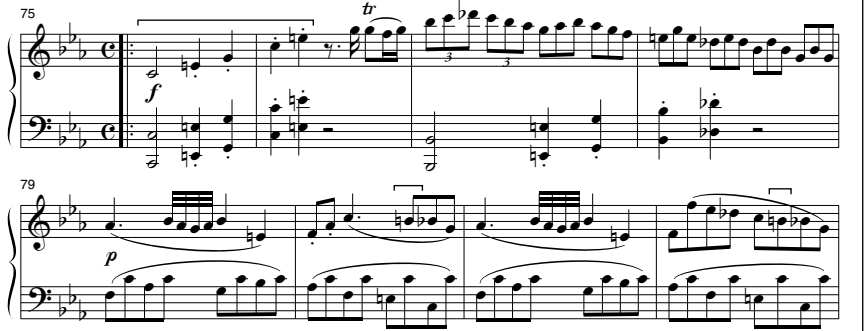


FIGURE 5.8
A♭-G suspended over B♮ in K. 457, first movement

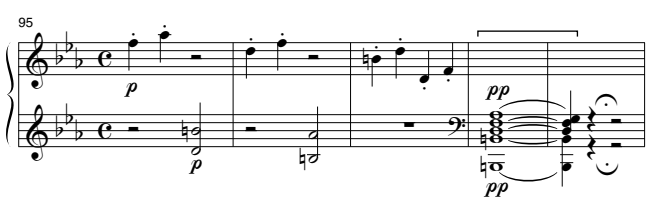


FIGURE 5.9
High-point of inversions and Lydians in K. 457, first movement

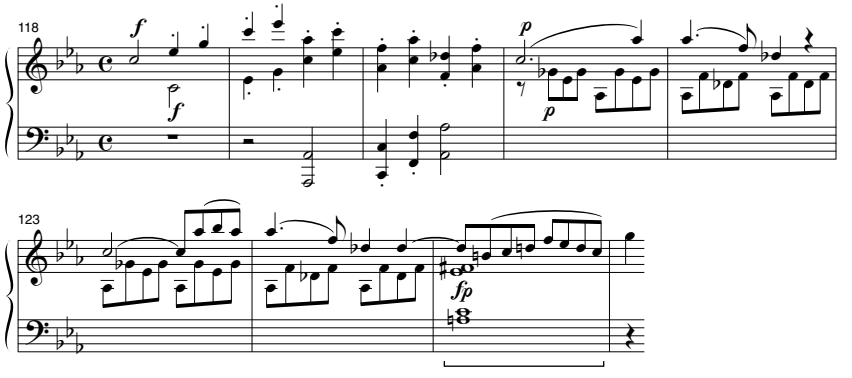
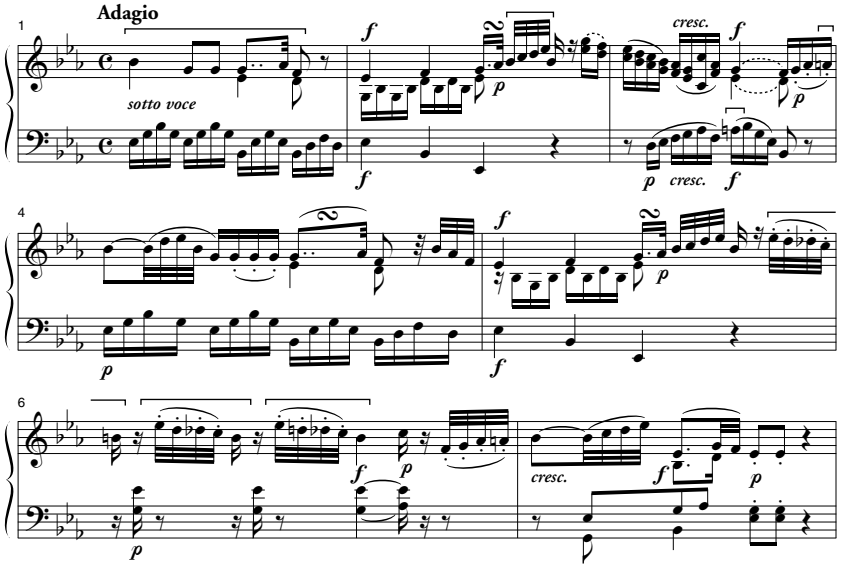


FIGURE 5.10
Opening of second movement of Mozart Sonata K. 457



first voice descends in half-steps: G-F♯-F♮-E♮-E♭-D—again an explicit reference to the descending line in the opening of Bach's *A Musical Offering*. And, as with Bach's work, it is introduced as a mezzosoprano voice. The second descending fourth is E♭-D-C-B♮—a *diminished* fourth, introduced in the soprano voice but with strong registral implications for the *tenor* voice. (This is probably why Beethoven focussed on this very interval in his Sonata Op. 5, No. 2 for Piano and Violoncello, since the predominant vocal reference for the 'cello is the tenor voice.) Mozart repeats this double figure an octave higher, in such a way that the mezzosoprano line is now sung by a soprano voice—once again in keeping with Bach's treatment. To conclude the opening idea, Mozart repeats the descending half-step interval a♭″-g″ twice, as an inversion of the implicitly stated G-A♭ of the opening measures 3 and 4.

Let us now skip to the second part of the first movement, beginning at the double-bar on measure 75 **(Figure 5.7**). Here the opening arpeggio is re-introduced, but now in C *major.* Mozart almost immediately moves us to the implied inversion of C major, which is F minor, with many mentions of the Lydian B♮. The passage ends on measure 98 with the same a♭-g as in the first section, only shifted down two octaves to precisely the location where the bass voice shifts between the second and first registers; the interval is suspended against the B♮ **(Figure 5.8)**.

The original C-minor arpeggio is now restated, but now it is enriched with a canon focussing on A♭ (measures 118-120), and a sudden shift into D♭, with the implicit, rising figure C-D♭ being heard as the inversion of the falling C-B♮ **(Figure 5.9)**. The density of Lydians and inversions reaches a high-point at measure 125, where C-F♯ is superimposed right on top of B♮-F. (Beethoven clearly recognized the significance of this passage, and in Mozart's honor, made them into the high-point of the Kyrie section of his Mass in C major, Op. 86.)

The extended "*Adagio*" of the sonata's second movement creates the necessary attention span for working through the paradoxes introduced in the first movement. As is the hallmark of Mozart's motivic thorough-composition, no additional musical material is really added. The opening **(Figure 5.10)** is a descending fourth, b♭′-f′, ending with a rising fourth b♭″-e♭″, and then a descending combination of both, ending with a very prominent dwelling on the Lydian e♭′-a♮′. The introduction is then repeated, but with an added element: a descending *diminished* fourth e♭″-b♮′, which was also briefly referenced in the first movement but not explored. In this movement, it is explored exhaustively, through multiple inversions.

The implications of the first movement's A♭-G are now also intensively worked through in a section in A♭ **(Figure 5.11)**. Against an ostinato A♭-a♭ (as opposed to G-g in the first movement), two other voices are at work: the first descends from e♭-d♭-c-B♭, while in the second, Mozart simply reverses the order of the first and second pair of notes, thus: c′-b♭-e♭′-d♭′. And—should we be surprised by now?—Beethoven celebrates his great teacher here as well, by quoting this passage "verbatim" in the second "*Adagio cantabile*" movement of his C minor sonata for Piano, Op. 13 (Pathétique).

Mozart now introduces the most "distant" Lydian, A♭-D♮, into the musical fabric (measure 27), and in short order (measure 32, **Figure 5.12**), leads us into what can only be described as "ontological surprise": the same A♭ material is begun again, but in G♭. Aha! F♯!

A series of arpeggios (measures 38-40) leads us to g″, a♭″, a♮″, and b♭″, and back "home" to the opening statement, but now highly ornamented **(Figure 5.13)**. The registral shifts implied by E♭-A♮ and A♭-D♮

are now brought out clearly, both in measure 49, with the sudden drop into the "chest" register **(Figure 5.14)**, and in the two grand scales in measures 51 and 52, moving from the soprano's high b♭″ to the bass's low A♭, and then back up a high a♮″-a♭″, with each note suspended by a fermata **(Figure 5.15)**.

The third and final movement of the sonata is organized as a kind of rondo, where the same theme repeatedly returns, unaltered. Each time, one moves farther afield, only to be jolted back, as in Poe's refrain "Nevermore." In the opening **(Figure 5.16)**, we are back to the same material as the first two movements, but now the F♯ is more prominently ending the phrase on f♯″-g″. A very rapid descending fourth f″-c″ is followed by repeated g″s, ending with a series of double Lydian, arpeggiated chords focusing on B♮; followed by a pregnant silence. And quietly (measure 26), we hear what everything seems to have been driving at all along: e♭″-f♯′-g′-a♭′—the beginnings of Mozart's explicitly F♯-pivotted C minor. However, an uneasy paradox remains: by placing the e♭″ *above* the f♯′, implicitly in the soprano voice, there is no register shift. This absence of register-shift is what makes the passage so haunting each time it recurs in the rondo. Indeed, the paradox is never really satisfactorily resolved in the sonata itself—which is probably why Mozart added "*agitato*" to the description, and which is decidedly part of his motivation for composing the Fantasy later on.

We move into a passage in E♭ major, with its A♮ Lydian reference **(Figure 5.17)**, harkening back to the second movement, ending with a sequence of rising fourths B♭-C-D-E♭ in three different voices, all harkening back to the opening of the second movement. *[text continues on page 68]*

FIGURE 5.11
Second idea in K. 457 second movement

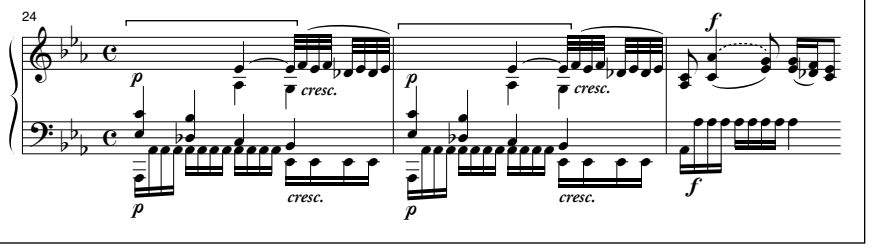


FIGURE 5.12
'Ontological surprise' in second movement of K. 457 sonata

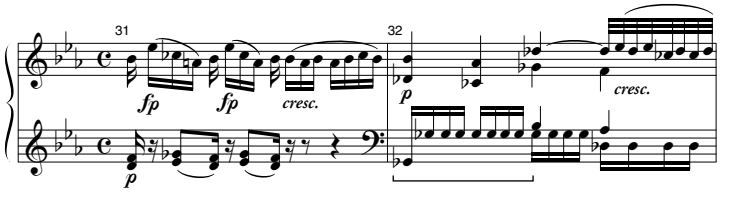


FIGURE 5.13
Return to opening theme of second movement of K. 457 sonata

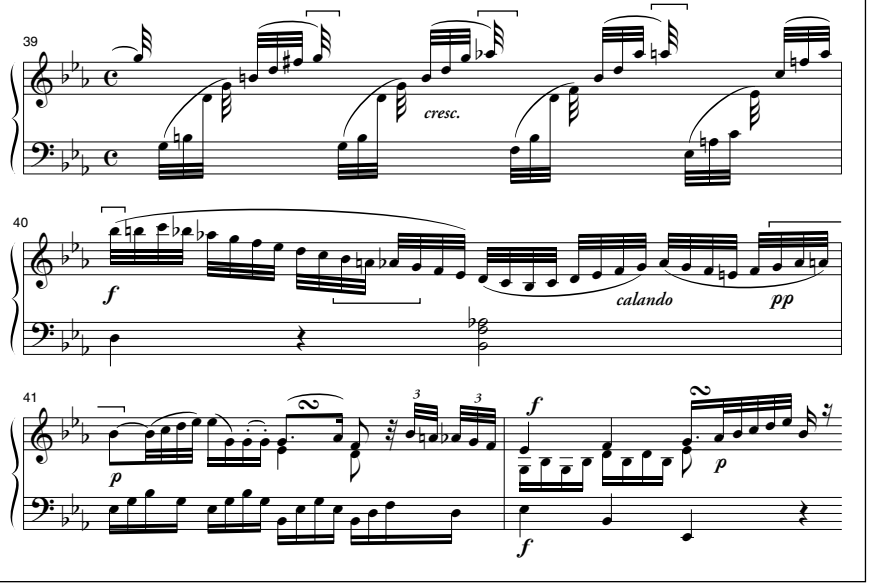


FIGURE 5.14
A drop into the 'chest' register

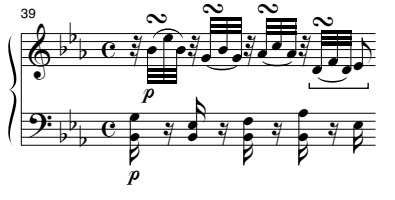


FIGURE 5.15

B♭-A♮-A♭ near conclusion of K. 457 second movement

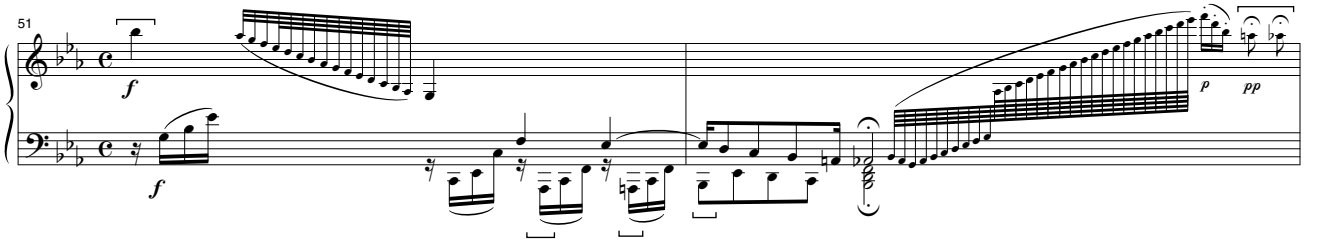


FIGURE 5.16

Opening of third movement of Mozart Sonata K. 457

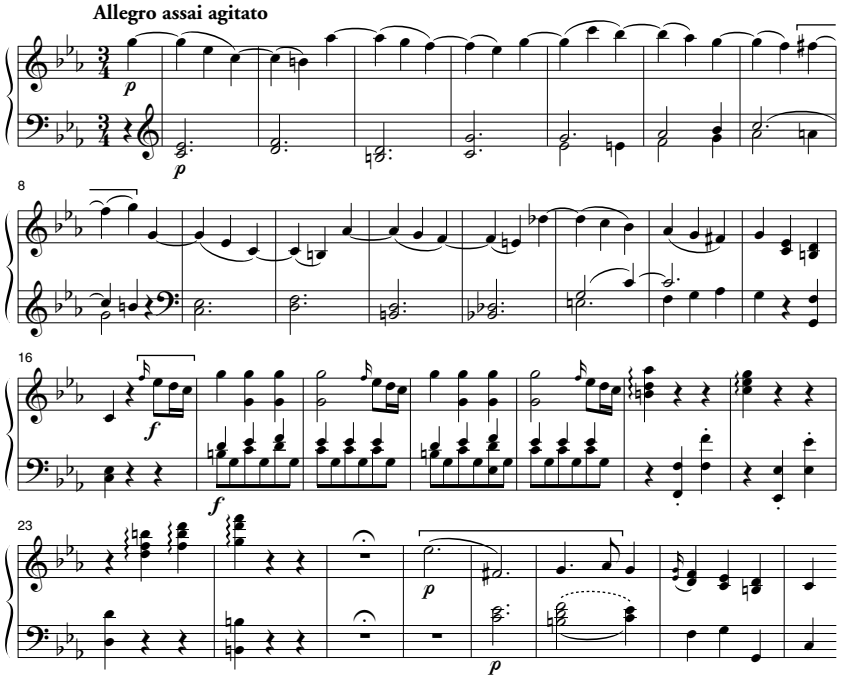
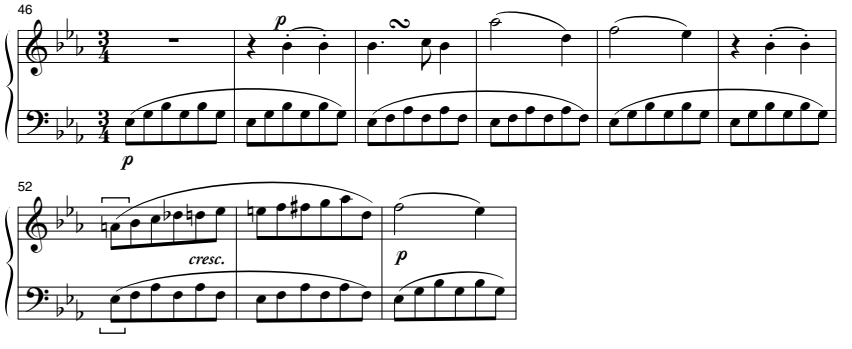


FIGURE 5.17

E♭ major section of third movement, with Lydian A♮ reference



The rondo returns, and now we move to the F minor of the *first* movement, with the added figure c′′-d♭′′-c′′ bringing to mind the first movement's g-a♭ and a♭-g **(Figure 5.18)**. The suspicion is confirmed when the same material is repeated in C minor (measures 168-169), and g′-a♭′-g′ is heard explicitly. Yet another shift, and this is inverted as F♯-G in five different voices **(Figure 5.19)**.

A new round of the rondo, and further aspects of the preceding movement are brought into focus. Then, with a final reference to F minor, Mozart proceeds to his remarkable coda, which starkly presents two sequences. The first is a descending scale (measures 293-300) which seems oddly bent out of shape: c′′′-b♭′′-a♭′′-f′′-e♭′′-d♭′′-c′′-(b♮′) **(Figure 5.20)**. But in the domain of the mind's hearing of implicit inversions, it is not "bent" at all, for, if one inverts it, it is a simple C major sequence: C-D-E-G-A-B-C. But there is a note missing: the fourth degree, F. The final sequence **(Figure 5.21)** solves that problem, not with F, but with F♯. First c′′′-e♭′′′ is stated high in the soprano's fourth register, followed by a huge leap to an F♯′ at the very bottom of the piano's range, below the regular singing ranges; and ended with G′-A♭′, then F♮′, and a final C. Which is precisely where Mozart begins in the Fantasy. *[text continues on page 69]*

FIGURE 5.18
F minor section of K. 457 third movement

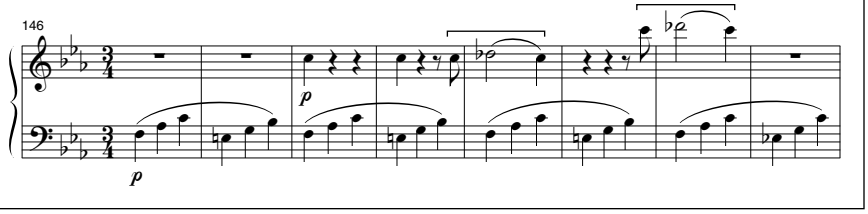


FIGURE 5.19
F♯-G in five octaves

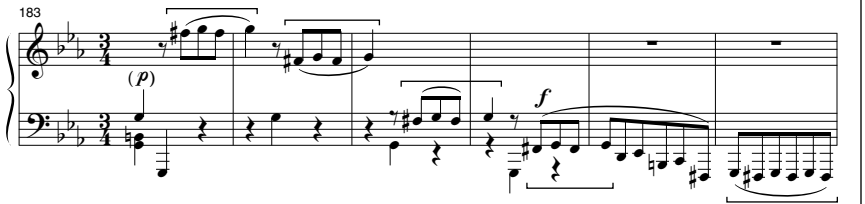


FIGURE 5.20
'Odd' descending scale is inverted C major sequence

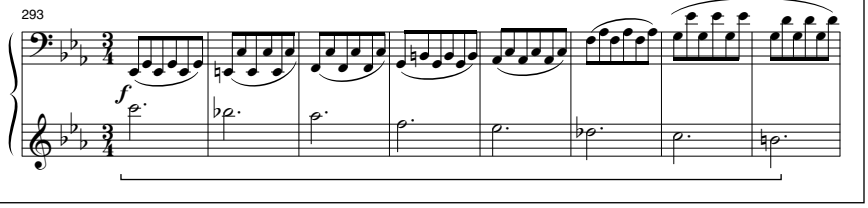


FIGURE 5.21
Final sequence in Sonata K. 457

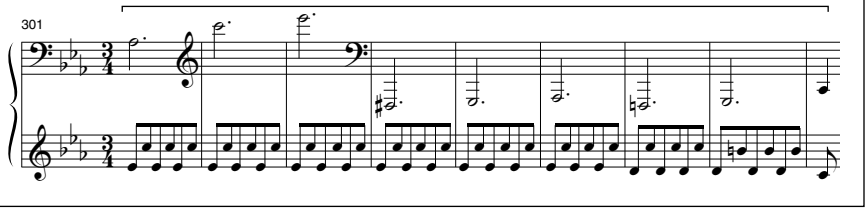
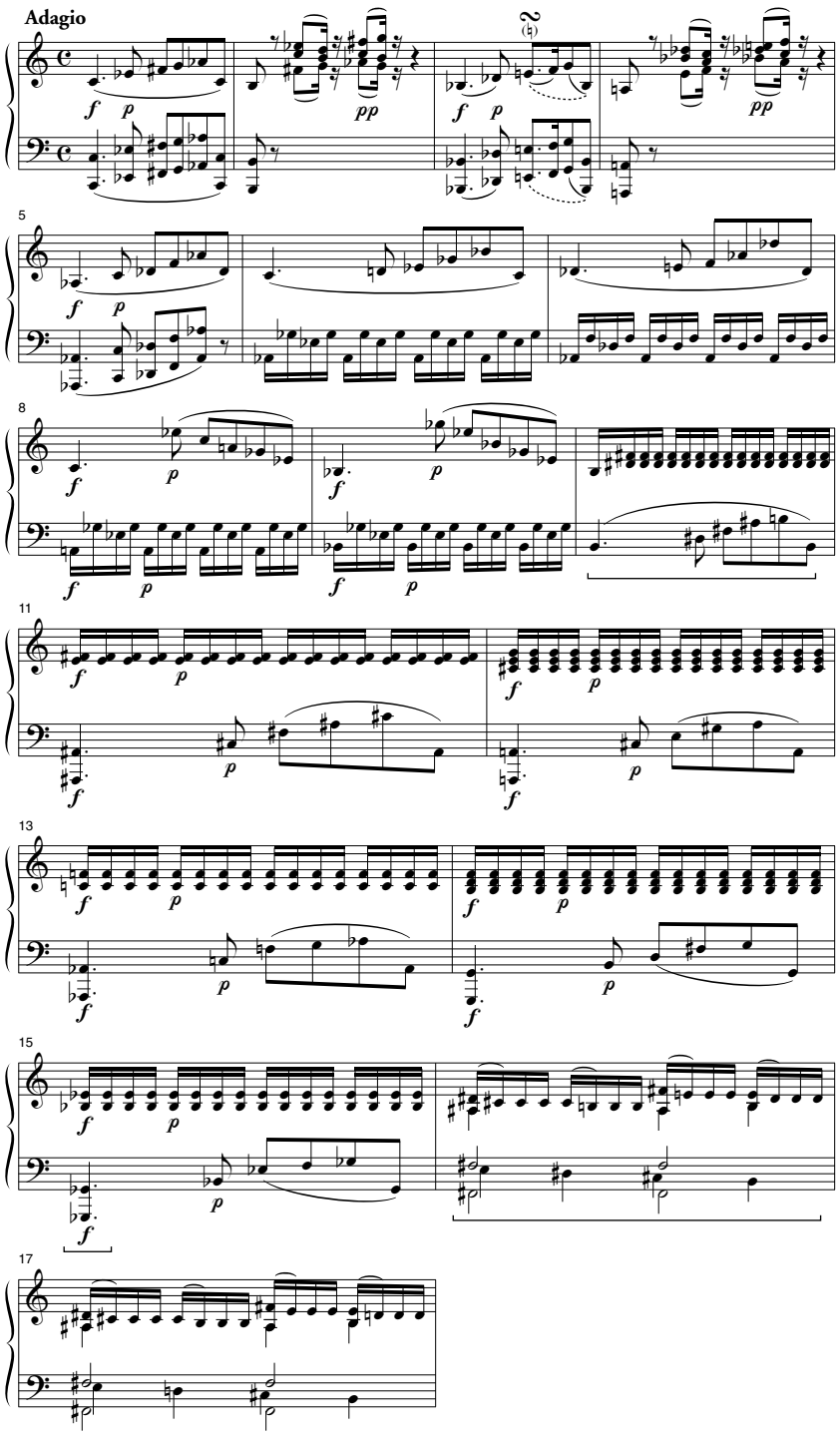


FIGURE 5.22

Opening of Mozart Fantasy for Piano, K. 475



The K. 475 Fantasy

It is impossible to reduce the opening of the Fantasy to a "theme." The opening represents a multiple dimensionality, whose implications only begin to unfold as one ponders over the kaleidoscopic sequence of all sections of the Fantasy, taken as a whole; the which, obviously, can only be done if one has worked through it in a good deal of detail.

The most immediately evident feature is Mozart's inclusion of the F♯ into the very first measure **(Figure 5.22)**. This F♯ has a register shift "written all over it": The shift from E♭ to F♯ is a register shift for the four most common of the six voice species: soprano, mezzosoprano, tenor, and baritone.

The Promethean challenge posed by this included F♯ is then underlined, quietly, in the second measure, with a sequence of double Lydians, all revolving around F♯-G. It is essential that these two pairs be performed as true *appoggiaturas,* with the emphasis on the *first* member of each pair. If this is done correctly, the second pair leads as a cross-voice into the silence of the measure's final beat; if it is performed incorrectly, the pairs degenerate into perfunctory, meaningless cadences.

But we must also consider the following dimensionality: The opening measure has three parts: (1) the opening C; (2) the four subsequent notes E♭-F♯-G-A♭, which describe a rising fourth which has been oddly "bent out of shape"; and (3) the leap back into the "chest register" on C-B♮, with its implications for the simple F-based Lydian.

And, as yet another dimensionality, we should consider the downward, G-pivotted *inversion* of the opening sequence: G-E♮-D♭-C-G-A♭, with its included prominent G-D♭ Lydian. Already in measure 4, this interval is brought out explicitly as well, and beginning with measure 6, the opening, descending C-B♮ is inverted into a rising C-D♭. In measure 10, Mozart re-inverts this relationship into B♮ again, this time referencing the full B♮ mode. But we remain there only momentarily, as the bass descends by half-steps from there down to G♭ (measure 15). And, surprise! In measure 16, G♭ is transformed into F♯, in a passage which is an unmistakable reference to the surprising G♭ passage in the second movement of the sonata. Only here in the Fantasy, it took Mozart only sixteen measures to bring us there!

F♯ remains the focus of the following measures, leading to measure 25 **(Figure**

5.23), where repeated f♯′s move into the key of D major—a key which was entirely absent from the K. 457 sonata. It is also striking that the Lydian G♯ is entirely absent from opening bars of this D major section; Mozart's focus here, rather, is on the motivic thorough-composition associated with C-B♮, but this time transformed into descending whole-steps, such that the entire melody is constructed from nothing but these descending and ascending whole steps.

The situation is entirely reversed, with a vengeance, in the following "*allegro*" passage (measures 36ff.), where a repeated E-F♮ is played against repeated d′′-g♯′′ **(Figure 5.24)**. The same sequence is then repeated one step lower, on D-E♭ and c′′-f♯′′, in such a way that we are led directly into an F major/minor section with a stress on the B♮-F Lydian **(Figure 5.25)**. But not for long, as we are pressed back to a grand sequence of double-Lydian arpeggios, against a descending bass line from F♯ to the lowest F♯′ on the piano keyboard **(Figure 5.26)**. We go a half-step lower still, to F♮′, and then swing with arpeggios and scales from the bottom to the top of the vocal range, finally descending slowly to two long, held notes, e♮′′ and e♭′′—a reference to the held a♮′′ and a♭′′ in the sonata's second movement.

Quite an adventure! We have already worked through the content of the entire sonata. But it is far from over. Mozart now focusses on an ascending sequence of four descending fourths, such that the sequence itself describes a fourth (measures 86-88, **Figure 5.27**), after which he repeats the sequence down an octave, and then down another octave. Of all the subsections of the Fantasy, Mozart tarries here the longest; the descending fourths are filled out with half-steps, are complemented by parallel sixths, and are repeated in all registers. All of this occurs in B♭ major. *[text continues on page 72]*

FIGURE 5.23
Focus on F♯ in K. 475 Fantasy

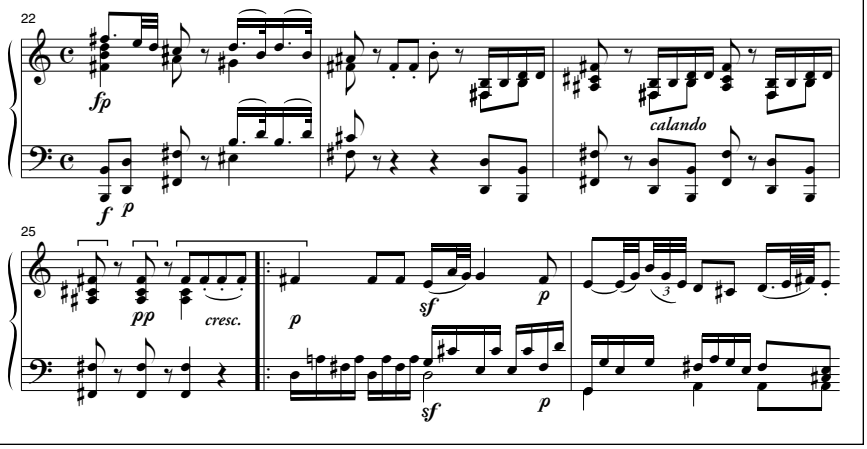


FIGURE 5.24
C-B♮ descending interval inverted into E-F♮ ascending

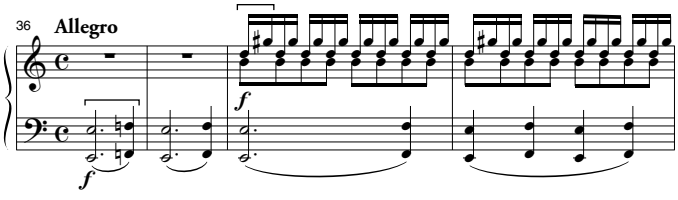


FIGURE 5.25
F major/minor with B♮ Lydian

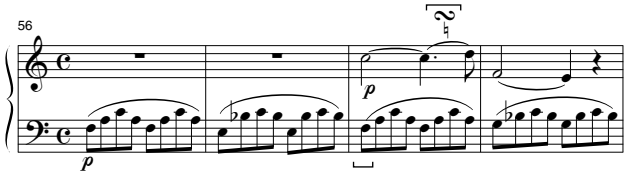


FIGURE 5.26
Grand sequence through all registers

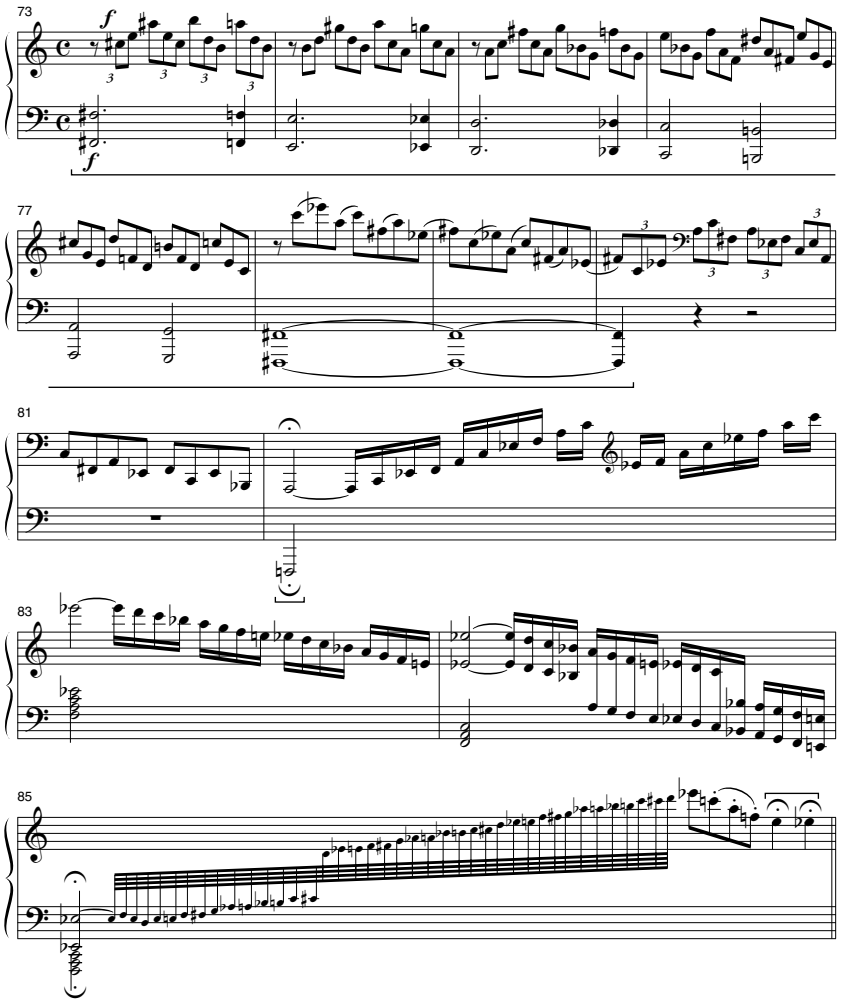
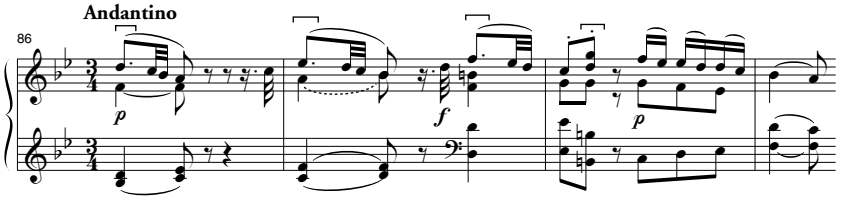


FIGURE 5.27
Ascending sequence of descending fourth sequences



Finally, Mozart shifts the same material to C minor **(Figure 5.28)**. What a difference! Instead of the fourth, we get a *diminished* fourth e♭-d-c-b♮ which we have encountered a number of times before. And now Mozart launches into a "*Più allegro*" section that consists of nothing but sequences and inversions, with successive rising fourths soon supplanted by *rising Lydians,* of which every type is referenced. To make sure the discovery is not lost, Mozart cycles through a series of summary cadences, each punctuated by double-Lydian arpeggios, which recapitulate every mode referenced in the work: C major/minor, F minor, D major, G minor, finally ending, in measure 154 **(Figure 5.29)**, on C, f♯, and e♭′ played simultaneously (to call this a "chord" would miss the point entirely). Three successive repetitions of the descending figure A♭-G, again in three different voices, then lead back into the Fantasy's opening statement **(Figure 5.30)**; only this time, in measure 162, we are likewise brought to the same figure A♭-G. In the concluding measures, Mozart celebrates the discovery of this new F♯-pivotted modal principle, first in the bass voice with the sequence F-F♯-G-A♭-F-G-C (measures 165-168, **Figure 5.31**), and then, even more poignantly, in the soprano voice, with g′ and f♯′ played simultaneously, followed by g′ against f♮′. Two "false" cadences on G-A♭ follow. A simple C minor scale concludes the composition.

The foregoing "guided tour" of the C minor Fantasy is only the first, but necessary step in grasping the discovered principles as a unity in the mind's eye. Through multiple comparisons of the successive transformations across sections—and not necessarily in their temporal sequence!—we can finally grasp the actual course of Mozart's discoveries.

FIGURE 5.28
Sudden shift to C minor

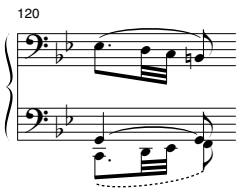


FIGURE 5.29
Conclusion of 'stretto' passage of K. 475 Fantasy

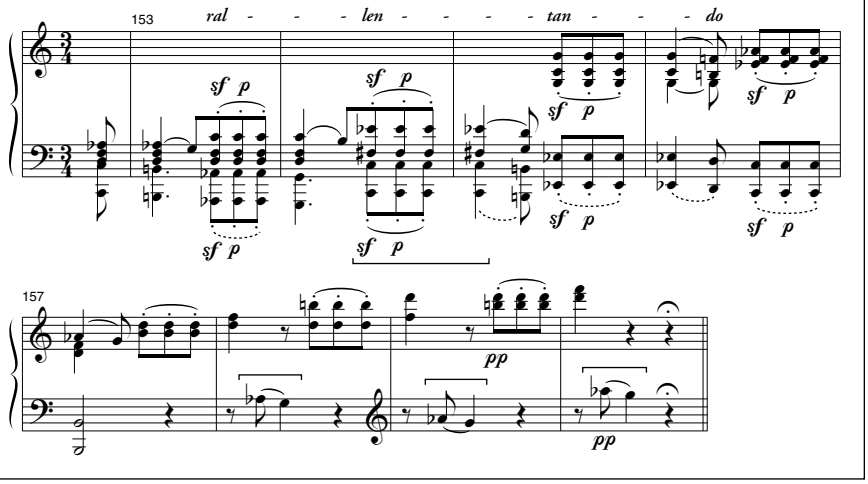


FIGURE 5.30
Restated opening, with A♭

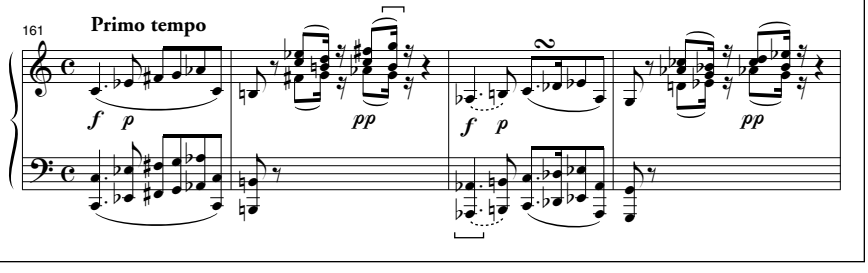
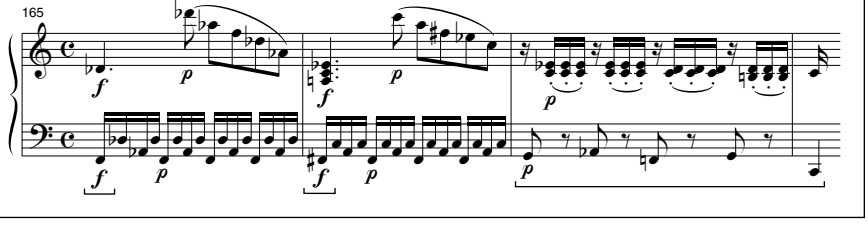


FIGURE 5.31
Celebration of the newly discovered principle



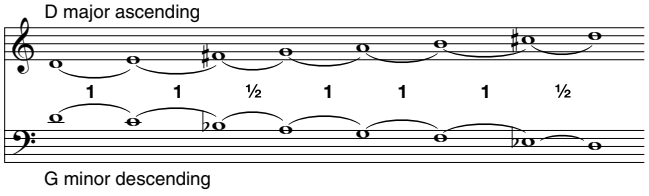
Chapter 6

The principle of 'time-reversal' in Mozart's works

by Mindy Pechenuk

Beginning in 1782-83, Mozart revolutionized the concept of modality, and its relationship to motivic thorough-composition. As two of his most profound religious works demonstrate, the motet *Ave verum corpus* and his *Requiem,* great musical compositions do not develop in a linear, mechanistic way, from an initial theme, but are conceived from the beginning as a whole, in which it is often the end of the composition, or a key part of it, which determines the beginning. In the case of the motet *Ave verum corpus,* it is the final statement about Christ dying on the cross to save humanity ("in cruce pro homine") which determines the opening statement "Ave." In the *Requiem,* one of the most poetic parts is the soloists' quartet "Recordare" ("Recall"), which again forces the listener to go back to the beginning of the *Requiem* from a different standpoint, that of remembering Christ's sacrifice on the cross. How the profound moral and religious content of these works of art and their musical motivic development coincide with the idea of "time reversal," of the future determining our present and past, is the subject of this investigation.[1]

FIGURE 6.1
G minor is derived, by inversion, from D major



D major generates G minor, by taking the same intervals of the D major ascending scale, and changing their direction.

Mozart's *Ave verum corpus*

Beginning in 1782, Mozart made a fundamental creative leap: the treatment of the major and minor modes as a "One," and not as separate major and minor modes. The "one-ness" of the major and minor, for Mozart, has the following significance. Take the case of the modality of the *Ave verum corpus,* D major/D minor. Think how D major generates G minor, by taking the same intervals of the D major ascending scale, and *changing their direction,* playing the intervals downward, instead of upward, from D **(Figure 6.1)**.

Such explicit or implicit *changes of directionality* are crucial, both for the discovery of the paradoxes of the "new

"Recordare," from Mozart's *Requiem*

Strophe 1

Recordare, Jesu pie,
Quod sum causa tuae viae:
Ne me perdas illa die.

Recall, merciful Jesus
That I was the reason for Thy journey;
Do not destroy me on that day.

Quaerens me, sedisti lassus:
Redemisti crucem passus:
Tantus labor non sit cassus.

Seeking me, Thou didst sit down weary,
Thou didst redeem me, having endured the cross;
Let not such great pains have been vain.

Strophe 2

Juste Judex ultionis,
Donum fac remissionis
Ante diem rationis.

Just Judge of vengeance,
Give me the gift of redemption
Before the day of reckoning.

Ingemisco tanquam reus:
Culpa rubet vultus meus:
Supplicanti parce, Deus.

I groan as one guilty,
My face blushes with guilt;
Spare the supplicant, O God.

Qui Mariam absolvisti,
Et latronem exaudisti,
Mihi quoque spem dedisti.

Thou who didst absolve Mary,
And hear the prayer of the thief
Hast given me hope, too.

Strophe 3

Preces meae non sunt dignae:
Sed tu bonus fac benigne,
Ne perenni cremer ignae.

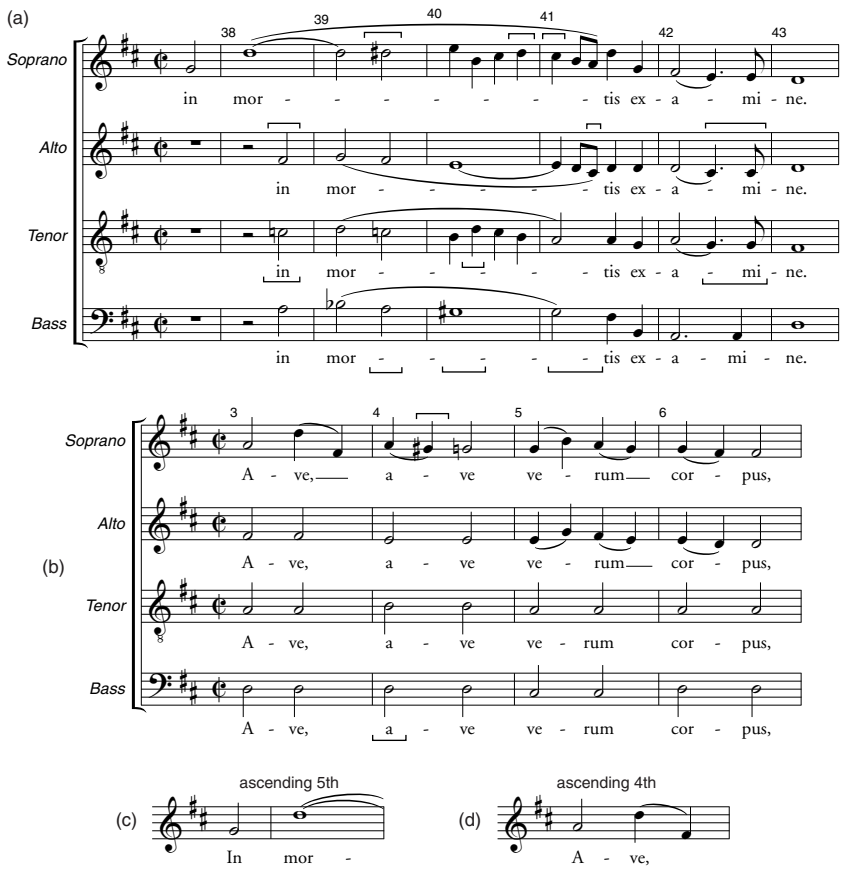
My prayers are not worthy,
But Thou, O good one, show mercy,
Lest I burn in everlasting fire.

Inter oves locum praesta,
Et ab haedis me sequestra,
Statuens in parte dextra.

Give me a place among the sheep,
And separate me from the goats,
Placing me on Thy right hand.

FIGURE 6.2

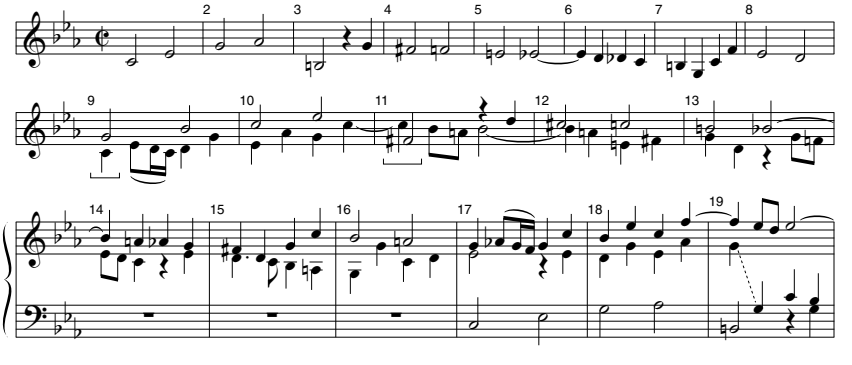
Opening and final hypotheses in Mozart's *Ave verum corpus*



Compare the very last phrase of the work, sung on the words "in mortis examine" (a), with the very opening bars (b), sung on "Ave, ave." Note the greater density of Lydian intervals in (a). Mozart's transformation of the soprano line, leaping a fifth upward on "in mor-" (c), is an inversion of the ascending fourth in the soprano opening "Ave" (d).

FIGURE 6.3

Opening of six-part Ricercar from J.S. Bach's *A Musical Offering*



modality," and for Mozart's development of motivic thorough-composition.

Now, think about all the potentialities that exist in the entire composition—major and minor—as a *One,* and you begin to grasp the higher hypothesis which governs the composition as a whole.

The question is, *What governs the shift which Mozart has made?* To find the answer, we must consider, in succession, each section of the *Ave verum corpus,* in the same way as Plato treats the idea of hypothesis, higher hypothesis, and hypothesizing the higher hypothesis. For example, to begin with, consider the opening interval pairs as a paradox derived from this process. In order to focus us upon the very first interval pair, Mozart departs from the standard Latin text of the poem, by repeating the first word, "Ave" ("Hail") a second time; instead of "Ave verum corpus," Mozart composes "*Ave, ave* verum corpus." In this way, Mozart sets up the opening paradox, which is crucial to the development of motivic thorough-composition.

There is only one other place in the entire composition, where Mozart repeats the text: the concluding line, "in mortis examine"—"in the test of death." The second "in mortis examine" is totally *different* than the first. What is Mozart saying about how creativity works, and about how the human mind works? How do you reflect on your life, so that you live your life in order to cheat death, by being a creative person? That is why Mozart repeats this "in mortis examine" differently **(Figure 6.2)**.

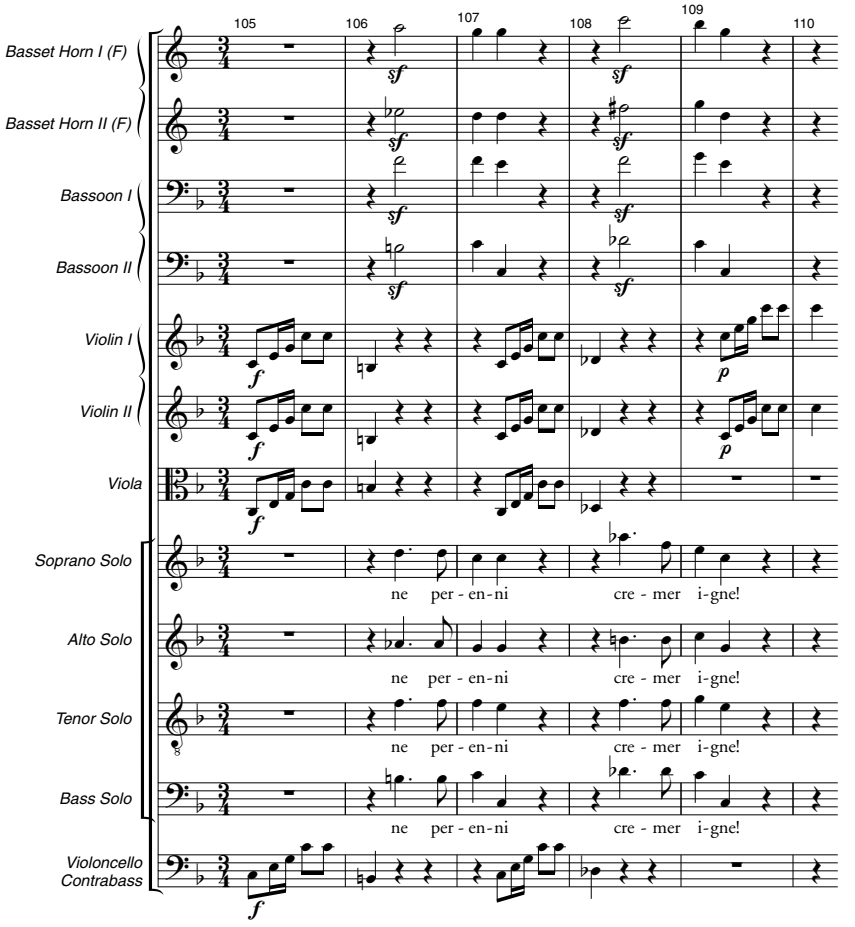
Bach's *A Musical Offering*

Let us take a brief look at what Mozart was looking at in J.S. Bach's *A Musical Offering.* As Lyndon LaRouche states in the main article: "J.S. Bach's development of a form of polyphony situated with respect to the Florentine '*bel canto*' voice-training standard, led into a determination of both pitch and of counterpoint derived from a rigorous application of the principle of a multiply-connected manifold. The related treatment of the principle of polyphonic (e.g., 'cross voice') inversions led into such crucial of Bach's works as his *A Musical Offering* and *The Art of the Fugue.*"

The entire six-part Ricercare of the *Musical Offering* is a series of hypotheses, which are progressing to higher orders of changes. Bach unfolds the paradox of the Lydian interval, i.e., the soprano register shift c′-f♯′ **(Figure 6.3)**. Compare the rates

FIGURE 6.4

High-point of final strophe of 'Recordare' in Mozart's *Requiem*



of change throughout the piece as Bach, unfolds each voice entrance, which itself changes the entire ordering of the composition and the different levels of hypothesis, which unfold throughout the entire composition.

Mozart takes his discovery of Bach's discovery, with the insight he has discovered from Haydn's work, in motivic thorough-composition, and creates a revolution in music. Mozart discovers a new higher modality, the "Lydian " modality, in which the new modality redefines all the relationships of the intervals, including the major/minor, which Mozart now treats as a "One"—and, once again, it is based on inversion. So, intervals are not fixed distances, but are themselves undergoing a constant process of change; a change, which is governed by a valid axiomatic-revolutionary discovery of principle, which also represents elevation to a "higher cardinality."

As Lyndon LaRouche states in the main article, for Bach, Mozart, et al.: "We must never hear intervals merely within voice parts, or even merely across voices, except that we also hear the totality of the implied, complementary inversion within and across the voices, as these unfold in the course of that motivic development which is the unity of the composition as an indivisible whole."

Mozart's *Requiem*

Another such example of "time-reversal" is Mozart's *Requiem.* Key to the understanding of the whole work is the soloists' quartet "Recordare" (the fourth item within the "Sequence" section of the mass, coming after "Dies irae," "Tuba mirum," and "Rex tremendae"). Mozart, treats the entire Recordare as a poem (see Box, page 73).

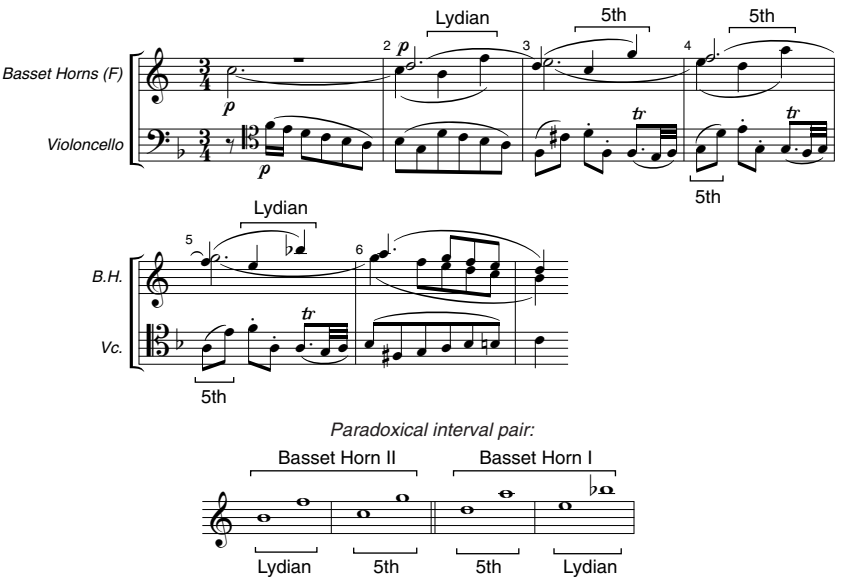
As in the case of the *Ave verum corpus,* so, too, in the "Recordare," Mozart increases the density of singularities in the final strophe, subsuming all previous hypotheses. Within the space of only five measures **(Figure 6.4)**, Mozart develops through inversion, what he has been playing across the entire "Recordare"; this time, it is C major and its inversion F minor (note the play between the strings and the voices, where the voices are unfolding the Lydian pair of b♮-f′ and a♭′-d′′). The Lydian pairs unfold, d♭′ to g′, across the bass's d♭′ and the tenor's g′, and it is this unfolding which is primary and governs the bass voice and part. The point being that the bass line, starting in measure 110, is not a series of ascending and

descending half steps, but is generated from the Lydian modality and the inversion of the interval pairs.

Finally, look at the opening of the "Recordare" **(Figure 6.5)**. Here we have the unfolding of our paradoxical interval pair: in this case, the two basset horns are an inversion of one another. Here, Mozart generates the paradox of the Lydian/fifth between the two voices, unfolding the possibility of the F major/B♭ minor, C minor/F major, G minor/C major, D minor/G major. This is a far cry from the evil textbook approach, which claims this opening as a simple series of suspensions at the second, totally denying the question of the Lydian modality and the generating principle of hypothesis.

It is time to throw out the textbooks of counterpoint, harmony, and Helmholtz's crazy ideas of chords, notes as vibrations per second, intervals as measurement of distance. Mozart has revolutionized the axioms of those who came before him, i.e., Bach and Haydn, and for all those after, Beethoven, Brahms, Schubert, Schumann. As Lyndon LaRouche says in the main article: "[I]f we continue polyphonic and related developments, there is no simply algebraic determination of a well-tempered scale, but rather a counterpoint-determined interval of non-constant curvature."

FIGURE 6.5
Instrumental opening of 'Recordare' in Mozart's *Requiem*



In each measure, Mozart increases the density of singularities of our original, paradoxical interval pair.

1. In an article on "The Essential Role of 'Time-Reversal' in Mathematical Economics" (***EIR***, Oct. 11, 1996), Lyndon LaRouche referred to Mozart's *Ave verum corpus,* and "a presentation by Mindy Pechenuk, with chorus directed by John Sigerson, during the Labor Day weekend conference of the Schiller Institute on August 31, 1996," as follows: "This highly sophisticated, compact, and beautiful work, is among the most convenient illustrations of the same principle of 'time-reversal' otherwise underlying both experimental physics in general, and physical-economic processes specifically. Any master's Classical composition according to the principles of motivic through-composition, such as those of Wolfgang Mozart, L. van Beethoven, F. Schubert, R. Schumann, Johannes Brahms, et al., must be performed by applying the developed conception reached at the close of the composition, from the beginning of the performance of the composition. The modification so imposed by the intent of such a composer, results in what the celebrated conductor Wilhelm Furtwängler identified as 'playing between the notes.' Video recordings of the Aug. 31 pedagogical presentation of the motet are available through the Schiller Institute."

Chapter 7

On questions of motivic thorough-composition in Beethoven's late works

by Anno Hellenbroich and Bruce Director

In his late works, Ludwig van Beethoven (1770-1827) developed the "science of composition"—the mastery of which Josef Haydn once spoke in lauding tones, in reference to Wolfgang Mozart[1]—to a theretofore unattained degree.

In Beethoven's late works, motivic thorough-composition, as a unity creating the idea of the development of the whole, has opened up utterly new horizons of thinking, not only as a musical metaphor, but as a compositional method.[2] In the words of Prof. Norbert Brainin, who dedicated 40 years with his colleagues of the Amadeus Quartet, struggling to achieve an adequate performance of the late quartets, Beethoven is here very advanced, not only as a composer, but as an artistic personality: "Beethoven's late quartets are something very special. They are the fruit of the development which Beethoven underwent, in the last ten years of his life and creative activity. During those last years, Beethoven went through a development—I can only treat it as a spiritual development—which from that time on, placed him above all other artists. Up until that time, there were many artists of his rank, Mozart and Bach, of course, Handel, Shakespeare, Dante, Goethe, and Schiller. . . . I believe, from that point on, he is alone, all, all alone. And it was in this spiritual condition, that he created the last quartets, the *Missa Solemnis,* the Ninth Symphony, and some of the piano sonatas, such as Op. 109 and 111. In these works, Beethoven is unequalled as an artist, as a mind."[3]

What should be considered as late works, are particularly the works beginning with Op. 102, the Sonatas for Violoncello and Piano, that is, works that were composed sometime after 1815 according to a "new manner." To this group of works, belong the great piano sonatas Op. 106, 109, 110, and 111. Among them should also be counted the great choral works, the *Missa Solemnis* Op. 123, as well as the Ninth Symphony Op. 125, and the late quartets, Op. 127, 132, 130, 133, 131, and 135.

In his late works, Beethoven struggled increasingly intensively with the *Freiheit/Freude* (freedom/joy) paradox, as an impulse to new musical works. In the Ninth Symphony, Beethoven elaborated his more than twenty-year involvement with Schiller's work, "the great song of joy," which was to become the kernel of a new "double fugal" mode of composition in the fourth movement. Here, the concept "*tantôt libre, tantôt recherchée,*" "as free, as it is strict," which Beethoven wrote on the piece originally composed as the last movement of the Op. 130 string quartet, the "Große Fuge," is a key to understanding how Beethoven, in a creative way, so magnificently further developed the discoveries made by Bach, Haydn, and Mozart.

As one can perceive from Beethoven's sketches and other evidence of his work methods, in each new great work, the artist engaged himself intensively, in the detailed solutions of his esteemed musical predecessors, especially Bach and Mozart;

FIGURE 7.1
From Beethoven's sketchbooks: two passages from the B♭ minor fugue in Part I of J.S. Bach's *Well-Tempered Clavier*

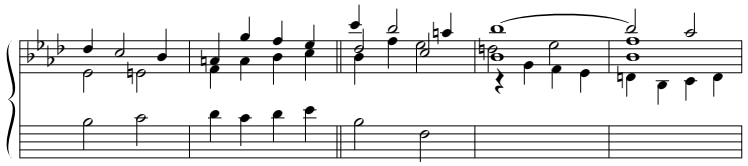
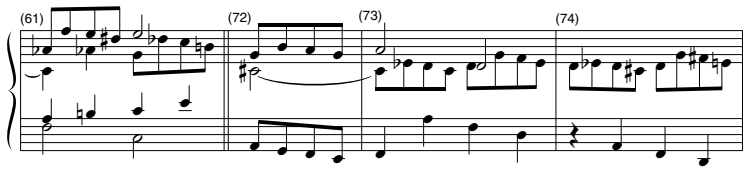


FIGURE 7.2
From Beethoven's sketchbooks: two passages from Fugue IV of J.S. Bach's *The Art of the Fugue*



at times, he copied out in his own hand, decisive passages of surprising progressions. Thus, in the Poldrini sketchbook (dating around 1824/25, with 128 pages), next to notes on the first movement of the Ninth Symphony and on the "Hammerklavier" Sonata Op. 106 in B♭ major, containing a great fugue, there are two passages copied from the fugue in B♭ minor from Book I of J.S. Bach's *Well-Tempered Clavier* **(Figure 7.1)**, two passages copied out of Bach's *The Art of the Fugue* (Fugue IV, which shows the elaboration of the theme in reverse) **(Figure 7.2)**, as well as a passage copied from a treatise on the fugue by F.W. Marpurg. There are also sketches for the unfinished string quintet fugue Op. 137 (D major).

Here, the modal possibilities, for example in the C major/C minor relationship, and somewhat special singularity passages for creating new "development paths," always provided Beethoven the incentive for new experiments. A typical example is Beethoven's intensive involvement with and search for new "combinations," during his work on the Fifth Symphony in C minor, when he copied a passage from Mozart's great G minor Symphony K. 550, from the last "*Allegro assai*" movement, measures 146-174; here, in his motivic thorough-composition of the theme through bold progressions, Mozart also plumbs precisely the use of the particular possibilities of Lydian intervals **(Figure 7.3)**.

In Beethoven's late works, motivic thorough-composition is constantly worked through rigorously to the "form stretching," boundary-crossing "extreme."[4]

Thereby, the musical process itself becomes a complete expression; it is not merely an "elaboration" of the "particle themes," but is rather actually transformation and creation of higher orders of the musical metaphor, a very special challenge to performers.[5]

How else could one explain the magnificent effect of the "Credo" fugue in Beethoven's *Missa Solemnis,* in which he seems on the one hand to work rigorously with the techniques which Bach created in his fugal works—the reversal, backward reading of the theme, the shortening of the note values—and yet so reshaped, that something new and profound about the nature of man is created, which is really "moving," in Schiller's sense?

Here, a tremendous struggle with the musical substance, that is, the generative interval structures, is involved. *[text continues on page 80]*

FIGURE 7.3

From Beethoven's Fifth Symphony sketches: part of the final movement of Mozart's Symphony No. 40 in G minor, K. 550

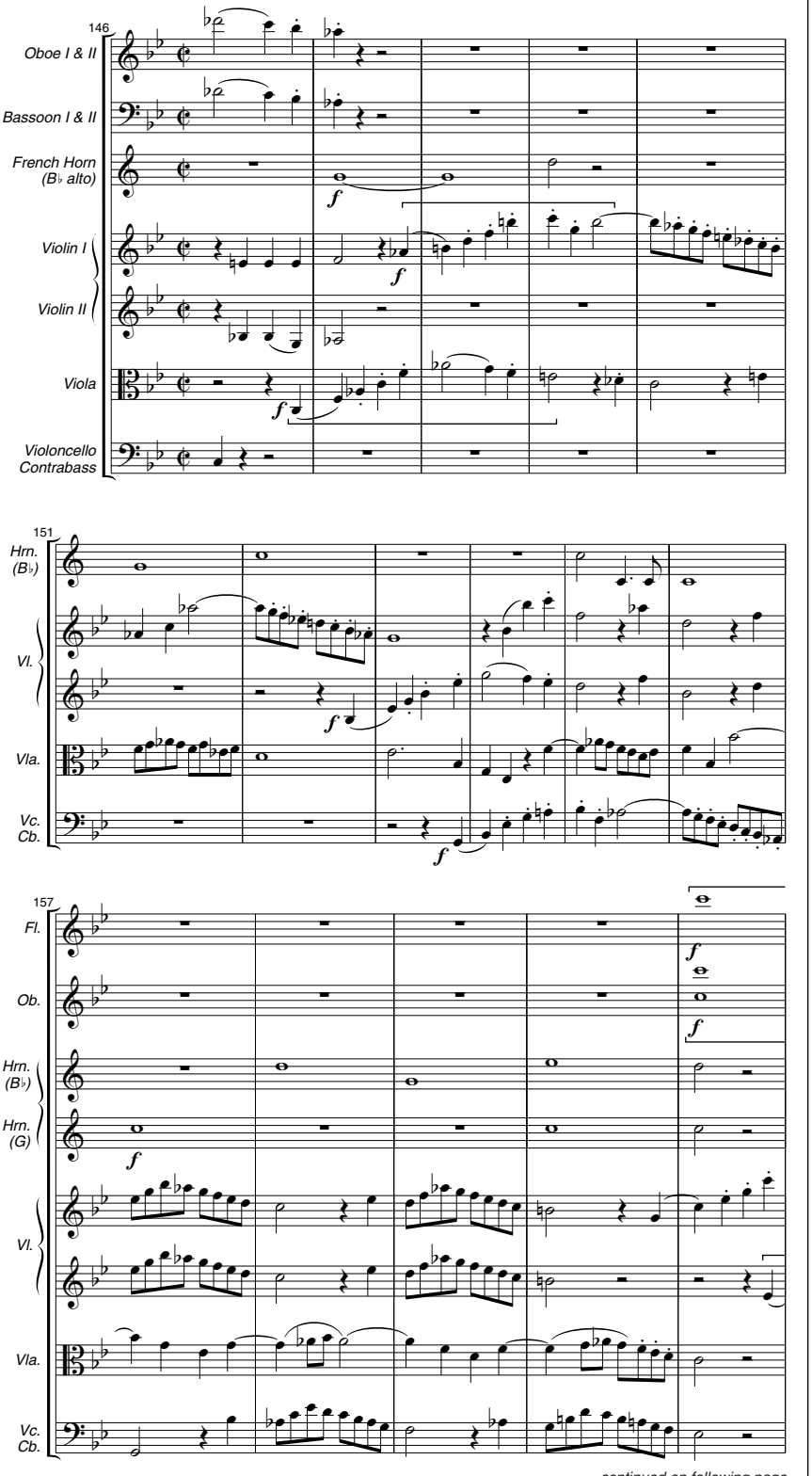


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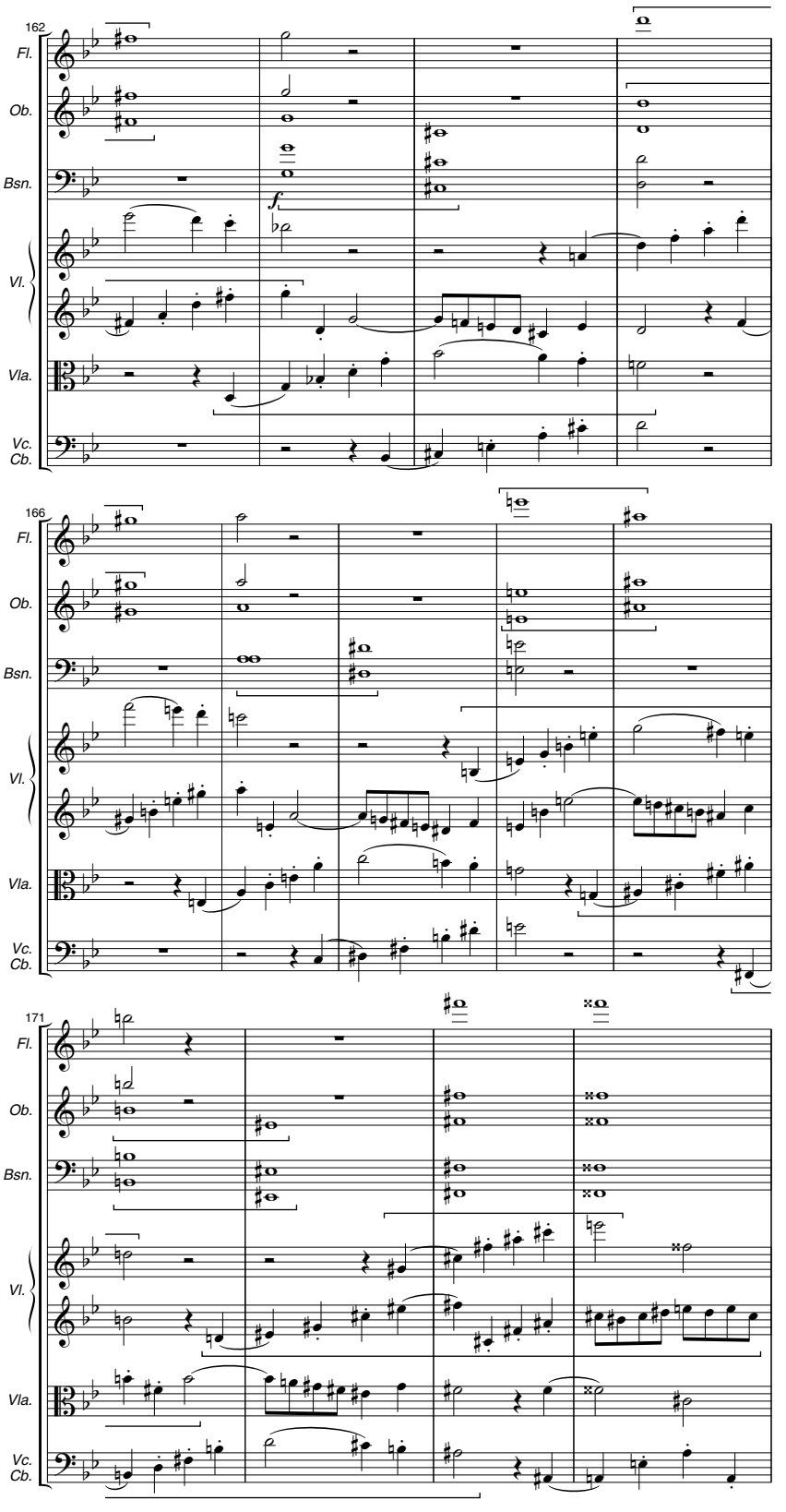
FIGURE 7.3 *(continued)*



Sketches, for instance on the reworking of the "joy" theme of the Ninth Symphony (**Figures 7.4**) or the double-fugal subject of the "et vitam venturi" fugue, document this (**Figures 7.5** and **7.6**). Here the double-fugal principle at the center of the composition, is increasingly developed into the actual heart of the transformation. Thus, for example, in the final movement of the Ninth Symphony, from measure 655-729, where Beethoven develops "Freude, schöner Götterfunken" and "Seid umschlungen, Millionen" in double-fugal fashion (**Figure 7.7**). Most extraordinary, the polyphonically interlinked musical manifolds are rigorously worked through in the "Große Fuge." *[text continues on page 84]*

FIGURE 7.4

Beethoven's working sketches of the generative theme of his Symphony No. 9

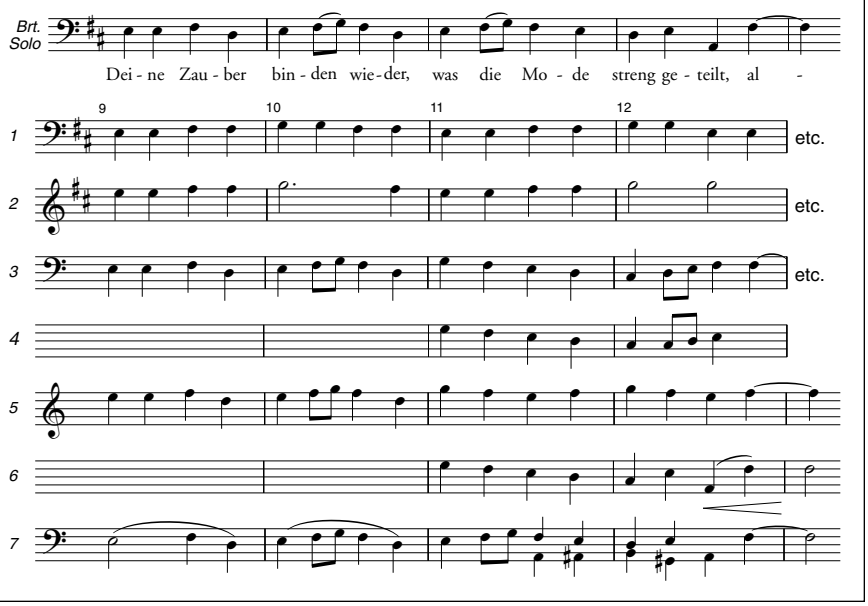
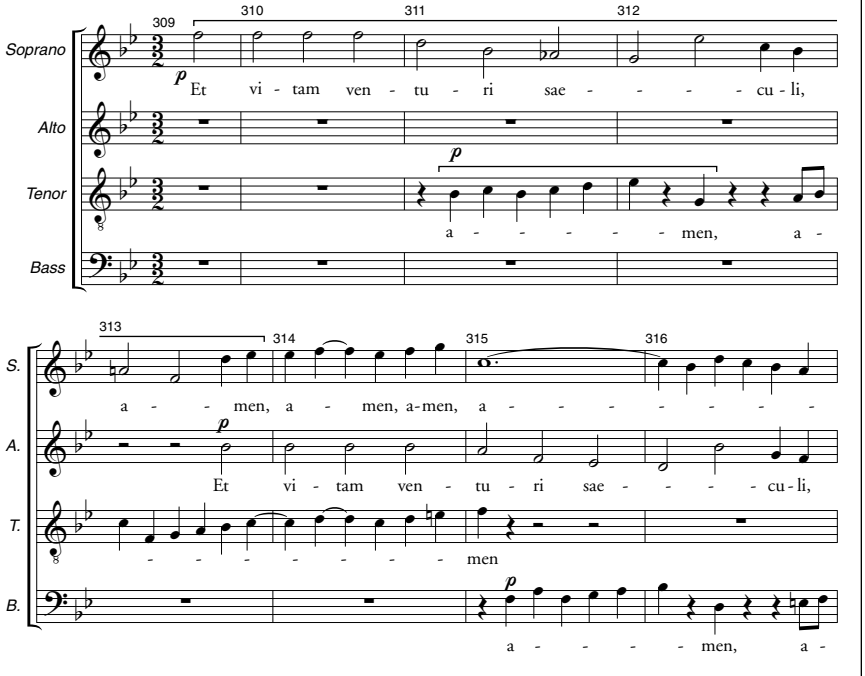


FIGURE 7.6

'Et vitam venturi' double fugue from 'Credo' of Beethoven's *Missa Solemnis*



The subject (sung by the sopranos) is counterposed to the countersubject (sung by the tenors).

FIGURE 7.5

Beethoven's 'experimental' sketches for the 'et vitam venturi' section of the 'Credo' in his *Missa Solemnis*

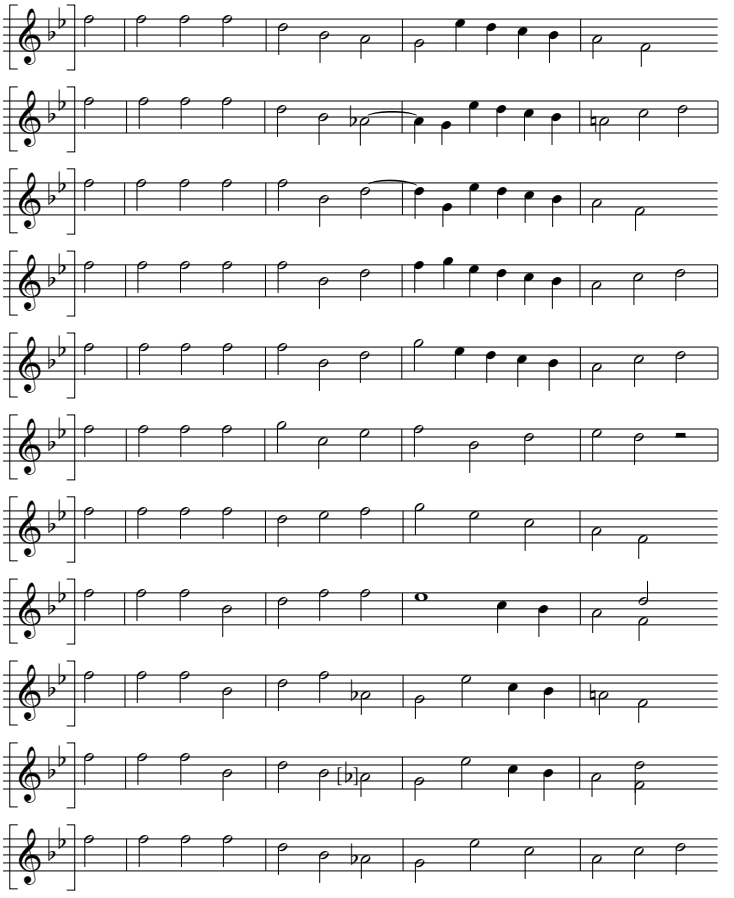


FIGURE 7.7

Double fugue in final choral movement of Beethoven's Symphony No. 9

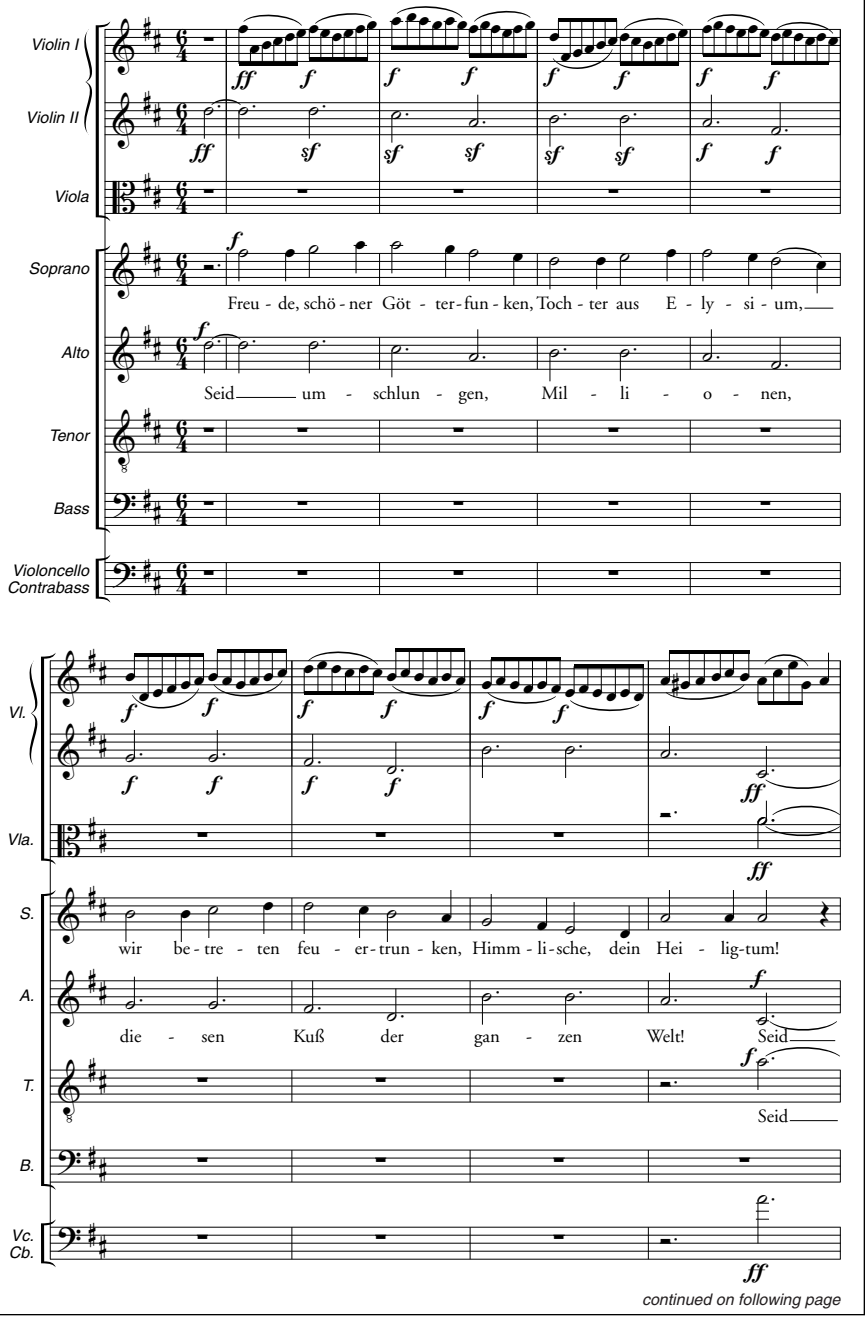


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FIGURE 7.7 *(continued)*

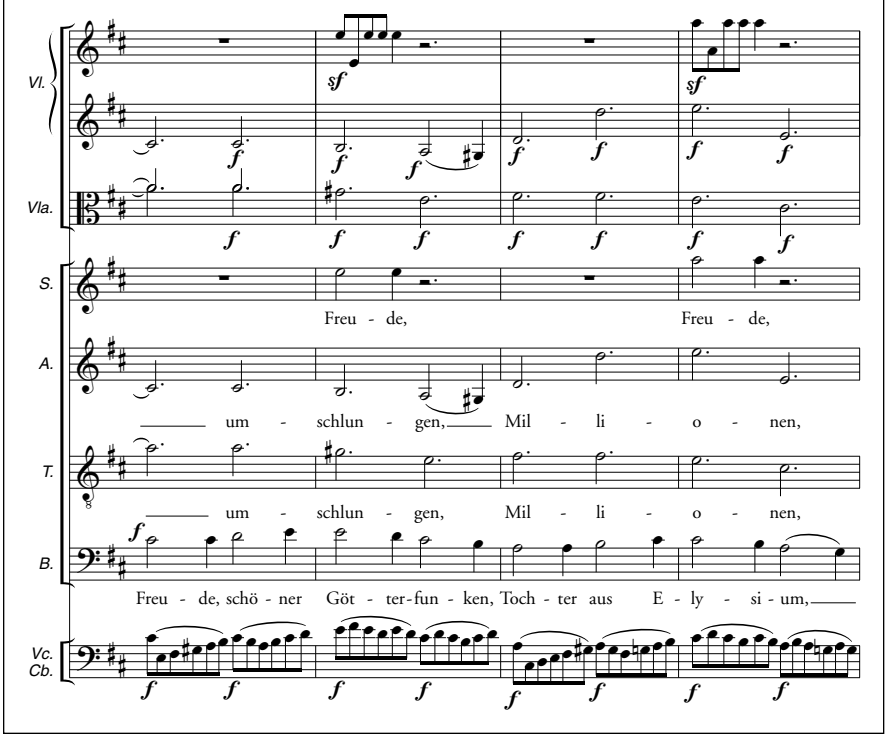
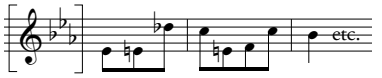


FIGURE 7.8
Beethoven sketch for Op. 133 'Große Fuge'

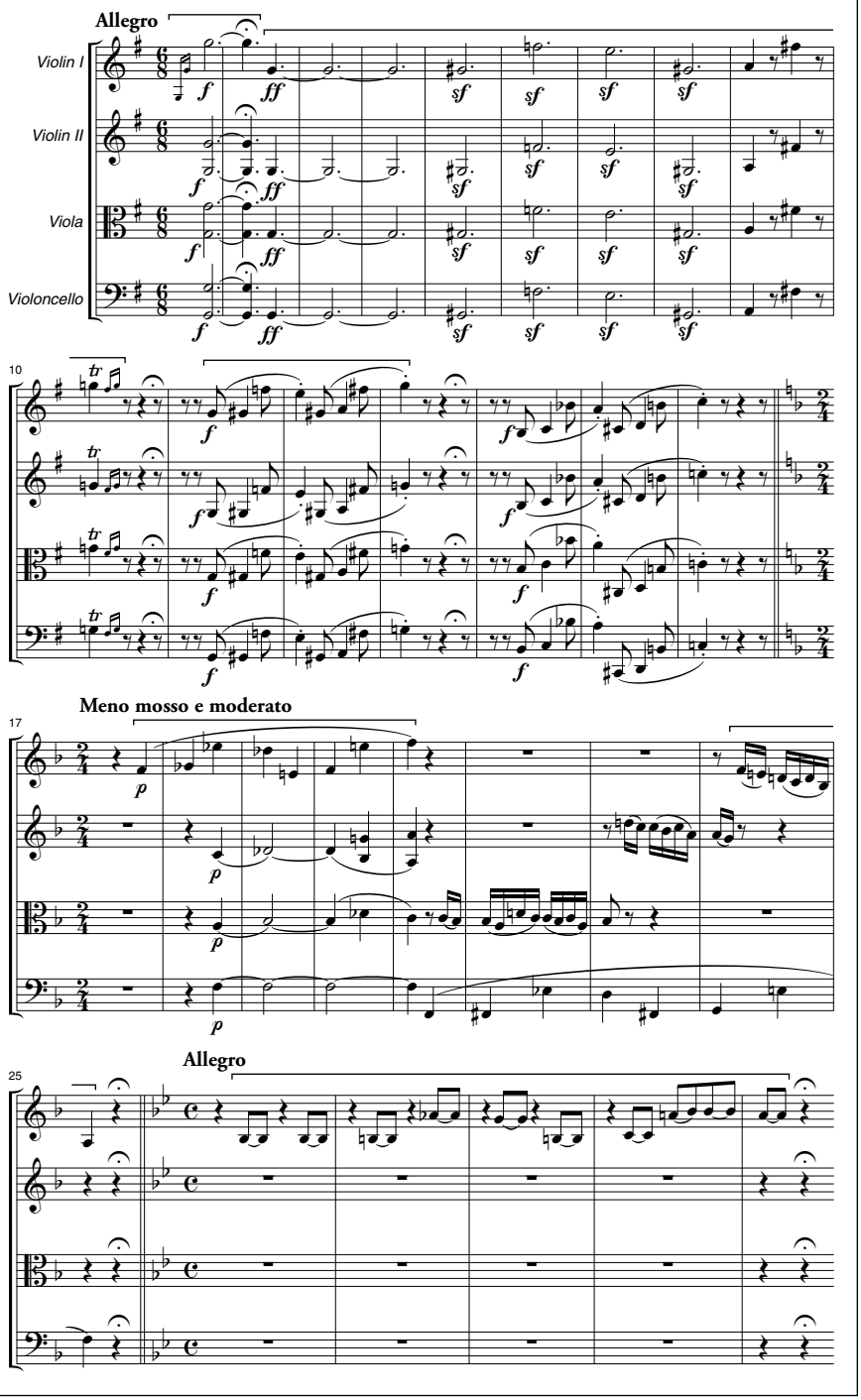


Two examples from the late quartets Op. 132 and 130 may be able to open access to Beethoven's thinking, to Beethoven's motivic thorough-composition. These belong to the three quartets which Beethoven dedicated to the St. Petersburg Prince Galitzin: Op. 127, Op. 132, and Op. 130, completed in this order. The Op. 127 E♭ major quartet was composed mainly in the period between 1822 and 1825, and belongs therefore to the composition phase of the *Missa Solemnis* (between 1819 and 1823) as well as the Ninth Symphony (begun 1822-1824); the Op. 132 A minor quartet was completed between 1824 and 1825, and performed in September 1825; and Op. 130, with the concluding "Große Fuge" movement, composed between May and December of the same year. Beethoven later published the powerful concluding fugue separately as Op. 133, and composed a new finale to Op. 130 (sometime in October-November 1826, one year before his death). This extremely intense creative process, often involving several works simultaneously, poses a challenge to people today, to comprehend the spiritual struggle with the "musical thought-object" in its diversity and method.[6]

The late quartets, above all Op. 127, 130, 132, and 133, but also in another form, Op. 131 and 135, show in increasingly strong measure that an overlapping musical idea-substance binds them together; not in the reduced sense of "the same four-note chromatic motif involving a sixth," but rather as a discussion process, a fly-wheel of new musical thinking in expanding the heretofore explored well-tempered "space" of the 24-key domain. Such are the sketchbook entries, which were apparently noted down three-fourths of a year apart, for example, in a Berlin sketchbook (aut11/2), in the sketches for Op. 127, for a planned overture on the theme B-A-C-H (B♭-A-C-B♮), as well as sketches for Op. 132 and 133. Here Beethoven transposed a fugal theme not used in Op. 127 into B♭ major, and conducted some work with it and a countersubject (**Figures 7.8** and **7.9**).

Beethoven's mode of composition

FIGURE 7.9
Opening of Beethoven's Op. 133 'Große Fuge'



which breaks through form, is already recognizable alone in the expansion of the general four-movement form of the quartet, handed down by Haydn and Mozart. Thus, Op. 127 does have four movements; however, Beethoven introduces the first movement with a "*Maestoso*" (slow), a path which he also treads as introduction to Op. 130, Op. 132, and then as an independent movement in Op. 131. The movement structure itself must bend to the succession of ideas. Thus, Beethoven writes six movements in Op. 130: first movement: "*Adagio, ma non troppo—Allegro"* in B♭ major; second movement: "*Presto—L'istesso tempo*" in B♭ minor; third movement: "*Andante con moto, ma non troppo*" in D♭ major; fourth movement: "*Alla danza tedesca. Allegro molto espressivo*" in G major; fifth movement: "*Cavatina. Adagio molto espressivo*" in E♭ major; sixth movement: "*Finale*" in B♭ major, which Beethoven added later. Originally, Beethoven conceived for the Finale what was later published separately as the "Große Fuge" Op. 133, appearing in the original manuscript under the title "Overture." Beethoven developed this double-fugal movement, internally with multiple movements, "*Ouvertura. Allegro—Meno mosso e moderato—Allegro; Fuga. (Allegro)—Meno mosso e moderato—Allegro molto e con brio,*" into a major work of over 740 measures, which remains unparalleled in Classical music creations.

There are conversations with Beethoven from around the time of the composition of Op. 132 and 130, on musical generative interval-groups. For example, there is an entry by Karl Holz, a violinist friend of Beethoven's, in a conversation book from 1825, in which Holz talks about the "Kyrie-fugue theme" from Mozart's *Requiem* **(Figure 7.10)**. Holz says he thinks Haydn also worked on this as a fugal theme in his quartet Op. 20, No. 5 in F minor, and he cites this passage, which is very closely related to the C minor theme from J.S. Bach's *A Musical Offering*. **Figure 7.11** shows the Holz entry, showing some errors in his memory of Haydn's quartet.

Beethoven took great care in these late quartets to emphasize the *cantabile* (songlike) presentation, and thus names the second movement in quartet Op. 127 "*Adagio, ma non troppo e molto cantabile*"; in Op. 130, he characterizes the fifth movement as "*Cavatina. Adagio molto espressivo,*" and adds for each instrument "*sotto voce*"; and in the most moving part, Beethoven writes "*beklemmt*" (tormented, constricted). Professor Brainin, when asked about the presentation of this difficult piece, makes clear why "knowledge" is not to be won from the musical text alone, but that one has to be in a position to be able to "read between the notes" in order to really grasp the composer's expression and then transmit it adequately:

"I have a special way of doing this [passage in Op. 130 where Beethoven has written "*beklemmt*"] . . . . Oppressed, really oppressed . . . constricted, that is, struggling for breath. . . . I play it like a *ponticello,* that is, high up on the bridge. There is a little whistle in there, too. A couple of people mocked the way I play it. There are always some, who are annoyed by one thing or another that I do, and don't like it. It is either too hard for them, too soft, too sweet, or I don't know what. But they have not the slightest idea what they are talking about, because they do not understand anything about Beethoven. I play it as it really is; I do not improve anything and I do not worsen anything. If it is hard, then I play it hard, if it is not so hard, then I do not play it so hard. That is in fact what is magnificent about Beethoven, that he has this incredible tenderness in himself and this incredible severity. This, I would almost say, Old Testament severity. It is like, when Moses is on Mount Sinai and receives the tablets with the commandments from God. That is what it is like!"[7]

FIGURE 7.10
'Kyrie' double fugue opening from Mozart's *Requiem*

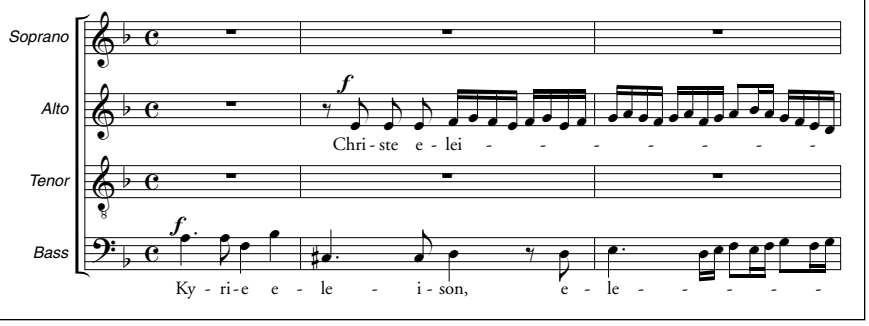
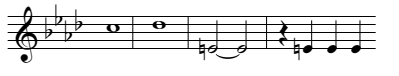


FIGURE 7.11
Holz's entry in Beethoven's conversation book, showing Haydn fugue theme



Beethoven's Opus 132 String Quartet

Beethoven's String Quartet No. 15, Op. 132 in A minor, illustrates the essence of the higher development of musical composition represented in his late works. In these compositions Beethoven expands, in an entirely new way, man's conception of the well-tempered system of polyphony, and in so doing extends what LaRouche has identified as the *m*-fold manifold, to an *m*+1-fold manifold.

Beethoven's advance was to reconceptualize the relationships of the well-tempered system into a new higher modality (the equivalent of what Georg Cantor would define as a new transfinite ordering), by locating the crucial singularities of the well-tempered system, particularly the Lydian interval, and the principle of inversion, in a new domain. To communicate this new idea, Beethoven took the ironical step of setting this quartet in the key of A minor, while setting the third movement in the Lydian mode. But, as a simple comparison of the first and third movement will show, Op. 132 as a whole, or these two movements individually, is not written in either A minor, or the Lydian mode, but in the new higher modality, which Beethoven had discovered.

While a more detailed examination of this quartet can be found in other locations,[8] for pedagogical purposes here, we apply the principle, at work in all musical compositions, of the simultaneity of the whole, and, juxtapose the first and third movements as a "One"; first in broad overview, then in more detail.

The first movement is set in the key of A minor (no sharps or flats), the second in the Lydian mode, also devoid of sharps and flats. (The Lydian mode is an F major

scale with a B♮ instead of B♭.) By the ironical combination of these two similar, yet different, modalities, Beethoven provokes the mind of the listener to re-discover for himself this new, higher modality.

To grasp the conception of the new higher modality of Beethoven's late quartets, it is necessary to think of the entire well-tempered system, and the characteristics of the *bel canto* human singing voice, as a One. From this standpoint, think now of the various keys and modes as sub-divisions whose characteristics are merely reflections of the ordering of the entire system.

As an example, look at the modes of the first and third movements of Op. 132 **(Figure 7.12)**. The key of A minor is distinguished by the half-step intervals characteristic of the minor mode—between the second and third (B-C) and the fifth and sixth (E-F). In the Lydian mode, these two half-steps are displaced to occur between the fourth and fifth intervals (B-C) and the seventh and eighth (E-F). This difference shifts, and inverts, the Lydian interval from second to sixth (B-F) in A minor, to the tonic to the fourth (F-B) in the Lydian mode.

As previously discussed, this Lydian interval is a crucial singularity in the domain of well-tempered polyphony, evidencing the boundary between the neighboring keys that sub-divide the well-tempered system as a whole. This interval is embedded in minor keys, between the second and sixth, and, in major keys between the fourth and seventh, but, it is "transcendental" with respect to the tonic in any given key. That is, the Lydian interval, formed by the tonic of any given key, is outside that key, but lies on the boundary between that key and the neighboring one. Again, to grasp this point, the reader must abandon the formal assumptions of generally accepted musical theory, and recognize that the well-tempered system of *bel canto* polyphony is not built up from the keys, but, instead the various keys, modes, and their inversions, are determined by the universal characteristics of the system as a One.

The Lydian mode is therefore distinguished by the positioning of the Lydian interval on the tonic itself, giving this mode an unstable quality with respect to the 48 well-tempered keys.

Yet, in Op. 132, it is the third movement, written in the Lydian mode, which "appears" stable, while the first movement in A minor seems highly turbulent. Beethoven demands the listener forsake all previous assumptions about what is possible in musical composition, exciting in the listener's mind those very qualities of creative discovery which most listeners may not even know they had.

Both movements begin with the string quartet playing a chorale, as if they were a quartet of human voices, calling to mind the primacy of the human singing voice as the basis of well-tempered polyphony. Both choral openings are formed as a Classical canon with staggered voice entrances that imitate, invert, and project the intervals of the previous voices. Each opening choral canon is based on the characteristic singularities of the other, and each opening states these singularities in a highly ambiguous way. Upon hearing the first notes, a quizzical thought is coaxed in the listener's mind, that something very new is about to be stated.

The opening eight measures of the first movement **(Figure 7.13)** are composed almost entirely of ascending and descending half-steps, played canonically, as inversions and projections of each other. The listener hears each half-step note pair *and* the intervals between the intervals, of the half-step note pairs. For example, the 'cello's opening G♯-A, f-e. The listener hears these intervals in sequence, while also hearing the intervals of the minor sixth, A-f and G♯-e, diminished seventh

FIGURE 7.12
Modes of the first and third movements of Quartet Op. 132

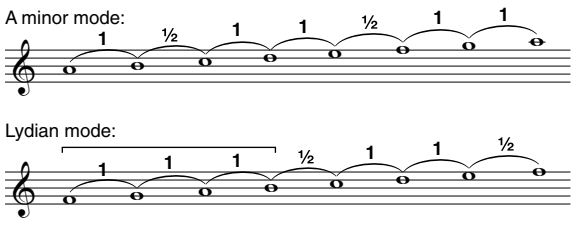


FIGURE 7.13
Opening of Quartet Op. 132 in A minor

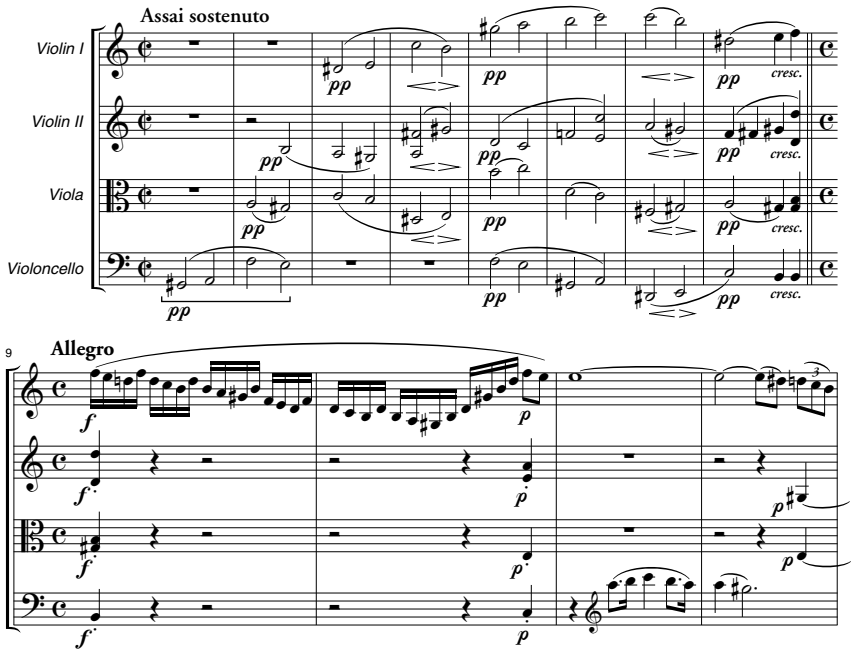


FIGURE 7.14

Opening of third, 'Lydian' movement of Quartet Op. 132

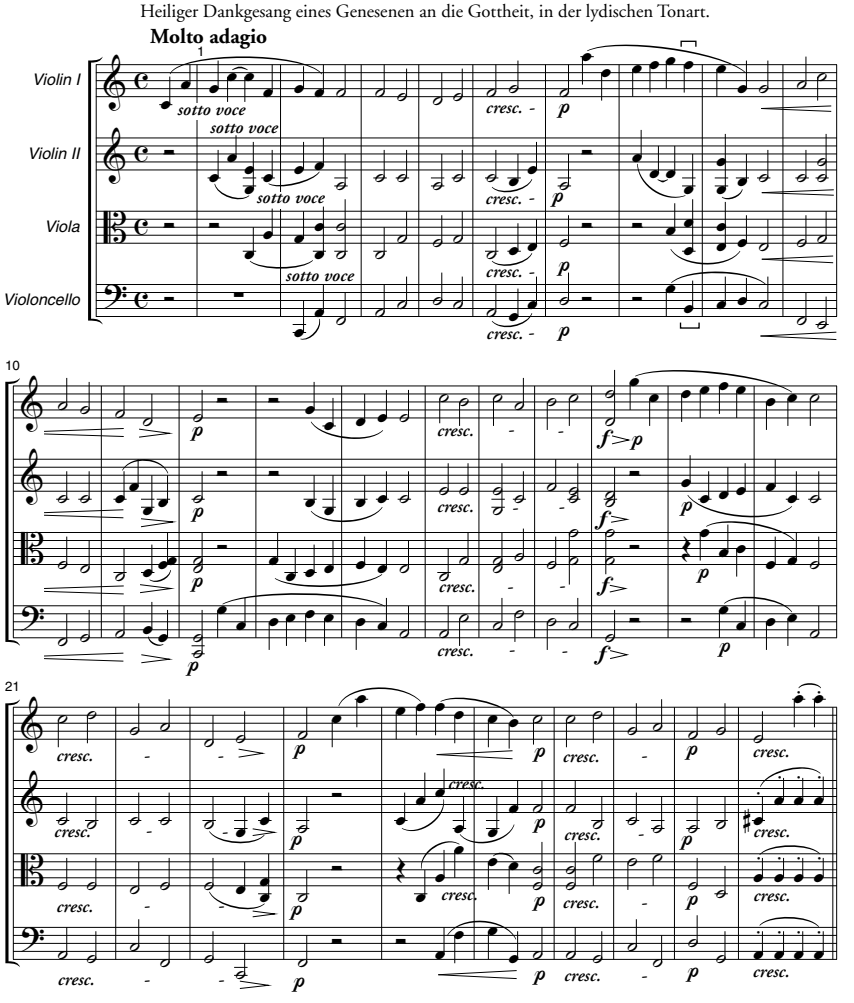


FIGURE 7.15

'Transfinite' motivic idea in first movement of Op. 132

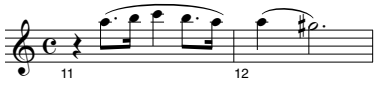
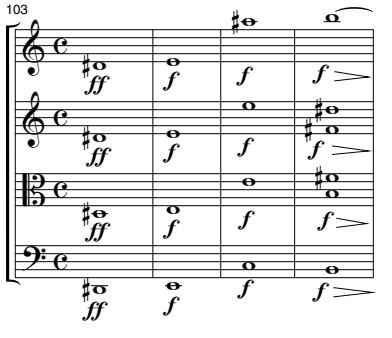


FIGURE 7.16

Development of opening theme of Op. 132



(major sixth) G♯-f, and fifth A-e. With the entrance of the viola's descending a-g♯ in the second measure, these fifth and sixth intervals are heard in sequence, and at once, teasing us into the frame of mind from which we can see this newly discovered conception.

As the opening eight measures unfold, by a series of ascending and descending half-steps, separated by the fifth-sixth relationship articulated in the opening two measures, the string choir generates lawfully, by the principle of inversion, virtually the entirety of all possible Lydian intervals. These Lydian intervals are not heard as dissonances, as transitions in the development from one mode to another, but, as, so to speak, development of development.

But this is not just an opening shot: Beethoven maintains this quality of development throughout this composition, and throughout the late quartets as a whole.

Turn again to the opening of the third movement (**Figure 7.14**). Beethoven titled this movement, "A convalescent's holy song of thanks to God, in the Lydian mode." In contrast to the first movement, Beethoven unfolds the choral opening in the Lydian mode, directly, without introducing any sharps or flats. Here the canon proceeds by the characteristic intervals of A minor, even though the movement follows strictly the ordering of a simple Lydian scale. Unlike the first movement, where virtually every Lydian interval is generated, the only Lydian interval generated here is the f″-B on the last beat of measure 7. But, as in the first movement, this Lydian interval is not heard as a dissonance, but as internal to the modality of the composition.

After these choral introductory settings, both movements proceed in an entirely unexpected way. In measure 11 of the first movement (**Figure 7.15**), the 'cello, which stated the original opening half-step, now states, in its high register, a motivic idea (a′-b′-c″-b′-a′-g♯′) that embodies, transfinitely, the conception underlying the opening eight-measure chorale. This motivic idea is then developed, within this new musical domain, with frequent reference to the opening eight measures. See measures 103-106 **(Figure 7.16)** and measures 193 and 202 (**Figure 7.17**).

The third movement proceeds in a different but complementary way. The opening choral canon is followed by a contrasting "*Andante*" labeled "Neue Kraft fühlend" ("Feeling new strength"). The new power is obviously a reference to the

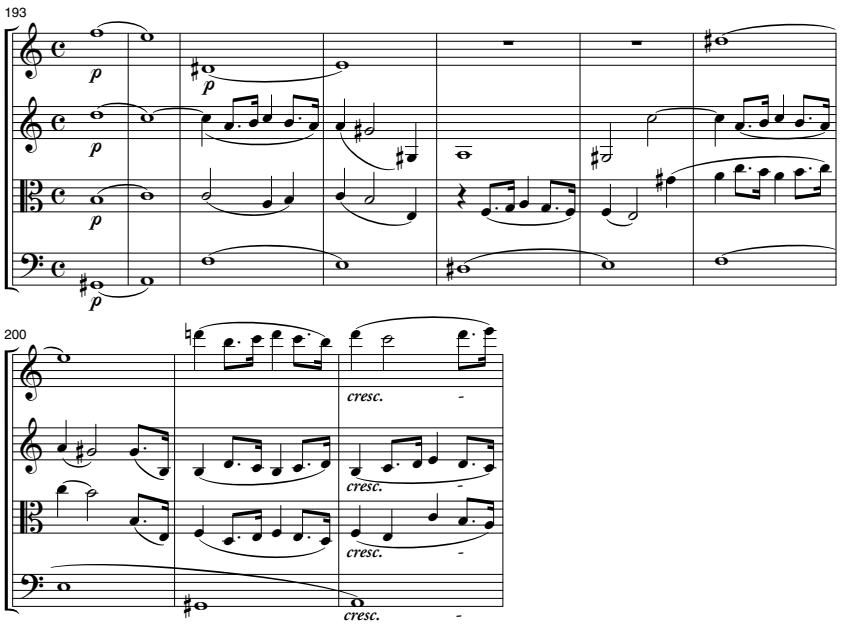
higher powers of the human mind which Beethoven has achieved by his new discovery, powers that transform the universe as a whole. The "*Andante*" is introduced with the change from the Lydian mode to the key of D major, formed by changing F to F♯ and C to C♯.

The opening chorale section returns twice more, each time in a more condensed way; and, the third time, it is labelled, "Mit innigster Empfindung" ("With utmost fervent sentiment") **(Figure 7.18)**.

Each time, the listener is brought to new powers of cognition, as the potential of a new, higher modality is unfolded. The summit is articulated in the most beautiful manner in measures 191-192 **(Figure 7.19)**.

The contrasts between the opening of the two movements demonstrates, that the new, higher modality of these late quartets, is not representable by some formal structure, akin to a mathematical formula, but, as in all true human knowledge, lies outside the confines of such formalism, and is expressible only metaphorically, i.e., through beauty.

FIGURE 7.17
Development of both themes of first movement of Op. 132



Beethoven's Opus 130 String Quartet

In one of the first mentions of this quartet, Beethoven notes in May 1825, "letztes Quartett mit einer ernsthaften und schwergängigen Einleitung" ("last quartet with a serious and difficult introduction").

It is noteworthy here, that the first sketches indicate a C major setting, and only later did Beethoven transpose the thematic material one whole-step lower to B♭ major.[9] The first seven measures of the introduction, the opening steps, will provide multiple opportunities for development. Thus Beethoven, having established the register with the choice of the key B♭ major, introduces as a singularity the characteristic of the mezzosoprano voice, the register shift on e♭″-e♮″. On the first beat of measure 6 **(Figure 7.20)**, the new register of the voice carried by the first violin, is underlined in its meaning also through dynamics, as the move to e♮″ is played with a *crescendo* moving to *forte.*

At the beginning of his "serious and difficult" introduction, Beethoven has the step-wise descending line played in unison, from B♭ down to G. The 'cello—an octave lower—ends the first measures with a descending fifth G-C, and leads in ascending scale steps up to F, then—now displaced an octave higher—to follow up the next descending fifth f-B♭ with an upwards-striving scale in B♭ major (which

FIGURE 7.18
Third chorale variation in third movement of Op. 132

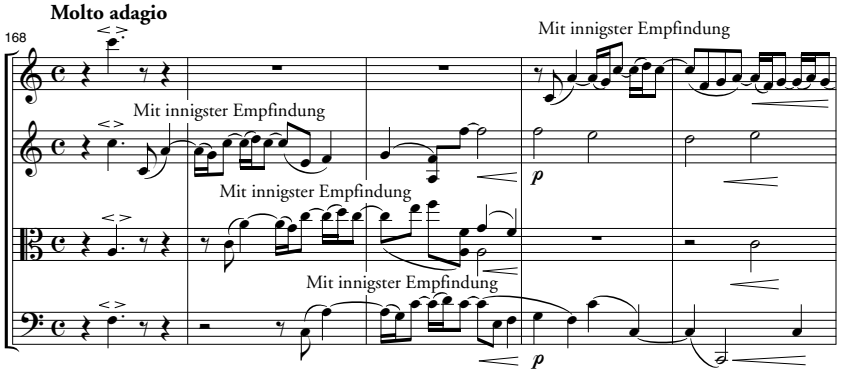


FIGURE 7.21
E♭ minor is inversion of B♭ major

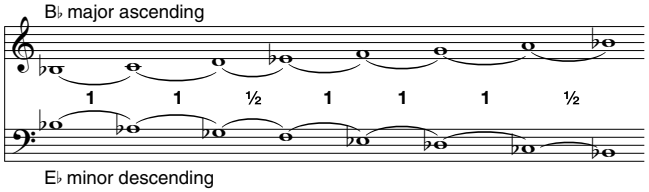
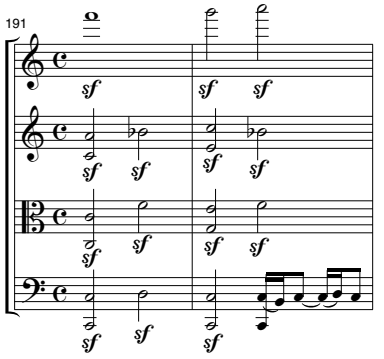


FIGURE 7.19
High-point of Op. 132 third movement

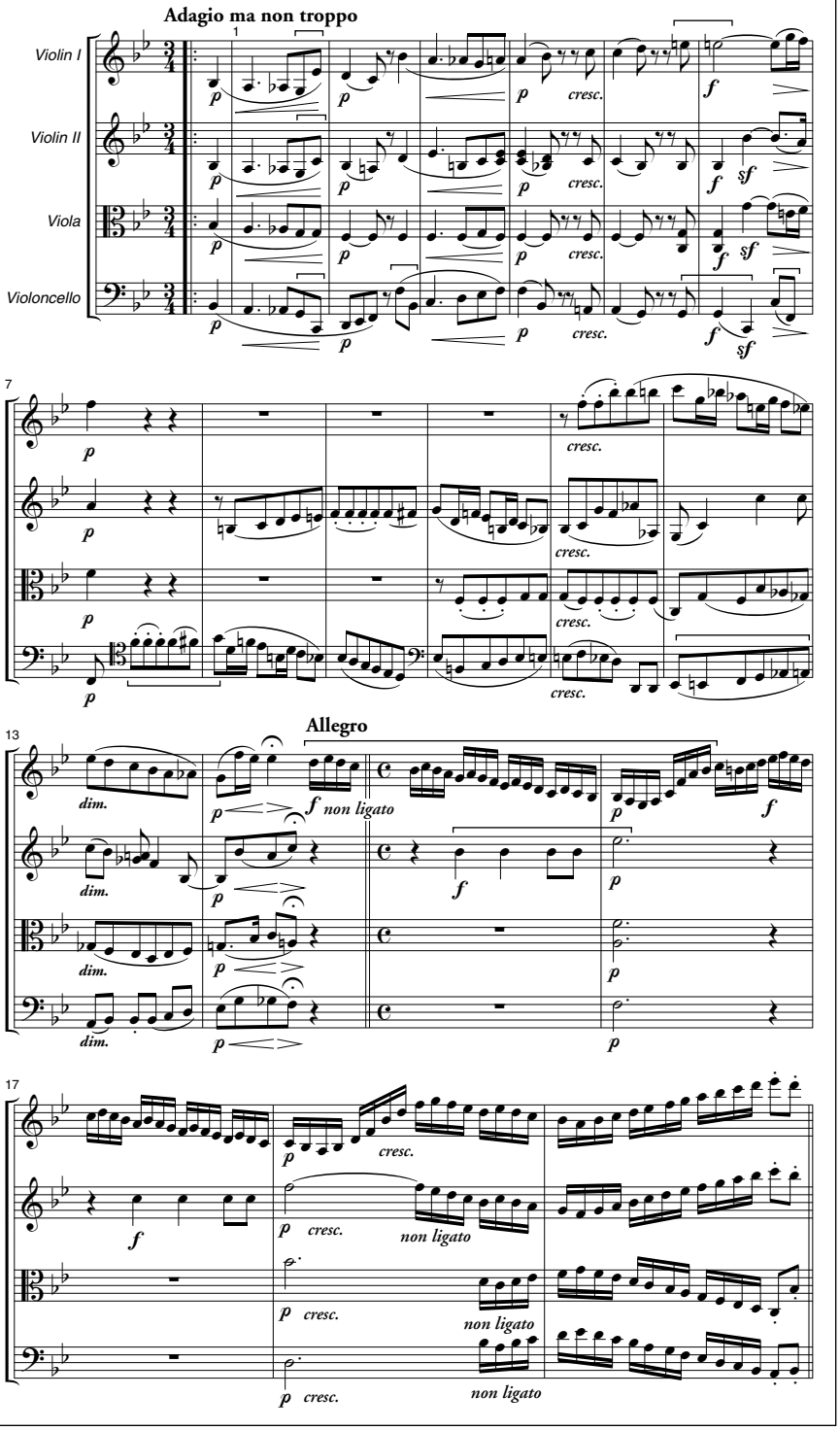


are elements of the later development): this, though, as a countervoice to the first violin, which in measure 1 in the same place sings an ascending g-e♭′ sixth, and the second violin, which sings an ascending g-c′ fourth. In measures 2-4, Beethoven displaces the violin voice one octave, in order to let the registral possibilities of the opening unfold in as differentiated a way as possible, simultaneously, in the few interval steps: the potential of the falling fifth and the relative rising fourth, the alliteration or projection of the rising sixth g-e♭′, and the implied descending third g′-e♭′, simultaneously the shift from e♭″ to e♮″.

Now, what should be recalled, is which peculiarities in B♭ major/B♭ minor, and reversals, Beethoven uses as the occasion for bold expansions of the modality. (For example, the backward inversion of B♭ major/E♭ minor, a combination in which, in the famous "*beklemmt*" "Cavatina" passage, E♭ minor should be heard in connection with the first movement (**Figure 7.21**). One should note the determining role of the Lydian intervals in the major/minor possibilities: B♭ major/B♭ minor-E♮, or G minor/G major-D♭, or D♭ major/C♯ minor-G♮, and so on. Already, in the "serious, difficult" introduction, Beethoven uses the introduction of the A♭, also in regard to B♭ minor, when he later has the 'cello play A♭ in measure 12.

In measure 7, Beethoven leads the 'cello, playing *piano* in the tenor clef, into the next singularity, the shift from f′-f♯′-(g′), and develops the countervoice with the second violin—now singing as a mezzosoprano—which again the 'cello answers, with reversals and expansions of

FIGURE 7.20
Opening of Beethoven String Quartet Op. 130



the first measures. Thus the "*Allegro*" "double-fugal head" (sixteenth notes descending d″-b♭′-g′-e♭′-c′-g), now played *forte,* with the countervoice of the ascending fourth b♭′-e♭″ (measures 14-16), is prepared as the beginning of new development possibilities, such that Beethoven now introduces the sharp "*Adagio/Allegro*" contrast and the "fourth motif" with the "sixteenth-note counterpoint."

In the later development phase, Beethoven works this quartet motif into a shortened, anapest-like motif **(Figure 7.22**, measures 118-122). The sixteenth-note motif is also shortened to three sixteenth notes, an incredible concentration of the musical elaboration process (measures 64-70 in **Figure 7.23**). These measures follow an idea of the sixteenth-note motif transformed through D♭ (measures 53-63 in **Figure 7.23**). Here, the process of coming into being of the change beginning the opening measures 4-6, lends itself wonderfully to study. (Example: The first violin summarizes measures 4-6 in one single measure (49), introduced by a falling sixth, over two octaves, striving toward the violin's g″ in measure 50, with the 'cello counterpoint in measures 7-9 summarized here, and then, in unison, the chromatic ascent from F-d♭, and so forth.) *[text continues on page 92]*

FIGURE 7.22
Anapest-like motif introduced in Op. 130 quartet

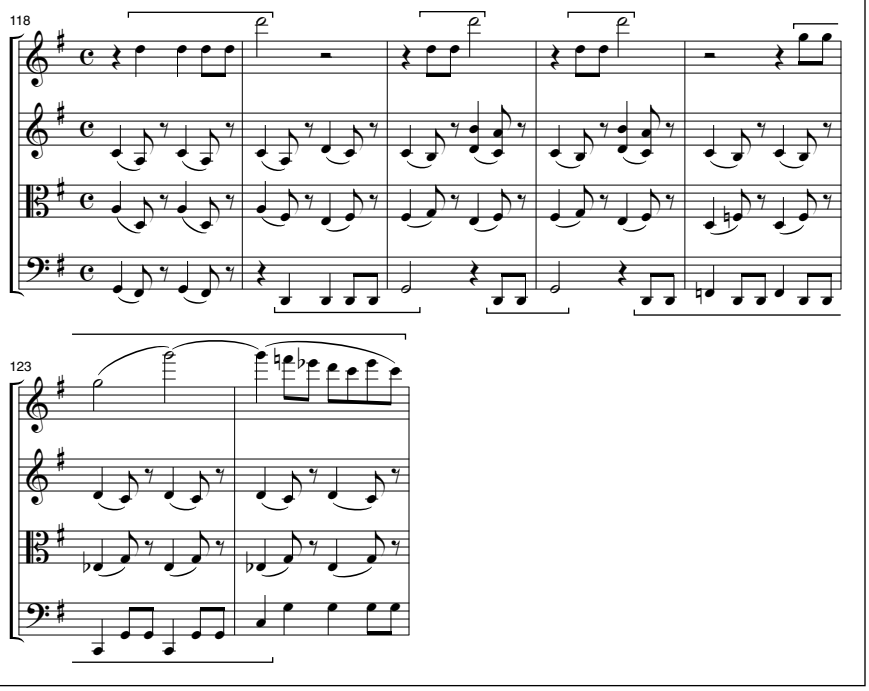
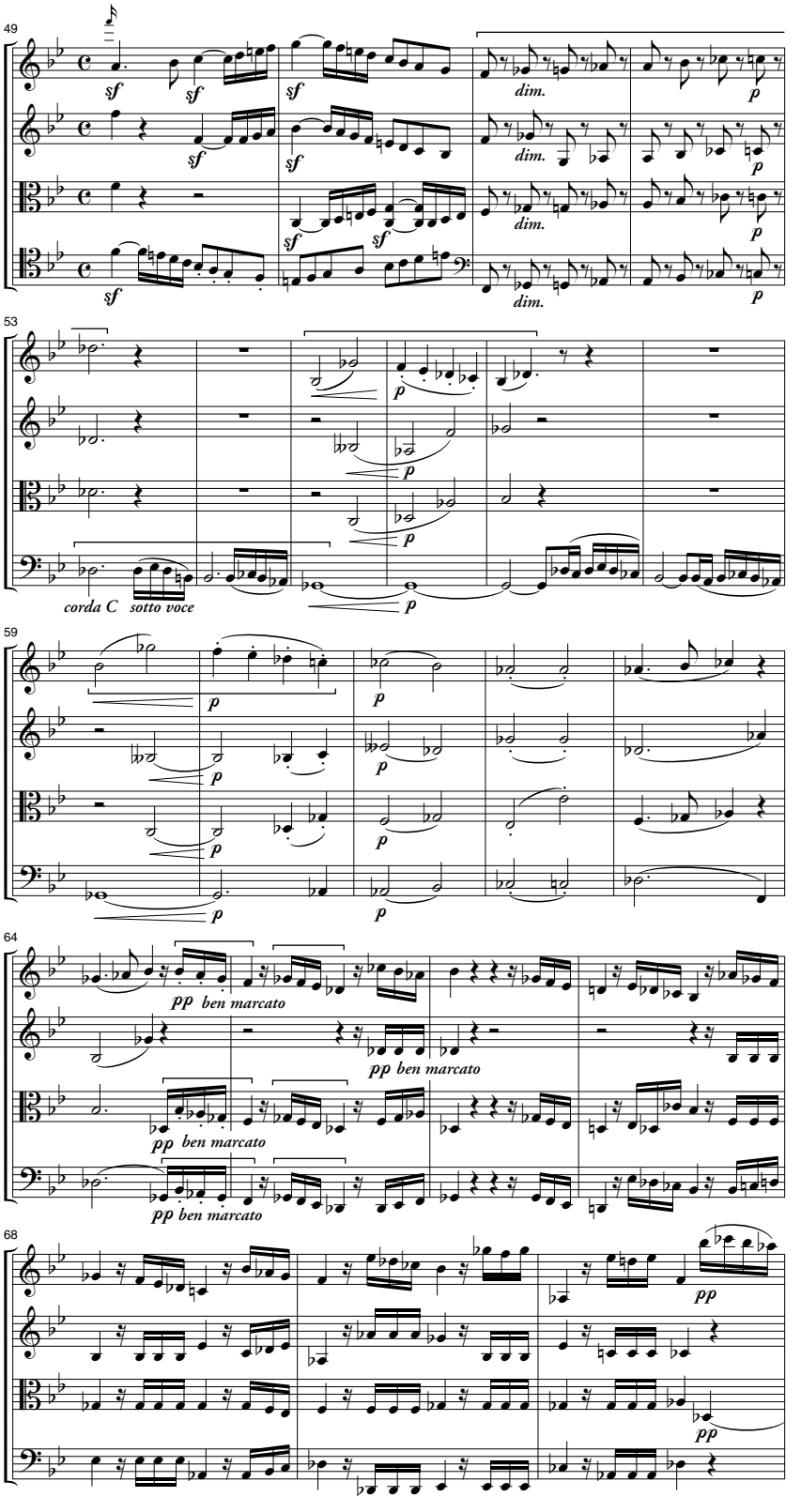


FIGURE 7.23

D♭ section in Op. 130 first movement



To conclude the first movement, Beethoven presents once again the increasingly developed "face" of his idea discovery, so to speak, in retrospect, in a manner similar to that in the Ninth Symphony, such that the musical beauty becomes truly real only now, as thought process and recollection of the growing and developing process (**Figure 7.24**).[10] *[text continues on page 94]*

FIGURE 7.24
Conclusion of first movement of Op. 130 quartet

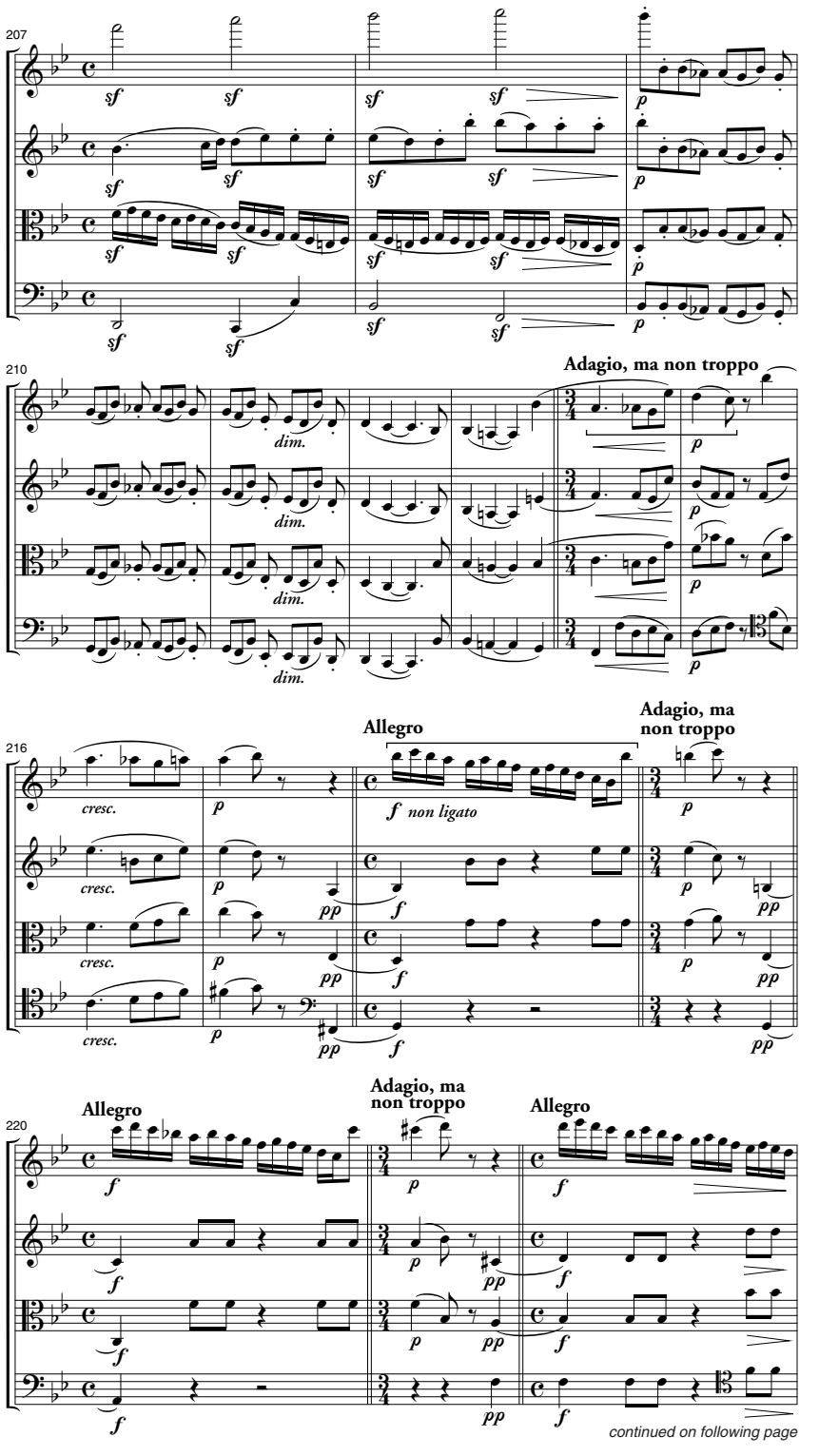
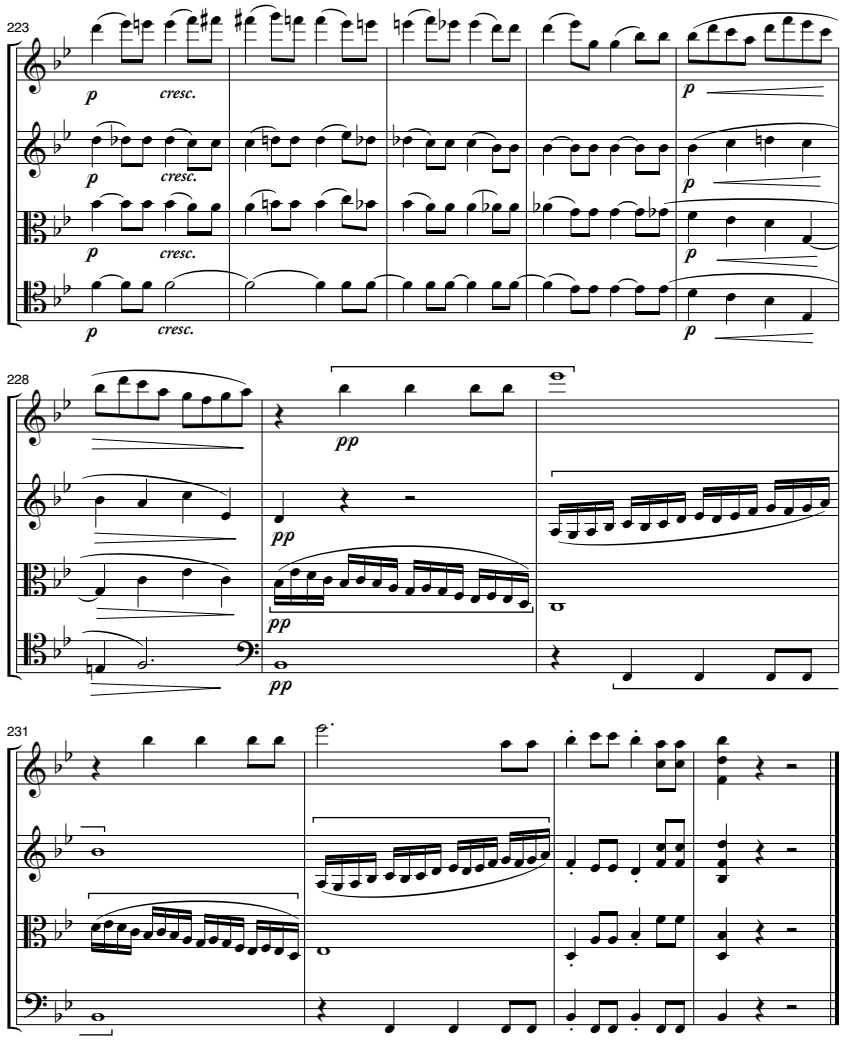
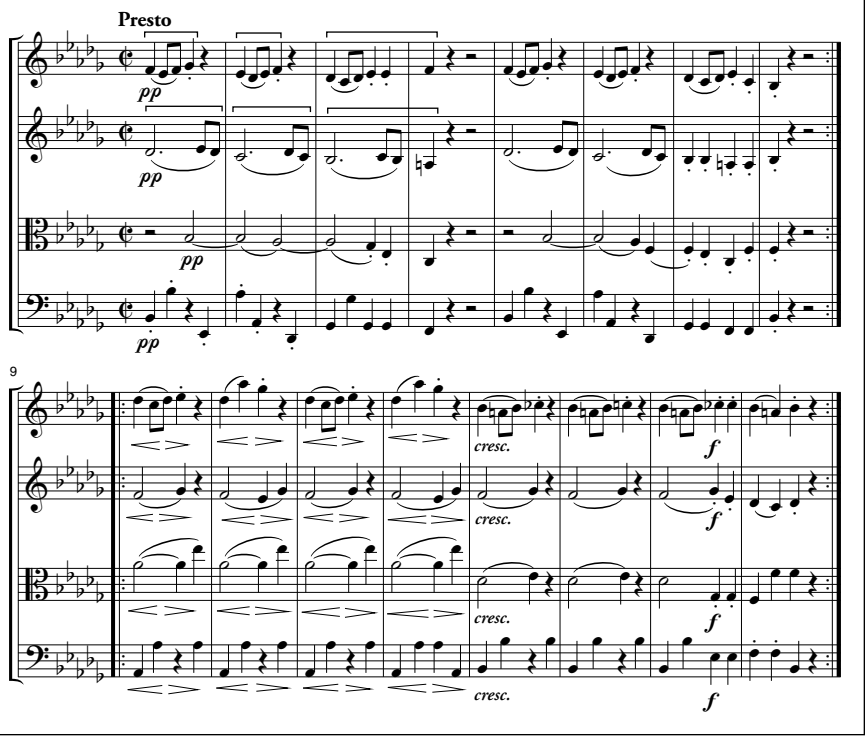


FIGURE 7.24 *(continued)*



In his essays, Wilhelm Furtwängler, in reference to the work of Heinrich Schenker, spoke about the need to "listen from afar" in interpreting Classical works, and especially Beethoven's. This listening from afar, reflects Beethoven's compositional method of motivic thorough-composition, since even with several melodic lines that initially seem very different—when one listens to them over a longer period of time, repeatedly, particularly over long stretches of the development—only then is the "origin," the "historical root" unlocked. Only with this comprehension, are the performer and the listener of today in a position to be able to come somewhere close to grasping the whole. In the context of this chapter, it is impossible to cite every single example, but it is important to challenge the reader to develop this "listening from afar" and "comparative listening" regarding Beethoven's late works. Thus, one must compare the second movement of the Op. 130 **(Figure 7.25)**, despite its "*presto*" (very quick) tempo, with the beginning of the first movement, not only because of the B♭ major/B♭ minor shift, but also to study the downward move of the first and second violins and their motifs, f′-e♭′-d♭′-f′ (violin I) and d♭′-c′-b♭-a (violin II), and to try to understand the variational motive as coming out of the beginning of the first movement. The scale projections in measures 48-63 **(Figure 7.26)**, first from B♭, then C (minor), followed by chromatic descents from c″, then from e♭″, and finally from g♭″, leading back to the original B♭ minor theme, demand special attention to Beethoven's manner of "path-finding" to reach new manifolds. For the "scherzo" character, one must focus on the target note g♭″ (enharmonically f♯″) in reference to the C major/C minor domain, or also, of course, in reference to keys "related" to B♭ minor. Similarly, the relationship of the three quarter-note descending lines in the 'cello and viola (measures 17, 19, etc.) as well as the second violin in its answer (measures 19, 21, etc.) in the "trio" section of the second movement **(Figure 7.27)**, must be heard in connection with the shortened theme of the three sixteenth notes from the development of the first movement (see measures 64ff., "*ben marcato,*" in **Figure 7.23**). The opening of the third movement (especially measures 1-5) **(Figure 7.28)** must be compared with measures 53ff. and especially 59ff. from the first movement **(Figure 7.23)**, as well as the 'cello line in measure 106 **(Figure 7.29)**.

FIGURE 7.25
Opening of second movement of Op. 130 quartet

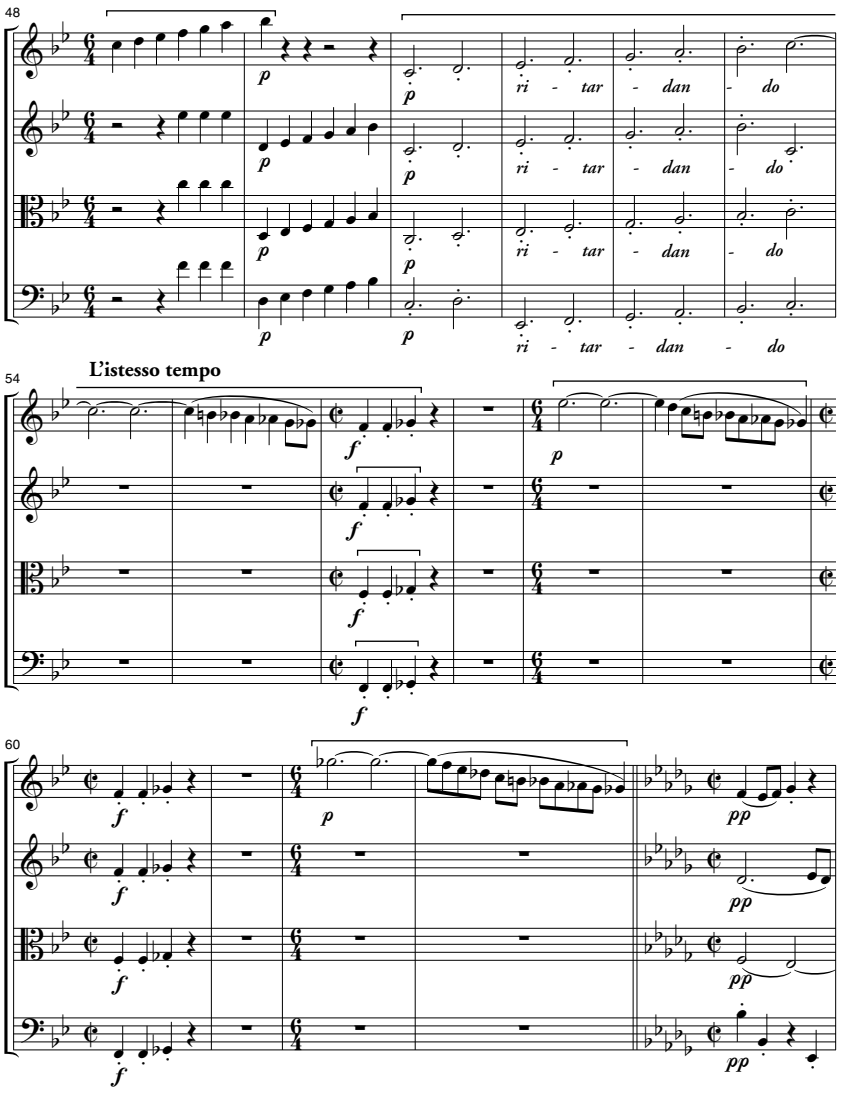


Thus, the "legacy" of the double-fugal "head" of the "Große Fugue," the coming into being of the fugue theme in B♭ (b♭-b♭-b♮-a♭′-g′-b♮-c′-a′-b♭′-a′), as well as the countersubject d′-f″, will be more readily understood **(Figure 7.30)**. Even the opening of the Overture with the sixteenth-note ascent of over two octaves to g‴ **(Figure 7.9**, measure 1, Violin I) must be heard with the "serious and difficult" beginning of the first movement (the first violin) **(Figure 7.20**, measures 1 and 6) (including also the octave transposition in measures 2-4 of the first movement), where the relations to the beginning of Op. 132 and also 131 **(Figure 7.31)** are more obvious).

For Beethoven, the voice-leading of all compositions, whether purely instrumental or with choral voices, is truly "human song" and—as the "Holy song of thanks to God" marking prefixed to the third section of Op. 132 indicates—not merely metaphor. Rather, Beethoven's studies were involved with the working-out of ideas into "developable material"—for example, even in the small form of singable canons, precisely in the late phase of his creative work, and not merely because he wanted to write something ironic to a friend. For example, sketches for the canon, "Schwenke dich ohne Schwänke" (woO 187) (a pun on the name of an acquaintance, C.G. Schwenke with the word "Schwänke," meaning a cheap joke), are found among Beethoven's sketches for the Op. 127 and drafts for an overture on the B-A-C-H theme from about 1824. Typical of Beethoven in his working phase, was the desire he often expressed to interlocutors, to examine compositions of Bach or Mozart. Thus, in his 1824 letter to the poet Nageli, he asked not only for Nageli's own lectures on music, but also for the score of Bach's five-voice mass in B♭ minor. Nageli had also sought out contributors in 1818 in order to have the Bach mass printed, but at the time it did not succeed for lack of support, and the first part appeared only in 1833.

Thus, not only for the performer, but also for the educated, sensitive listener, Beethoven's late works are a challenge, to recognize the often strongly paradoxical ideas as "the derivation of a musical creative principle of a whole." In this context, it is significant that, as emerges from his sketchbooks, precisely in the working group of the late quartets, Beethoven also proposes score sketches, alongside single-

FIGURE 7.26
Scale projections in Op. 130 second movement



voice drafts; this signifies that the progress of all single voices and their cross voices, that is, the unity in multiplicity, became more and more strongly Beethoven's chief compositional consideration.

Norbert Brainin also stresses this in a recent interview on the question of "Beethoven's Art of Four-Voice Composition": "In his late quartets, Beethoven writes a kind of four-voice counterpoint, in which the four voices must be played or sung together, and yet each voice is treated very individually. All voices sing something very important—and in fact everything is equally important. The balance is perfect; the voices need not bother to worry, how loudly they are singing, or how softly, because everything is so perfectly composed. The most important element in this is the motivic thorough-composition, because the motifs which Beethoven uses all come out of the piece itself, and are connected. One finds this above all in the late quartets, but naturally also, in part, in his earlier works. The same applies here and there to Mozart. In Mozart, too, the four voices sing, and it is so perfectly composed, that one ought actually only to sing it—but: It must be correctly sung, with the right voice, correctly produced, and it must really come out of the body. I am not a singer, but I assume that a *bel canto*-trained singer would be able to do it right away."[11]

Beethoven's late work will only be understood, when one takes to heart the advice given by Socrates to Protarchos, on the One and the Many, in the dialogue *Philebus*: "A gift of the gods to man, as I consider it, was once hurled down from the gods through some Prometheus together with a fire of the most brilliant kind, and the ancients, who were better than we and were closer to the gods, handed it down as a legend, that everything which we say, is, consists of One and Many, which, however, has limitation and unlimitedness growing together within it. Let it be our affair, now, since this was once so ordered, to assume an idea and seek it out, in every single case in everything, and one will find one, since it is therein."

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1. "I say to you before God, as an honest man, your son is the greatest composer that I know by person or name: he has taste and above that the greatest science of composition." Statement by Josef Haydn, Feb. 12, 1785, after the performance of six quartets dedicated to Haydn, which introduced the revolution in Classical composition through motivic thorough-composition. See videotape, *"Motivführung* bei Josef Haydn und Wolfgang Amadeus Mozart," with Professor Norbert Brainin and the Henschel Quartet, February 1993, Dr. Böttiger Verlag, Wiesbaden, Germany.

2. See Lyndon H. LaRouche, "That Which Underlies Motivic Thorough-Composition," ***EIR***, Sept. 1, 1995 (Vol. 22, No. 35).

3. Norbert Brainin, video, *op. cit.*

4. On "form breaking": Even the neo-Kantians stood up in their own defense against the Romantics very early, who wanted to characterize this characteristic of Beethoven as the "destruction of every musical form," that is, the intercession of total arbitrariness. Thus, Paul Natorp wrote in his 1920 speech on "Beethoven and Us": "It is fully erroneous, to consider that the decisive aspect of his last period of creative activity ought to be recognized in the destruction of musical form. It has as little to do with destruction, as so-called non-Euclidean geometry had to do with overthrowing only one, single sentence or proof of Euclid. It is far more a question of going out *beyond* one or some of its binding assumptions, which had unexpected and unintended results, not overthrowing Euclid, but rather—in one blow—letting not only one or two, but an unforeseeable multiplicity of new geometries come into being, above Euclid's; each, under its assumptions, with the same, much higher certainty and strictness—because based on more general ground—as the old one. So is the relationship between Bee-

thoven's expansion of form and what had been considered theretofore as the only possible musical form."

5. *Cf.* Professor Norbert Brainin: "In Beethoven, it started with Op. 59. Of course, he had always composed very well, but up to then he had not applied motivic thorough-composition deliberately, only unconsciously. I believe that it was first consciously applied in Op. 59. Perhaps it was similar in the case of Haydn, since his last quartet composition before Op. 33, was Op. 20. And, if I did not know that these works had been written before the development of motivic thorough-composition, I would merely say, 'There, perhaps, it is not so fully explicit.' The fact is, that he applied it first consciously in Op. 33. With Beethoven, it is similar. But he did not only apply a method: He brought new elements in, but always used the old ones again."

In response to the question of the "new" with reference to the great model, J.S. Bach, Professor Brainin said: "Freedom lies in expression. It is a matter of other things, than with Bach. In Bach, it is pure spirit, in Beethoven, it is interpretation. Beethoven even said, 'It is not enough to write fugues.' What does that mean? It means he did not want to write fugues in the manner of Bach; he had learned from him how one writes fugues. But the way in which he wrote fugues, is always directed at an aim." Quoted from videotape interview, "*Motivführung*: Prof. Norbert Brainin, Primarius des Amadeus-Quartetts, erläutert und demonstriert die Kompositionsmethode der späten Quartette Ludwig van Beethovens. Meisterklassen im Schloß Dolna Krupa, 20-22 Sept. 1995, mit dem Moyzes Quartett (Bratislava) und dem Auer Quartett (Budapest)," available through the Schiller-Institut Vereinigung für Staatskunst e.V., e-mail info@schiller-institut.de.

6. See Lyndon H. LaRouche, Jr., "Mozart's 1782-1786 Revolution in Music," ***Fidelio***, Winter 1992 (Vol. 1, No. 4): "In its most essential features, what we may say of thought-objects, as in scientific work, we may say also of musical thought-objects. The J.S. Bach *Musical Offering* underscores the place of a major/minor-key cross-over *dissonance*—e.g., a formal discontinuity—in the process of composition. The subsumption of many resolved discontinuities under the governance of a single, well-defined ordering-principle for that succession as a whole, presents us, in the instance of any single such composition, with a process analogous to the idealized theorem-lattice, *A, B, C, D, E,* . . . .

"The definitional significance of such a musical thought-object as musical, rather than simply a thought-object, is the following. Firstly, even the individual thought-objects, *of a series*, within a succession, are provoked, in the individual's sovereign creative mental processes, by the polyphonic lawfulness of the Classical, well-tempered musical medium. Secondly, the ordering of a series of such thought-objects, as a composition, or part of it, is a higher-order thought-object, which latter is defined, generated by a negative feature of a process of composition. The natural rules of polyphony flowing from singing voices of the most natural training (i.e., *bel canto*) are the basis for defining an anomaly, and, thus, are the basis for the generation of a musical thought-object. In other words, the thought-object is referenced in respect to its place in the development occurring in the musical medium. Since only the Classical mode of

FIGURE 7.27
'Trio' section of Op. 130 second movement

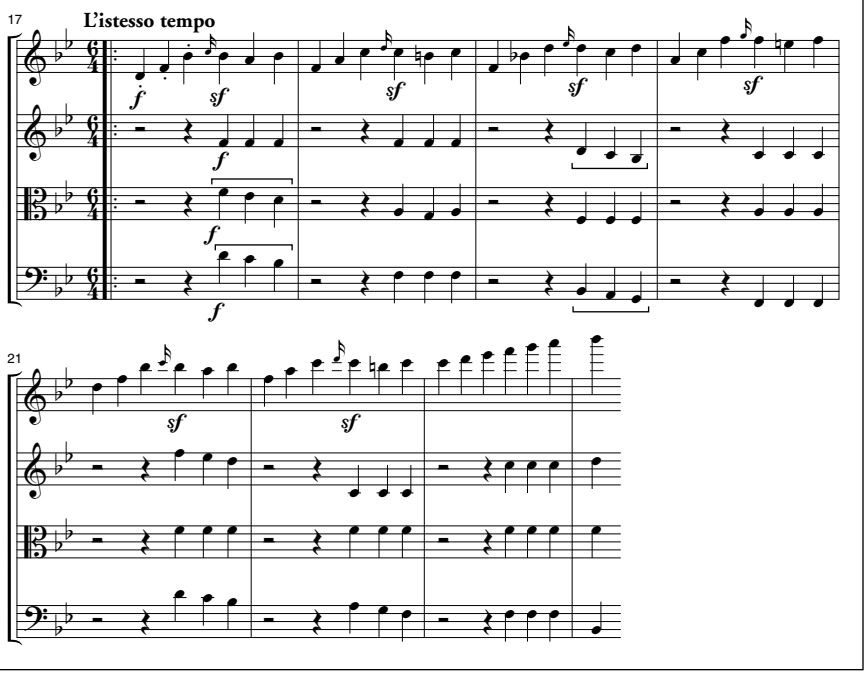


FIGURE 7.28
Opening of third movement of Op. 130 quartet

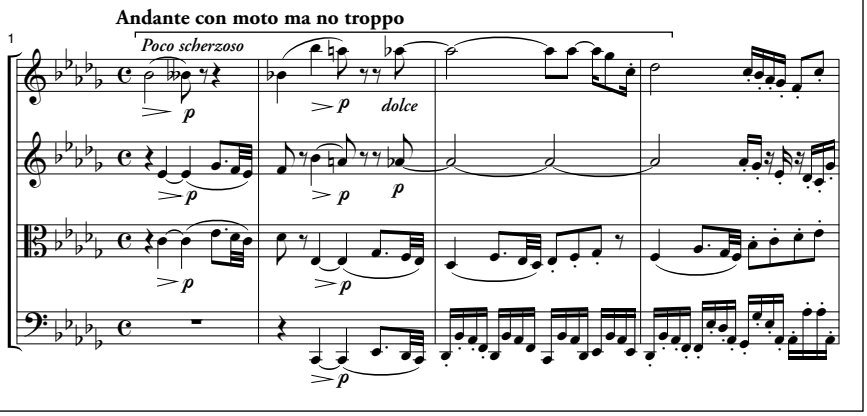


FIGURE 7.29
'Cello figure references back to first movement

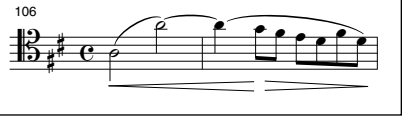


FIGURE 7.30
'Head' of Beethoven's Op. 133 'Große Fuge'

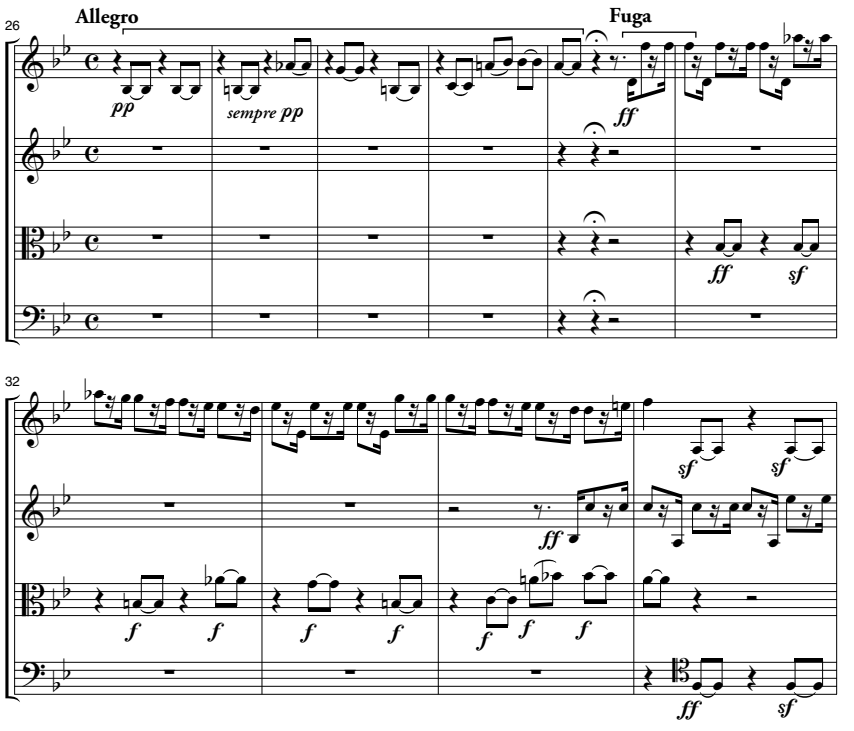
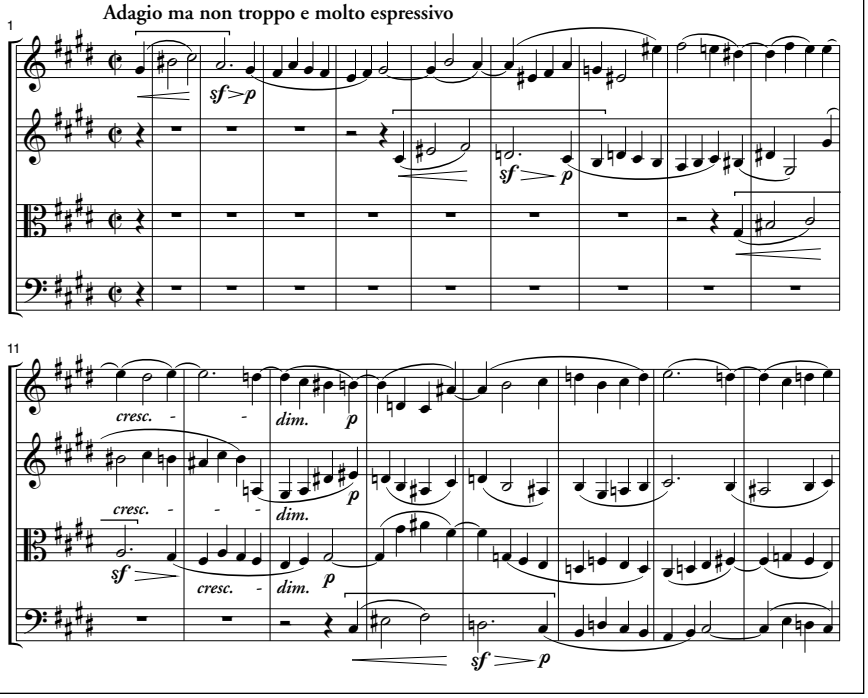


FIGURE 7.31
Opening of Beethoven String Quartet Op. 131 in C♯ minor



composition permits this determination, those musical thought-objects are defined in respect to the Classical form of the medium."

7. Norbert Brainin, interview, ***Ibykus***, Vol. 5, No. 15, 1986.

8. Bruce Director, "What Mathematics Can Learn from Classical Music," ***Fidelio***, Winter 1995 (Vol. III, No. 4).

9. Jelena Wjaskowa, "Das Anfangsstadium des schöpferischen Prozesses bei Beethoven—Eine Untersuchung anhand der Skizzen zum ersten Satz des Quartetts Op. 130," in *Beethoven, Aufsätze und Dokumente,* Vol. III, ed. by Harry Goldschmidt (Berlin: 1988).

10. *Cf.* Lyndon H. LaRouche, "That Which Underlies Motivic Thorough-Composition," *op. cit.*, on the question of memory in musical performance: ". . . what we have just said, obliges us to examine this matter of memory on a timescale. We discover, immediately, that there is something essential in the influence of the musical idea upon the performance, the which can not be explained as an attributed epiphenomenon on the tone's sensation. There is a contradiction, a devastating paradox, which can be, and is heard as a musical idea, an idea which can not be attributed to the senses as such.

"The devastating paradox is situated thus: See how the idea of the performance as an entirety, shapes the performance of the intervals adressed within each moment of the performance. We are confronted immediately with the existence of two musical ideas, both representing the composition taken as an entirety.

"One of these two is efficiently superior to the other. The first of these two, is the performer's earlier grasp of the perfected idea of the composition as a finished whole; that is the idea which should never change in the musician's mind during the execution of the performance. This idea, the musician brings to the performance from an earlier, relatively perfected experience of the composition's completed performance.

"The second idea, also pertaining to the composition as an entirety, is the notion of the incompleted idea of the same whole, in process of emergence, not yet *reperfected:* at each point mid-performance. The same principle governs not only the performance, and the practice leading to the performance of that composition; it is also the experience of the hearer.

"The first must control the second. The tension between these two, axiomatically distinct qualities of idea of the composition as a whole, is readily recognized as the motivating 'tension,' that sense of 'suspension,' which supplies a quality of psychic intensity, which is to be perceived as the 'energy' of the successful performance."

11. Norbert Brainin, " 'As free, as it is rigorous'—Beethoven's Art of Four-Voice Composition," ***Fidelio***, Fall 1998 (Vol. VII, No. 3).

Chapter 8

Brahms' Fourth Symphony: A masterpiece of motivic thorough-composition

by Hartmut Cramer

Brahms' Fourth Symphony, which shows such a high degree of inner mental "logical" rigor, formal completeness, and creative freedom—in short, perfection—is one of the best examples of *motivic thorough-composition,* and it demonstrates, that as late as the end of last century, musical work in the "old forms"—which by then were widely slandered—was still being mastered.

Brahms' accomplishments in this field were, by the way, also—albeit enviously—acknowledged by his foes. Even from his "neo-German" antagonist Richard Wagner, who, during their only personal encounter (in Vienna, in February 1864), after Brahms had delivered a convincing proof of his art with the performance of his *Variations on a Theme by Handel,* was so astonished, that he declared: "One sees what can be accomplished in the old forms, if there is someone who knows how to use them."[1] But that didn't pull Wagner—let alone his many followers—back from continuing their practice, of loudly crying out against Brahms, as well as infamously conspiring against him behind his back.

Although Brahms' Fourth Symphony was initially met with a lot of non-understanding by the "great mass" of his contemporaries, and even by his Vienna circle of friends, his closest artistic companions, such as Clara Schumann and Joseph Joachim—and Brahms himself, naturally—knew very well, what a masterpiece he had created. "My heart is full to overflowing over your symphony," wrote Clara Schumann to Brahms from Frankfurt on Dec. 15, 1885, after she had initially studied the piano edition. "It created a beautiful hour for me, captivating me through its richness in colour and its beauty otherwise. I almost don't know, which movement I should prefer: the first, dreaming one, with its marvellous development part and the wonderful points of rest, and its soft waving inner movement flowing with it . . . or the last one, grandiosely constructed, with its enormous manifoldness, and despite its such great work so full of passion . . . which lies already in its main motif (one could not really call it a theme). . . . I wish I could personally speak with you about it, with the score before us!"[2]

With the violinist Joseph Joachim, his closest friend since the beginning of the 1850s, who in the meantime had become the director of the music conservatory in Berlin, Brahms corresponded concerning this, as also in all other cases, in detail about many technical musical questions, especially concerning the strings. Joachim thus already knew parts of the symphony before it was published. Directly after the dress-rehearsal, and just before he was about to perform the Berlin debut of Brahms' Fourth at an academy concert on Feb. 1, 1886, Joachim wrote to his "highly esteemed master": "If I didn't express my, in fact, extreme enthusiasm about your newest symphony immediately after the first rehearsal, it is solely due to the gigantic work load of the past few days. . . . We now have played through your magnificent creation in our dress rehearsal today, and I may hope, that tonight it can be performed with certainty and passion. It really sank ever deeper down into my soul and that of the orchestra. The gripping character of the whole, the density of invention, the wonderfully intertwined growth of the motifs, even more than the richness and the beauty of single parts, I like very much, so that I almost believe, the E minor is my favorite among the four symphonies. . . . It is not so easy, though, to *beautifully* play the variation of the theme divided among the two violins; but if one wants to change it, and believes to have accomplished it in one bar, the very next bar then creates a problem—you really invent in such a logical way, everything is so fully in place, that one ought not touch it in the least. The *pizzicati* are shown to full advantage everywhere."[3]

The judgment of these two great artists and friends is no surprise, however; especially, as both—even if only indirectly and without knowing it—had a certain "part" in developing the *concept* of this magnificent symphony, in which Brahms unmistakably demonstrated, what enormous, freedom-creating potential is contained in the method of motivic thorough-composition, which he took over from his Classical forebears in whose tradition he consciously placed himself.

As in all great Classical works, the key to understanding lies in the *entire process of development* of the piece, so, too, for this symphony; i.e., the process of musical development expressed therein is best approached "backwards." One starts with the last movement: that part of the whole, which was constantly going through the head of the composer as the "final goal." As is well known, Brahms—like Beethoven—meticulously changed and fine-tuned every detail of a composition when near completion for quite some time; but he also—like Mozart and practically all other great composers—had already worked out the whole composition *conceptually* in his head before writing it down.

The Finale of the Fourth Symphony, which has no instructions other than the tempo marking "*Allegro energico e passionato,"* is the best proof of this. Brahms had written down the first and second movements during his summer "vacation" of 1884 in Mürzzuschlag (at Semmering); the other two—as Brahms explicitly noted in his 1885 calendar, first the Finale, and then the Scherzo—were written in the summer the year after, also in Mürzzuschlag. Brahms, who

never released a musical piece unfinished, and who always insisted with his pupils (and himself) that it should be considered as a complete whole in content and form, steadily rejected all the requests of his friends, that he present them with some "juicy appetizers" during the process of creation—and sometimes brutally so ("I just put together a polka and waltz party," or, "Just a few *entre'actes* . . . what together usually is called a symphony"). The only thing that his friends could get out of him during this time, as far as the "content" of his great composition was concerned, was the poetical comparison with the "climate" in Mürzzuschlag: "The cherries here are not going to get sweet; you wouldn't eat them!" he wrote during the summer months of 1885 to the conductor Hans von Bülow, with whose orchestra in Meiningen he would be rehearsing and performing this symphony later that year. So, Brahms knew perfectly well the kind of mental work he was about to impose on his contemporaries.

His preliminary studies of the last movement, however, go back more than 10 years. Even though people were trying to figure out the form of the last movement for quite some time after the very first performance, Brahms himself, as usual, didn't comment publicly on his works; besides, he believed what he wrote to Hans von Bülow after the "mishap" of the first performance of this symphony at the end of September 1885 in Vienna (Brahms and the pianist Ignaz Brüll performed it on two pianos among a few close friends): "I am not really interested in a premiere. More in a performance after 10 or 20 years—which for an artist the likes of us means immortality"[4]—it is obvious that this final movement is clearly a *chaconne,* or a *passacaglia.* Joachim recognized this at once—no wonder, being a violinist who masterfully performed the famous *Chaconne* from J.S. Bach's Partita No. 2 in D minor for unaccompanied violin. (In order to make the audience of his above-mentioned academy concert aware that he had concluded this symphony in an unusual and very special form, Brahms added an asterisk to the "*Allegro energico e passionato,*" and the words "Variations on the theme:" followed by the theme as shown in **Figure 8.1**.

FIGURE 8.1
Fourth movement theme of Brahms' Symphony No. 4

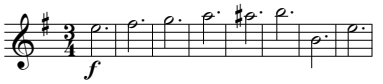


FIGURE 8.2
Opening of the 'Chaconne' from J.S. Bach's Partita No. 2 for Unaccompanied Violin in D minor

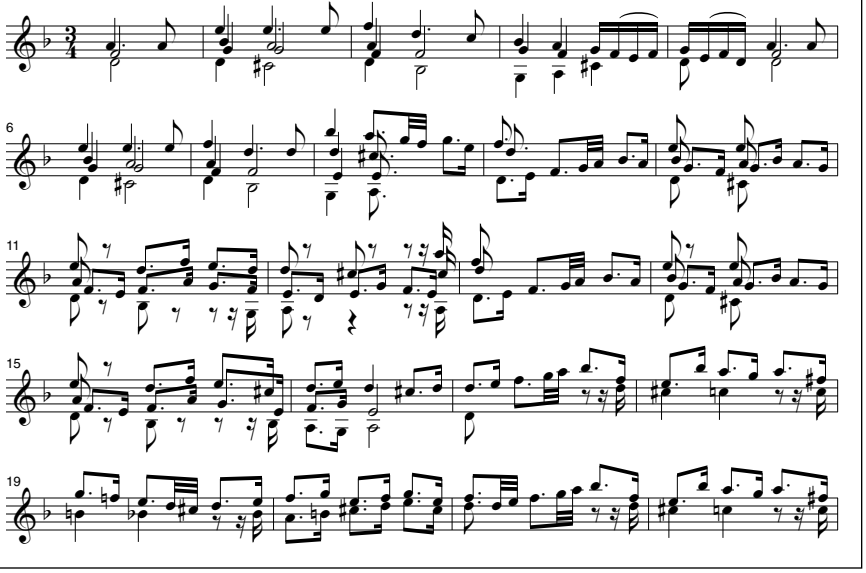


FIGURE 8.3
Opening of fourth movement of Brahms' Symphony No. 4

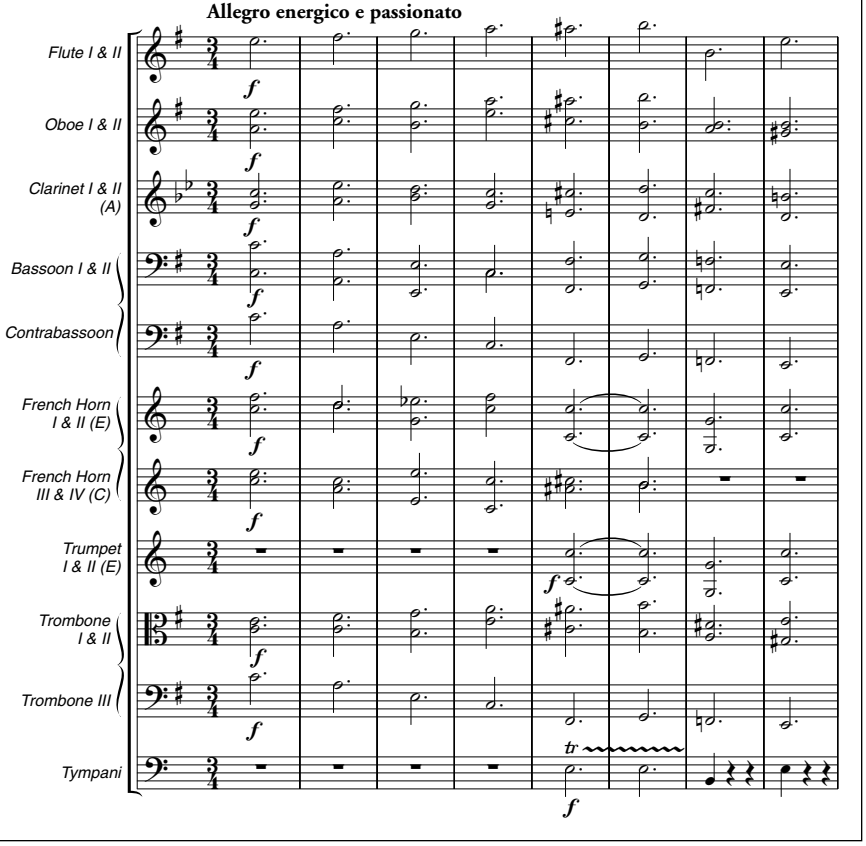
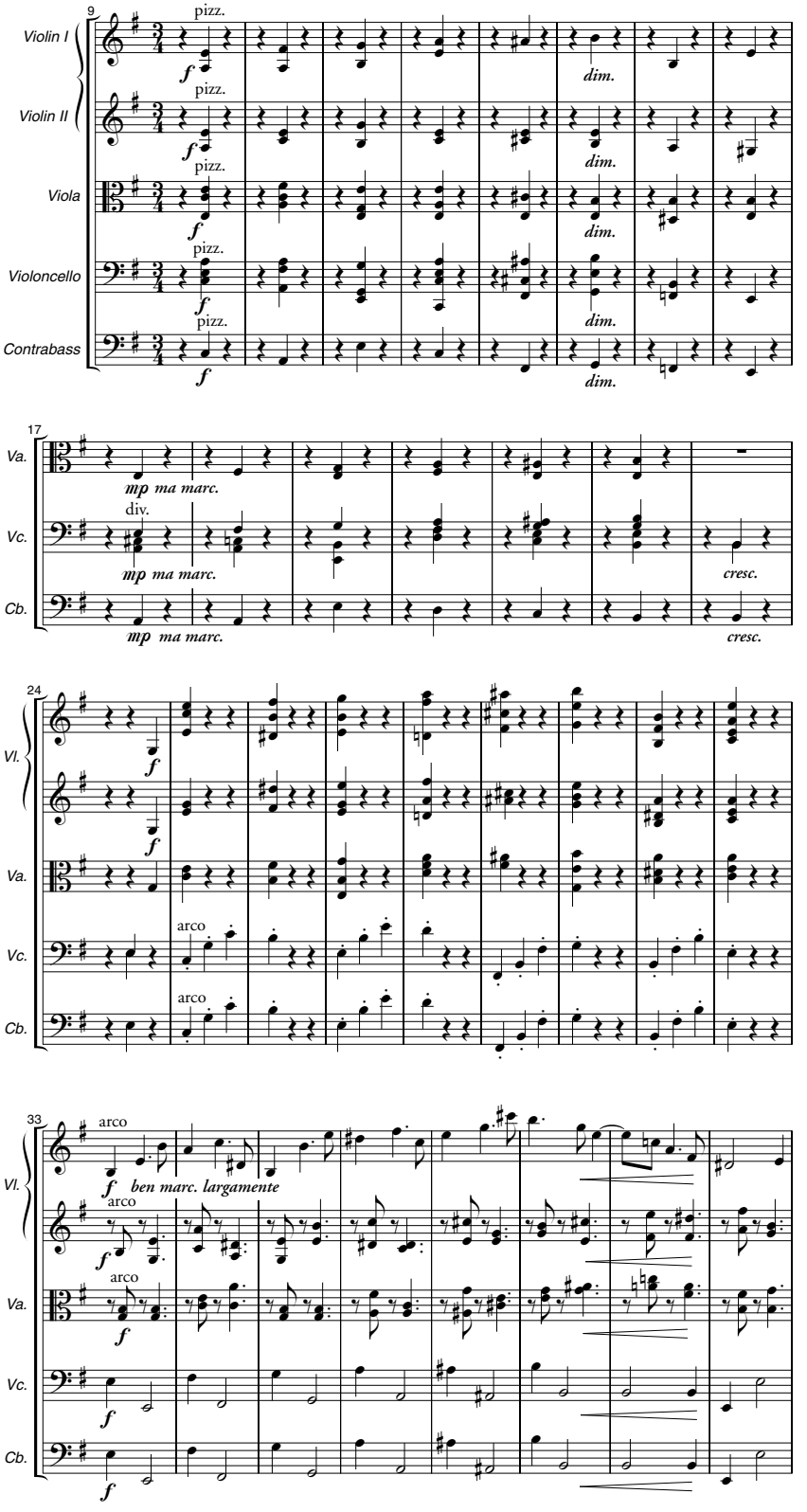


FIGURE 8.4

Strings take up theme in fourth movement of Brahms' Fourth



Brahms, who had intensively studied the works of J.S. Bach from his early youth on, and who held Bach's art of composition in exceptionally high esteem, not only knew this extraordinary final movement of Bach's D minor Partita very well through the interpretations of his friend Joachim,[5] but also, because he had arranged this piece (like most of the other sonatas and partitas for unaccompanied violin) for study purposes, and for "simply pure pleasure," for piano for *one hand,* as is made clear by a letter from him to Clara Schumann (June 1877):

"To me, [Bach's] Chaconne is one of the most wonderful, unbelievable music pieces. In one system, for a small instrument, the man writes a whole world of deepest thoughts and most powerful emotions. If I were to imagine that I would have been able to make, to receive this piece, I know for sure, that I would have become mad because of the enormous excitement and shock. If one doesn't have the greatest violinist around, then it is well the most beautiful pleasure, to simply listen to its sound in one's mind.

"But the piece demands that one must work with it in all ways. And one also doesn't want to hear music simply sounding in the air; Joachim is not here so often, and therefore I try this and that. But whatever I take, orchestra or piano—the pleasure is always spoiled.

"In only one way, I find, can I create for myself a much smaller, but approximating, and wholly pure pleasure of this piece—if I play it with the left hand alone! Even the history of the egg of Columbus then comes to my mind! A similar difficulty, the kind of technique, the process of making the *arpeggios,* everything comes together, so that I—feel like a violinist! Try it, I wrote it down only for you."[6]

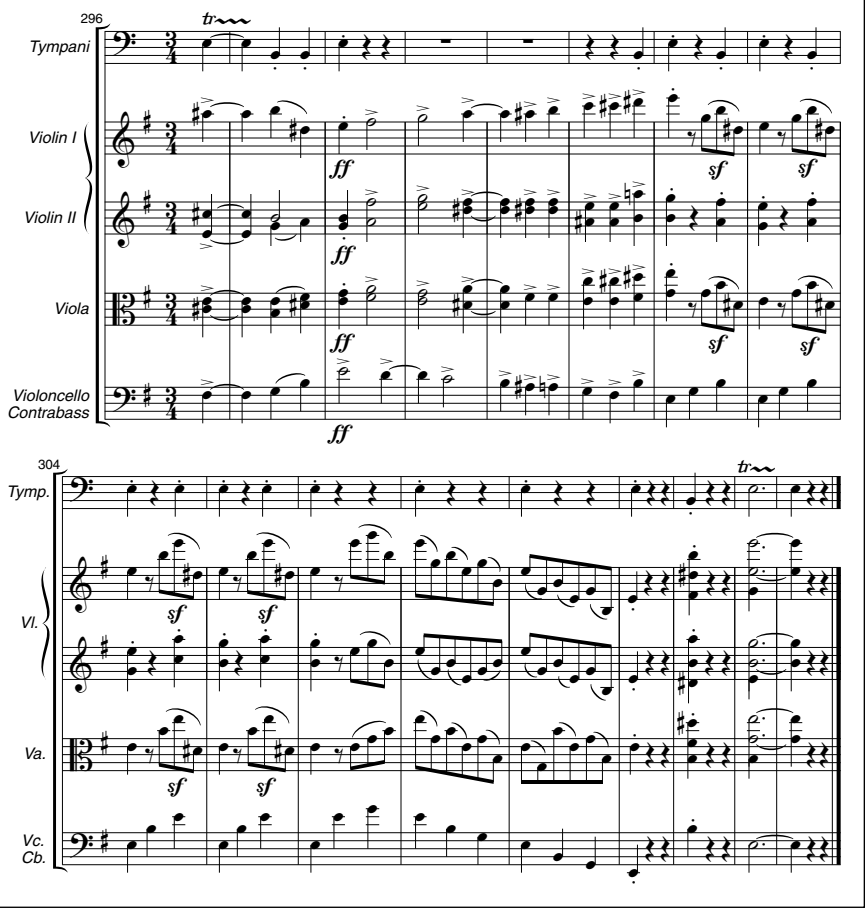
Working with this piece "in all ways"—that's what Brahms wanted to accomplish almost a decade later by way of composing a symphony, proving with that, the enormous creative potentialities the proper use of this "old," tremendously strict (but also free) form would allow. Naturally, composers had already previously concluded a symphony with a variations movement—the most famous among them being Beethoven with his "Eroica" Symphony No. 3, as Brahms constantly pointed out to his skeptical Viennese friends; but the exact form of a chaconne as the concluding movement—and climax—of a great symphony? This, before Brahms, had never been tried.

By choosing the form of the chaconne, or the passacaglia,[7] Brahms had defined the—

"old," and always "new"—problem: How can the basic principle of musical (and human) development—change, variation—be demonstrated by way of a "fixed" musical line? How can creative freedom be unified with lawful necessity? How can such music—and art generally—be "rigorous and free" at the same time?

Conceptually, this movement is fully equivalent to Bach's Chaconne **(Figure 8.2).** Bach varies a theme (motif) of four bars, i.e., its supporting bass line; and he does it in such a way, that with practically every new four-bar section, a new variation begins, practically without changing the bass-line harmonically. All in all, Bach is very careful in changing the harmonics during the composition; the first, elaborated part of variations is in D minor, the second in the related D major mode; then comes a part—which is equally strictly composed, i.e., starting every four bars with a new variation—again in D minor, until Bach concludes this immense work with a cadenza. The "trick" which Bach uses to create changes throughout the composition, and even *changes of the changes,* despite the "fixed" theme, or motif, is to vary the other voices, to change the theme itself *rhythmically,* to place it into other registers, and to "disguise" it, or "adapt" it to its environment in such a way, that partly a "logical," partly a surprising process of development takes place. And, when this can lead to such a magnificent result with *only four voices on a "small" string instrument,* what then can be accomplished with a big orchestra with many voices?

FIGURE 8.5
Conclusion of fourth movement of Brahms' Symphony No. 4



That is exactly what Brahms demonstrated with the final movement of Symphony No. 4 in E minor: With 8 bars, his theme/motif takes exactly twice the number of bars, as does Bach's Chaconne. The other basic difference: Brahms theme is placed in the soprano (instead of the bass) voice. Otherwise, the formal architecture is the same: The theme is in 3/4 time, and is varied—with only a few exceptions—exactly every eight bars, itself *remaining completely unchanged harmonically.* Naturally, Brahms can let the theme roam through all the voices of the orchestra, a fact which he exploits freely, although he adheres to the Classical tradition, insofar as the four string voices—the orchestra's inner "core"—bear the main burden of the thematic work. After having first presented the theme with the woodwinds and brass alone **(Figure 8.3)**, beginning in measure 9 **(Figure 8.4)** the first violins takes up the theme (*pizzicato*); in measure 17 the 'cellos (also *pizzicato*). In measure 25, the first violins take over again, but this time with plucked *chords;* and then, in measure 33, the contrabasses (supported by the bassoons) sing the theme (changed rhythmically by way of octaves) strongly with the bow (*arco*), while the middle voices of the string section accompany this (likewise *arco*) with a rhythmically displaced counterpoint, and the first violins ("*ben marcato largamente*") with a "lyrical" one.

After a rather free variation of the theme by the flute, which is only "supported" by the first French horn and the upper strings, comes—as in Bach's work—an equally rigorously (and freely) composed series of variations in the related E major mode, in which Brahms takes the liberty to present the theme not only by one group of instruments alone, but lets it roam through all the voices.

In measure 129 (not shown) the *reprise* begins, where the theme is quoted "verbatim" by the brass and woodwinds, but is varied contrapuntally starting with the upbeat to measure 133, played *fortissimo* by the upper strings, and starting with the downbeat of measure 134, also by the 'cellos and contrabasses.

During the following part of variations, Brahms exploits the freedom which he has accomplished so far: He varies the variations using the entire orchestra in a rhythmically very free manner, and concludes this movement with a 58-measure-long coda, beginning with measure 253 (not shown).

That is the formal architecture of this last movement, which *conceptually* follows Bach's Chaconne, but, in its extension—as intended—naturally far exceeds this great example. The way in which Brahms presents this theme *harmonically,* demonstrates above all, that he quite consciously walked in the footsteps of other Classical examples. What is striking about this rather "harmless" E minor motif, is the fact, that in measure 5 **(Figure 8.1)**, Brahms uses an A♯, a tone totally alien to this mode. That this is not just meant as a characteristic of this motif, is made clear by the fact that Brahms emphasizes this place with a tympani (kettledrum)

FIGURE 8.6
Opening of first movement of Brahms' Symphony No. 4

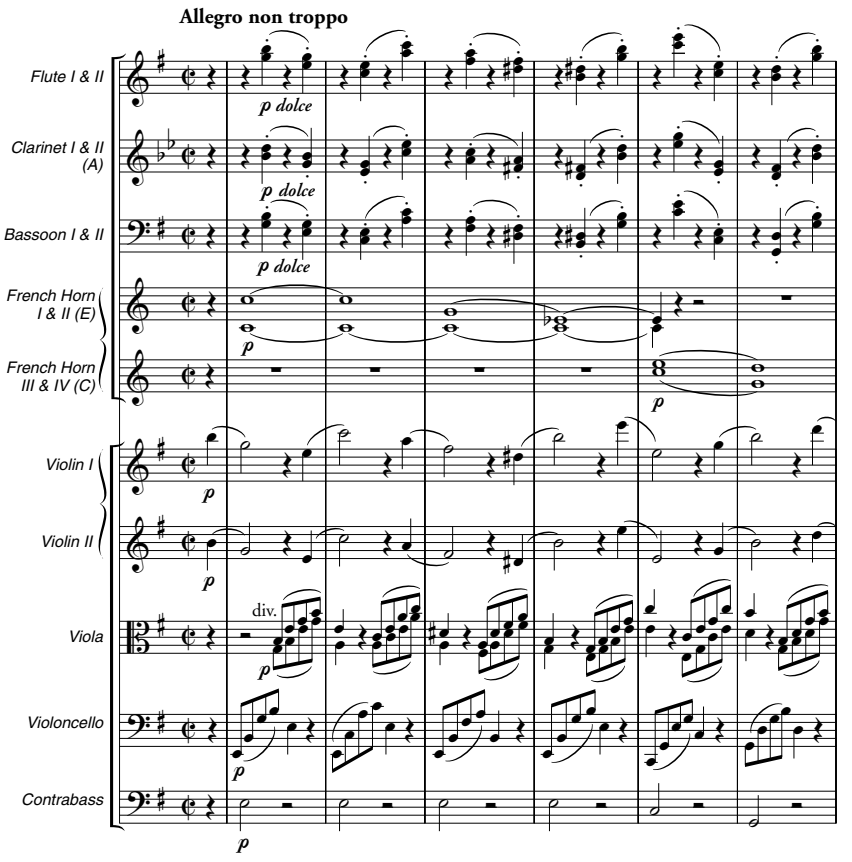
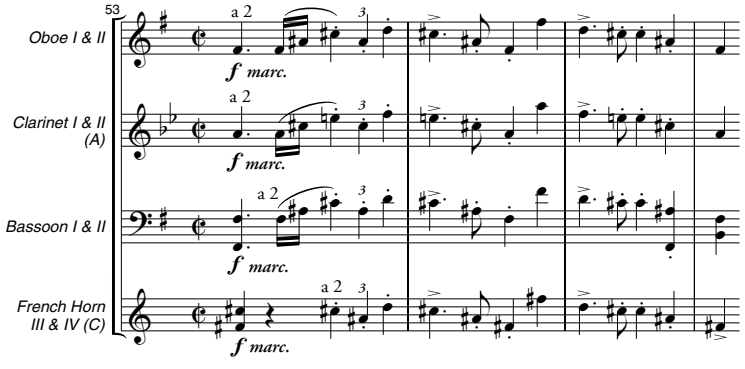


FIGURE 8.7
Second motivic element in first movement of Brahms' Fourth



(Figure 8.3); and he does this, not only when presenting this motif, but again and again during the whole movement. This interval of E-A♯, which is heard clearly by way of this suddenly introduced roll of the kettledrum (with the e being additionally strengthened by the trumpets and the two first French horns, while the a♯″ is played by the upper winds (two flutes, one oboe, and one clarinet), as well as also the fourth French horn and the first trombone, is nothing but the "Lydian interval." It interrupts the line of development of the E minor motif, creating an "unclarity" in the key, even "lifting it off its hinges" (since modulations in all directions become thinkable), and makes clear from the very beginning: *nothing is constant, but change itself!*

The other interval which Brahms uses predominantly at this prominent place, is the third, and its inversion, the sixth. The fact that this is no accident, is demonstrated by the use of *pizzicato* in the strings beginning in measure 9 **(Figure 8.4)**; almost all the chords of the strings contain both complementary intervals. The prominent and characteristic use of these intervals—third, sixth, and Lydian interval (highlighted by the tympani)—shows itself throughout the entire movement, until the very end **(Figure 8.5)**.

This results—apart from the very free, but equally strict usage of the chaconne form—in the stunning completeness of the whole movement. But on this rests the no-less-surprising conceptual unity of the entire symphony. The aforementioned intervallic relationships mark the opening of the symphony **(Figure 8.6)**, dominate the first movement **(Figure 8.7)**, and are equally prominent throughout the second and third movements (which, as already mentioned, according to Brahms' notebook, he composed, or rather wrote down, as the very last piece of the symphony).

Even more revealing is the fact, that Brahms took the idea of the opening motif, rhythmically and harmonically, from no less a composer than Beethoven, as the following measures **(Figure 8.8)** from the "*Adagio sostenuto*" of the piano sonata Op. 106 demonstrate. (As is shown in Chapter 7, we find evidence in Beethoven's sketchbooks, that Beethoven in turn sought the help of J.S. Bach, copying down key passages from *The Art of the Fugue* (see **Figure 7.2**). And as pointed out in Chapter 3, in Fugue IV of that work (see **Figure 3.11**), a sequence of descending thirds become a crucial characteristic of the musical development.) Brahms studied these examples of his forerunners intensively.

Returning to **Figure 8.8**: In this passage, Beethoven makes extremely dense key changes (in the course of only 12 measures, he explicitly points to a change in key *three times*), with the climax without any doubt reached in measures 78-84, which are nominally in C minor/C major, but which are, in fact, from measure 80 onward, in a keyless mode, a harmonic "no man's land," where Beethoven intensifies the density of key changes to the extreme, so that no mode

dominates at all.

Exactly this kind of ambiguity is what Brahms creates at the very beginning of the first movement, by his extensive use of D♯—a tone extraneous to the natural E minor scale—and the Lydian interval a-d♯′ created thereby, which surfaces in the violas' echoing of the entrance-motif (and three times, at that), as well as in both the first and second violins, playing in octaves, between their a′-a″ in measure 2, and their d♯′-d♯″ in measure 3 (**Figure 8.9**).

It is quite obvious, that Brahms developed the second theme (motif) of this movement, which is presented by the winds *in unison* (**Figure 8.7**), out of the material of the opening motif; repeatedly he uses (besides the already known pair of third/sixth intervals), the Lydian interval to the (E minor) basic note, the A♯, which in turn plays such a prominent role in the motif of the final movement. Thus, Brahms maintains the practice, which Norbert Brainin has indicated in all his discussions of the compositional method of motivic thorough-composition, by writing "monothematically"; i.e., he always sticks to the theme.

It is impossible to deal with the close motivic relationship of the first and fourth movements with the second and third ones, in this article, but they are so obvious, that the reader can easily determine them for himself.

In conclusion, it remains to be said, that such a dense and perfect (in the truest sense of the word) composition, requires a corresponding level of performance, by way of which the "sour cherries" can become edible. And, since we unfortunately have no recordings by Brahms himself, or by his friend Joachim (who, as we know from his letters to Brahms, was very careful in performing such works), we have to listen to those conductors, who considered the performance of Classical music an endeavor coming truly from the heart. And among them, Wilhelm Furtwängler, in whose maternal family Johannes Brahms was often received as a guest, is surely the best, as he expresses the increasing "density of inventions" (Joseph Joachim) and "enormous manifoldness" (Clara Schumann) of the Finale both energetically and passionately. Especially his live recordings with the Berlin Philharmonic Orchestra, some of which can luckily still be heard (among them, the one from Oct. 24, 1948), since they are available on recordings and CDs, are still (and especially!) today a measure of the fact, of how extraordinarily alive ("*Energico e passionato*") Classical works sound, if performed with "heart and mind," as well as with "certainty and passion."

FIGURE 8.8
Passage from the 'Adagio Sostenuto' of Beethoven's Piano Sonata Op. 106

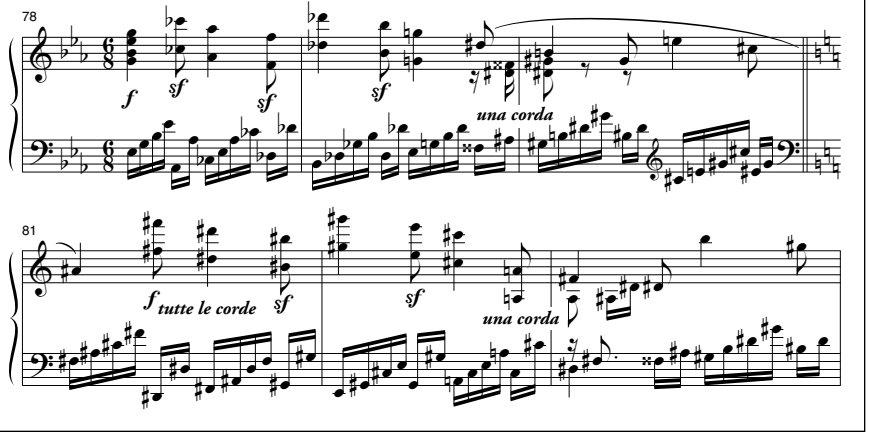
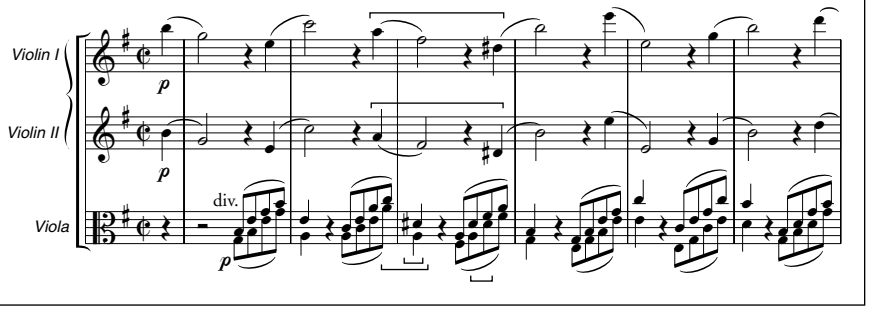


FIGURE 8.9
Lydian intervals among the strings in opening of Brahms' Fourth



1. Karl Geiringer, *Brahms, His Life and Work* (New York: Oxford University Press, 1982), p.83.

2. *Letters of Clara Schumann and Johannes Brahms, 1853-1896,* ed. by Berthold Litzmann (London: 1927; reprint, Westport, Conn.: Hyperion Press, 1979).

3. *Johannes Brahms im Briefwechsel mit Joseph Joachim,* ed. by Andreas Moser (Berlin: 1908).

4. Max Kalbeck, *Johannes Brahms* (Tutzing: Hans Schneider, 1976; reprint of 1904-14 edition), Vol. III, p. 455. Pages 445ff. contain a detailed account of this "unfortunate" performance.

5. That Joachim took the interpretation of Bach's Chaconne extraordinarily seriously, is demonstrated by the fact, that during his years in Berlin, he performed this piece only on a Stradivarius violin, which he considered especially well suited for this kind of music because of its exceptional tonal qualities. On all appropriate occasions, he borrowed this particular violin from a Berlin violinmaker who owned it. This Stradivarius, which because of this fact was named the Chaconne, was played for many years by the first violinist of the Amadeus Quartet, Norbert Brainin.

6. Berthold Litzmann, *op. cit.*

7. The chaconne was a originally a form of aria—not a dance—of the Seventeenth Century, which allowed the *bel canto* singer to improvise freely. Its "support" was a bass line, which repeated a certain pattern: It started on the tonic, moved slightly downwards, and then upwards again to the tonic. While initially different concerning the characteristics of their respective bass lines, the terms "chaconne" and "passacaglia" became increasingly interchangeable during the Eighteenth Century.

Editorial

Win McDade-Murtha in the Senate

The historic debate in the U.S. Congress on Aug. 5, which resulted in a landslide bipartisan vote for the principles contained in the Citizens Protection Act (McDade-Murtha bill), was a victory in the fight to curb the outrageous misconduct of the Justice Department's permanent bureaucracy. But it was not the end of that fight, which now enters a new phase.

As a result of a constituency mobilization led by the LaRouche movement, the 1999 Commerce, Justice, and State Appropriations bill was amended to call for establishing ethical standards for Federal prosecutors, and for an independent review board to handle complaints about the Department of Justice (DOJ).

Now, it is time to put the Senate on the line. A House-Senate conference in September will determine whether the McDade-Murtha language will remain in the Appropriations bill that will be presented to both Houses for a vote by Oct. 1. Those close to Newt Gingrich and the DOJ bureaucracy are seeking to water down the McDade-Murtha provisions, or eliminate them altogether. Senate Judiciary Committee Chairman Orrin Hatch (R-Utah) and Judiciary Committee member Jefferson "Beauregard" Sessions (R-Ala.), for example, have sent a letter to the Senators on the Appropriations Committee, denouncing the McDade-Murtha amendment.

These Senators, members of the conference committee, should be targetted by constituents and told to support the bill: Dale Bumpers (D-Ark.), Ben Nighthorse Campbell (R-Colo.), Pete Domenici (R-N.M.), Judd Gregg (R-N.H.), Ernest F. Hollings (D-S.C.), Kay Bailey Hutchison (R-Tex.), Daniel Inouye (D-Hi.), Frank Lautenberg (D-N.J.), Mitch McConnell (R-Ky.), Barbara Mikulski (D-Md.), and Ted Stevens (R-Ak.).

McDade-Murtha must be passed, and a full Congressional debate and public hearings on DOJ misconduct must occur—including the case of the railroad against Lyndon LaRouche. Such hearings must clear the way for LaRouche's full exoneration.

Since Aug. 5, when the House vote took place, the strategic importance of the McDade-Murtha initiative has become even more apparent. The world political and economic situation has taken a precipitous plunge into the crisis that LaRouche and *EIR* forecast long ago. The financial meltdown in Russia and other world markets is—finally!—front-page news in every paper in the country. Yet, the President of the United States is under assault by a gang of British-backed Jacobins, threatening the nation with a constitutional crisis and a leadership vacuum, just as the need for leadership is the greatest. The DOJ's permanent bureaucracy is out of control, flaunting its power in the most flagrantly illegal manner, against the nation's Chief Executive.

Where will the leadership come from, to lead the nation and the world away from looming disaster?

Look at three initiatives launched by LaRouche when he was released from prison, on parole, in January 1994. He forecast the crisis we now confront, and showed what is necessary to solve it.

First, on March 10, 1994, he commissioned a pamphlet, "The Summary of Relevant Evidence on the Record Demonstrating the Innocence of Lyndon LaRouche and Co-Defendants." Calling for LaRouche's exoneration, the pamphlet has circulated in millions of copies.

Also in March 1994, LaRouche commissioned a pamphlet, "The Assault on the Presidency," which warned of the consequences to the nation, if the British-led attack on President Clinton were allowed to proceed. The President, he said, has the power to create a new U.S. financial and monetary system overnight, in a time of emergency. "For the sake of our nation, and for the welfare of all of our citizens and our posterity, we need to have a U.S. Presidency intact which is ready and able to do that; we need to have a President who is willing and able to do that when the crisis hits."

Then, in the June 24, 1994 issue of *EIR,* LaRouche published his Ninth Forecast, warning of an inevitable financial collapse, unless world leaders abandon the disastrous policies of the past 30 years.

Today, the crisis LaRouche warned of is upon us. As long as he is not exonerated and given his historically proper place, and as long as the Presidency is not defended, the leadership and the policies required by an increasingly desperate world will be lacking, with tragic consequences.

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  Wednesdays—8:30 p.m.
- MINNEAPOLIS (NW Suburbs)
  NW Community TV Ch. 36
  Mondays—7 p.m.
  Tues.—1 & 7 a.m.; 1 p.m.
- ST. LOUIS PARK—Ch. 33
  Friday through Monday
  3 p.m., 11 p.m., 7 a.m.
- ST. PAUL—Ch. 33
  Sundays—10 p.m.
- ST. PAUL (NE Suburbs)*
  Suburban Community Ch. 15

MISSOURI
- ST. LOUIS—Ch. 22
  Wednesdays—5 p.m.

NEVADA
- RENO/SPARKS
  Contl. Ch. 30; TCI Ch. 16
  Wednesdays—5 p.m.

NEW YORK
- BROOKHAVEN (E. Suffolk)
  Cablevision Ch. 1/99
  Wednesdays—9:30 p.m.
- BROOKLYN—BCAT
  Time/Warner Ch. 35
  Cablevision Ch. 68
  Sundays—9 a.m.
- BUFFALO—BCTV Ch. 68
  Saturdays—12 Noon
- HUDSON VALLEY—Ch. 6
  2nd Sun. monthly—1:30 p.m.
- ILION—T/W Ch. 10
  Saturdays— 12:30 p.m.
- IRONDEQUOIT—Ch. 15
  Mon. & Thurs.—7 p.m.
- ITHACA—Pegasys Ch. 57
  Mon.—8 pm; Thu.—9:30 pm
  Saturdays—4 p.m.
- JOHNSTOWN—Ch. 7
  Tuesdays—4 p.m.
- MANHATTAN—MNN Ch. 34
  Sun., Sept. 6 & 20: 9 a.m.
- MONTVALE/MAHWAH—Ch. 14
  Wedsnesdays—5:30 p.m.
- NASSAU—Ch. 80
  Wednesdays—7 p.m.
- OSSINING—Ch. 19-S
  Wednesdays—3 p.m.
- POUGHKEEPSIE—Ch. 28
  1st & 2nd Fridays—4 p.m.
- QUEENS—QPTV Ch. 57
  Wednesdays—3 p.m.
- RIVERHEAD
  Peconic Bay TV Ch. 27
  Thursdays—12 Midnight
- ROCHESTER—GRC Ch. 15
  Fri.—11 p.m.; Sun.—11 a.m.
- ROCKLAND—PA Ch. 27
  Wednesdays—5:30 p.m.
- SCHENECTADY—SACC Ch. 16
  Tuesdays—10 p.m.
- STATEN ISL.—CTV Ch. 24
  Wednesdays—11 p.m.
  Saturdays—8 a.m.
- SUFFOLK, L.I.—Ch. 25
  2nd & 4th Mondays—10 p.m.
- SYRACUSE—T/W Ch. 3
  Fridays—4 p.m.
- SYRACUSE (Suburbs)
  Time/Warner Ch. 12
  Saturdays—9 p.m.
- UTICA—Harron Ch. 3
  Thursdays—6 p.m.
- WEBSTER—WCA-TV Ch. 12
  Wednesdays—8:30 p.m.
- WEST SENECA
  Adelphia Cable Ch. 68
  Thursdays—10:30 p.m.
- YONKERS—Ch. 37
  Saturdays—3:30 p.m.
- YORKTOWN—Ch. 34
  Thursdays—3 p.m.

OHIO
- OBERLIN
  Cable Co-op Ch. 9
  Tuesdays—7 p.m.

OREGON
- CORVALLIS/ALBANY
  Public Access Ch. 99
  Tuesdays—1 p.m.
- PORTLAND—Access
  Tuesdays—6 p.m. (Ch. 27)
  Thursdays—3 p.m. (Ch. 33)

TEXAS
- AUSTIN—ACT Ch. 10/11*
- EL PASO—Paragon Ch. 15
  Wednesdays—5 p.m.
- HOUSTON—Access Houston
  Thu., Sep. 10: 8-9 p.m.
  Fri., Sep. 11: 2:30 p.m.
  Mon., Sep. 14: 5-7 p.m.
  Thu., Sep. 17: 5-6 p.m.

UTAH
- GLENWOOD, Etc.—SCAT-TV
  Channels 26, 29, 37, 38, 98
  Mon.-Fri.—various times

VIRGINIA
- ARLINGTON COUNTY
  ACT Ch. 33
  Sun.—1 pm; Mon.—6:30 pm
  Wednesdays—12 Noon
- CHESTERFIELD COUNTY
  Comcast Ch. 6
  Tuesdays—5 p.m.
- FAIRFAX COUNTY
  FCAC Ch. 10
  Tuesdays—12 Noon
  Thu.—7 p.m.; Sat.—10 a.m.
- LOUDOUN COUNTY
  Cablevision Ch. 59
  Thursdays—10:30 a.m.;
  12:30 p.m.; 2:30 p.m.;
  4:30 p.m.; 7:30 p.m.; 10:30 p.m.
- ROANOKE COUNTY—Cox Ch. 9
  Thursdays—2 p.m.

WASHINGTON
- KING COUNTY—Ch. 29
  Fridays—8 a.m.
- SPOKANE—Cox Ch. 25
  Wednesdays—6 p.m.
- TRI-CITIES—TCI Ch. 13
  Mon.—12 Noon; Weds.—6 pm
  Thursdays—8:30 pm

WISCONSIN
- KENOSHA—T/W Ch. 21
  Mondays—1:30 p.m.
- OSHKOSH—Ch. 10
  Fridays—11:00 pm
- WAUSAU—Marcus Ch. 10
  Fri.—10 p.m.; Sat.—5:30 p.m.

If you would like to get The LaRouche Connection on your local cable TV station, please call Charles Notley at 703-777-9451, Ext. 322.
For more information, visit our Internet HomePage at http://www.larouchepub.com/tv

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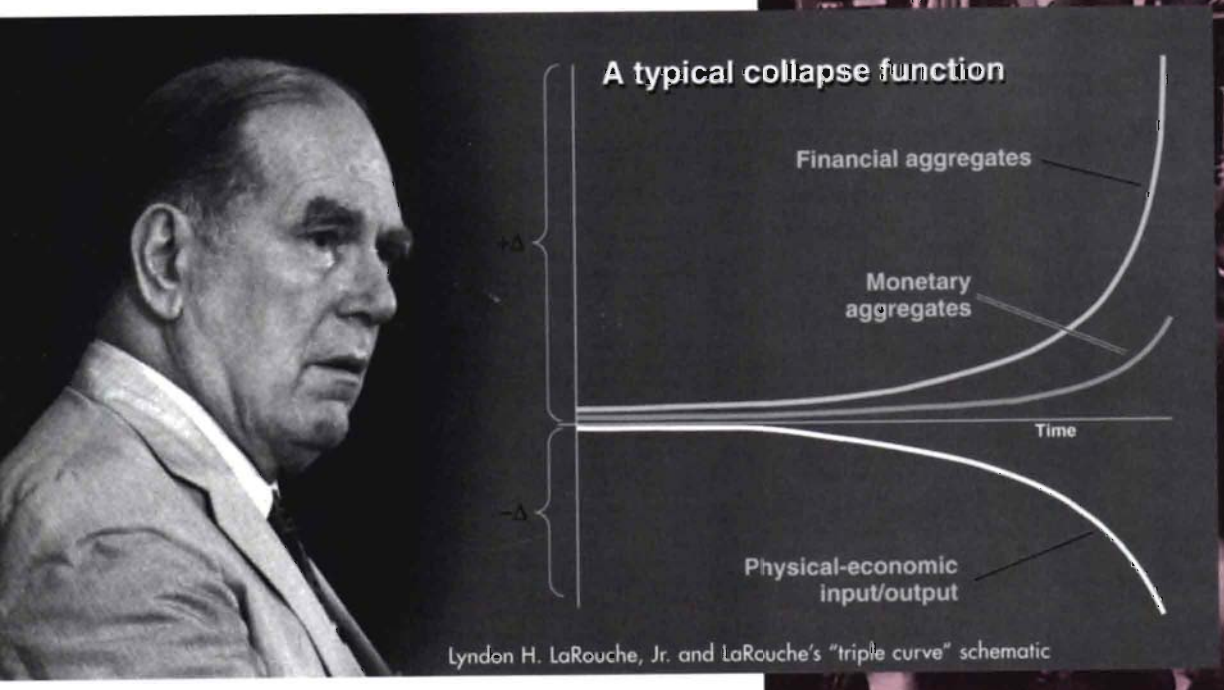

Lyndon H. LaRouche, Jr. and LaRouche's "triple curve" schematic

While Others Have Ignored Reality

The politicians who continue the present posture of stubbornly ignoring the reality of the onrushing financial and economic crisis, will soon be crushed, and swept aside politically, by the reality they ignore. Then, the present writer's objective authority as a policy-shaper, is unique, not only inside the United States, but world-wide. To parody James Carville's delicious book, "They have been wrong, and EIR has been right."

—Lyndon LaRouche, Nov. 1, 1996

A recent trading day at the New York Stock Exchange.