

THE LATIN OF SCIENCE

PART I: INTRODUCTION

1. HISTORICAL SURVEY

The rich and complex history of spoken and written Latin defies any attempt at a simplistic description. It is, nevertheless, useful to divide the two and a half millennia over which this history extends into three main periods (Classical Medieval and Modern), with the understanding that there is an unavoidable degree of fuzziness in their temporal and spatial boundaries. Indeed, whatever features one may choose to characterize a given period in the historical development of Latin, it soon becomes evident that some of those features were already present at an earlier time or will persist in the works of some authors at a much later date. This phenomenon can be explained in part by the incredibly large territorial extent of Latin, first brought about by the Roman legions, but eventually achieved through the virtual monopoly of Latin upon learned communication in all matters philosophical, theological and scientific during the Middle Age, the Renaissance and a considerable portion of the Modern Era. As the traditional language of the Roman Catholic Church, Latin enjoys to our very day the status of official language of the Vatican and, as such, its vocabulary is constantly brought up to date. Part of the explanation for the coexistence of several Latin styles at any given moment is also a deliberately archaizing tendency rooted in the recognition of Latin as the mother tongue of one of the main three components of Western civilization (the other two being the Hebrew and the Greek traditions). A somewhat curious example of this tendency is the *Archive for Rational Mechanics and Analysis*, a prestigious scientific journal that still encourages the submission of articles written in Latin.

The Classical Period (from the beginnings until 476 CE)

The Classical Period embraces the greatest literary masterpieces of the Romans, when Latin was style the language of everyday life. It is sufficient to mention the names of Cicero, Julius Caesar, Livy, Catullus, Virgil, Horace, Ovid, Seneca, Tacitus, Martial, Juvenal, Plautus, Terence, Petronius and Apuleius, among many others, to realize the magnitude of the contribution of Rome to the literary and historical patrimony of civilization. Some of the early Christian writers, such as St. Augustine and St. Jerome, belong to this period too, although the latter's Latin translation of the Bible, known as *The Vulgate*, can already be considered as a transitional work.

By comparison, the scientific literary output of this period is remarkably poor. In fact, the Romans did not distinguish themselves in this realm, nor did they bother to translate into Latin the works of the Greek scientists. This phenomenon is probably not entirely due to lack of interest, but also to the fact that educated Romans were supposed to be fluent in Greek, still the prevailing language throughout the Hellenistic world. The Roman emperor Marcus Aurelius, for example, wrote his celebrated *Meditations* in Greek, not in Latin. It is also

important to realize that such Greek scientific giants as Ptolemy, Heron and Diophantus belong, respectively, to the first, second and third centuries CE. The Romans simply could not compete. Nevertheless, without any claim to originality, there existed a few Classical Latin works of encyclopedic nature that are worthy of mention. Marcus Terentius Varro (116-25 BCE) composed one such work, of which only the *Res Rusticae*, dealing with agriculture and farm animals, has survived. He is also the author of *De Lingua Latina*, a treatise on Latin grammar and etymology. It is interesting to remark that Varro's understanding of a proper education was framed within the seven liberal arts: Grammar, Logic and Rhetoric (the "trivium") and Arithmetic, Geometry, Astronomy and Music (the "quadrivium"). These basic disciplines were supplemented by the practical arts of Medicine and Architecture. This framework constitutes the basis for the curricula of all universities, from the Middle Age to our own day. Another work of encyclopedic nature is due to Seneca (4 BCE – 65 CE), who wrote a quasi-scientific book entitled *Quaestiones Naturales*, dealing mainly with meteorological and astronomical phenomena. The most celebrated and influential work along these lines was written by Pliny the Elder (Caius Plinius Secundus, 23 – 79 CE) under the title of *Historia Naturalis*. Impressive by its scope, it can hardly be considered a purely scientific work, particularly after the centuries-old legacy of Aristotle. A work of great originality is *De Rerum Natura* by Lucretius (Titus Lucretius Carus, 99 – 55 BCE), a long philosophical poem that adheres to a strict atomistic viewpoint, borrowed from Democritus and Epicurus, to explain everything in the material, spiritual and social domains.

The Classical period did slightly better in the applied sciences of Architecture and medicine. Vitruvius (Marcus Vitruvius Pollo, 1st century BCE) is the author of what can be considered the first comprehensive architectural treatise, *De Architectura*. This remarkably modern work had an immense impact on the architects of the Italian Renaissance. Medicine during this period was the exclusive realm of Greek doctors (e.g., Galen) and was generally taught in Greek. One Latin treatise, however, stands out as a masterpiece: *De Medecina*, by Aurelius Cornelius Celsus. Written about 30 CE, it was part of a greater encyclopedic work now lost. Its style was considered of a quality compared to that of Cicero, and Celsus was sometimes called "Cicero medicorum". Worthy of mention too is the work of Flavius Vegetius (383 – 450 CE) entitled *Digestorum Artis Mulomedicine*, which can be considered as the first book in Veterinarian Science.

The Middle Age

Even before the official fall of Rome (476 CE), Latin had not been a uniform and rigid language. Side by side with the polished literary form of Cicero, there existed a multitude of vernacular variants, regarded by the purists as barbarian, which manifested themselves not only in considerable regional differences in pronunciation but also in a natural tendency to simplify the grammatical structure in the day-to-day use of the language. These regional and cultural differences

were exacerbated with the fall of the central political authority, leaving the Christian Church as the single unifying power in Western Europe to preserve at least some aspects of the Latin heritage. In particular, Latin became the language of the learned classes and was used all over Western and Central Europe for almost all forms of written and oral communication in matters pertaining to politics, science, philosophy, arts, commerce and even personal life. Thus, Latin remained a living language throughout the Middle Age and, to a lesser extent, well into the nineteenth century. Although essentially the same as Classical Latin, Medieval Latin enriched the relatively poor word arsenal of Classical Latin by incorporating a myriad of new terms suited to a more precise description and transmission of knowledge. It also allowed for a less rigid adherence to the minute details of Latin grammatical rules. Prepositions were used more often, word order was rendered less artificial, and orthographic freedom was widely exercised.

During most of the Middle Age, Western Europe remained virtually ignorant of the great works of the Greek mathematicians and scientists. Many of these works, as well as a wealth of scientific treatises from India, Persian and China, had been preserved in Arabic translations made during the 8th and 9th centuries. Original contributions to mathematics and science abounded during this veritable Golden Age of Islamic civilization. But these important developments had to wait some three hundred years before making a revolutionary impact in Western European science through a renewed movement of translations into Latin. We can say, therefore, that, as far as the scientific literature is concerned, the medieval period of Latin is not particularly rich, at least until the 12th century.

One of the most important figures in this period appears at its very beginning. Boethius (476 – 524) was born into an aristocratic Roman family and educated in the best schools of the day. Perhaps because he saw and lamented the decline of classical culture, he determined to preserve whatever he could by translating and summarizing the works of its greatest exponents. Some of his books would become required textbooks in the medieval educational system for several centuries. His major extant work, *De Consolatione Philosophiae*, is philosophical-theological in nature, but some of his scientific treatises have also survived. They deal with the seven liberal arts (the trivium and the quadrivium described above). We have complete versions of *De Institutione Arithmetica* and *De Institutione Musica*, which contain no original results, but provide a good summary of the knowledge of the time. Of great significance also are his works on Logic, many of them translations or commentaries of classical Greek works. Apart from Boethius' works, there were a number of encyclopedias of the seven liberal arts written in the Middle Age, mostly based on the Greek models. The oldest among them was compiled by Cassiodorus (Flavius Magnus Aurelius Cassiodorus Senator, 495 – 585), also a member of an aristocratic family, under the title of *Institutiones Divinarum et Saecularium Litterarum*. The second part of this work contains an introduction to the seven liberal arts for the edification of Christian monks. Borrowing partially from Cassiodorus, Isidore of Seville (590 – 636) composed his *Etymologiarum sive Originum Libri XX* (known in English simply as the

Etymologies) an encyclopedia of the liberal and applied arts, and *De Rerum Natura*, a work specialized in astronomy and meteorology. These works enjoyed great popularity as medieval university textbooks. More important than that of his predecessors is the contribution to science of the Venerable Bede (673 – 735), who was able to add to Isidore's material his direct knowledge of Pliny's *Historia Naturalis*, probably not available to Isidore. Written in straightforward and clear Latin, Bede's encyclopedia was also called *De rerum Natura*. More important still are his original contributions to the exact determination of the Church calendar, exposed in great detail in *De Temporibus Ratione*. Bede shows a remarkable understanding of the connection between the tides and the phases of the moon, and an acute sense of reliance on the observation of natural phenomena rather than mere speculation.

The twelfth century witnessed a phenomenon of renewed scientific activity stirred mainly by the proliferation of Latin translations, mainly from Arabic versions, of the works of Aristotle, Euclid, Ptolemy, Archimedes and other exponents of Greek and Hellenistic thought, as well as of original mathematical works written in Arabic. One of the great centers of translating activity was Toledo, conquered from the Arabs in 1085, the capital of Castile and later of Spain (until 1560). Toledo was a cultural melting pot of the Christian, Moslem and Jewish traditions. By the thirteenth century, King Alfonso X, the Wise, established there a School of Translators, thus giving official recognition to a century-old reality. Nor was Toledo the only place where translations were being commissioned. Among the most influential translators, we can cite Adelard of Bath (fl. early 12th century), Gerard of Cremona (1114-1187) and Michael Scot (D. 1235). William of Moerbeke (fl. second half of the 13th century) translated directly from the Greek originals.

It was only a matter of time before original works would be written in Latin. Adelard of Bath himself was influential not only as a translator, but also as a staunch defender of the scientific method, which he presented in his book *Quaestiones Naturales*, crafted in the attractive style of a dialogue with his nephew. Perhaps the first original scientific writer of this period is Fibonacci (Leonardo di Pisa, 1170 – 1230). Through his extensive travels, he had become familiar with the Hindu (or Arabic) numerals, and in his *Liber Abaci* he introduced the decimal system to the West. He was also a pioneer of the use of algebraic methods and algebraic notation. His second major work is *Practica Geometriae*, published in 1220. An important contemporary of Fibonacci is Robert Grosseteste (1168 – 1253), chancellor of the University of Oxford. Apart from performing or commissioning the translation of scientific works from the Greek originals, he made important contributions to Optics. He wrote commentaries on the works of Aristotle and a scientific manual called *Compendium Scientiarum*. At about the same time, in the field of Rational Mechanics, Jordanus Nemorarius made important contributions that foreshadowed the work of Galileo and Newton. His two masterpieces are: *Elementa super Demonstrationem Ponderis* and *De Ratione Ponderis*. Jean

Buridan (fl. first half of the 14th century), following some ideas of Arabic science, proposed the so-called impetus theory, a sort of forerunner of the concepts of inertia and momentum. His main works in this field are: *Quaestiones super Octo Physicorum Libros Aristotelis* and *Quaestiones de Caelo et Mundo*. Further progress in Mechanics is associated with Merton College, at Oxford, whose main two exponents are William Heytesbury (*Regula Solvendi Sophismata*) and Richard Swinehead (*De Motu* and *Liber Calculationum*). Working in the period 1325 – 1350, they correctly described the kinematics of uniformly accelerated motion, long before Galileo Galilei. Following in their footsteps, Nicole Oresme (1320 – 1382), a man of remarkable breadth of knowledge ranging from economics to theology, gave a geometric representation of continuous variables and their applications to Mechanics in a manner somewhat suggestive of the Analytic Geometry of Descartes. These ideas appear in his *Tractatus de Configurationibus Qualitatum et Motum*, one of his many works. An interesting aspect of Oresme's activity is that he undertook the translations of classical works into French, thus inaugurating a multilingual modus operandi that would become typical of later centuries. Reading the works of Buridan, Heytesbury and Oresme is essential for anyone wishing to identify some of those giants on whose proverbial shoulders Newton is supposed to have stood.

Medicine in the Middle Age is associated mainly with Moslem and Jewish practitioners, the most famous of whom are Avicenna (Ibn Sina, 980 – 1037) and Maimonides (Moshe ben Maimon, 1135 -1204). Avicenna's *Al-Qanun fi-l Tibb* was translated into Latin in the 12th century. The first school of Medicine in Western Europe was that of Salerno in Italy. An important work to come out of this school is a collective effort known as *Regimen Sanitatis Salernitatum*, a handbook of Medicine written in verse probably in the early 13th century. Important advances were taking place at that time in the field of surgery. Roger of Salerno (fl. second half of the 12th century) wrote the first surgical treatise (*Practica Chirurgiae*) in the West. Guy de Chauliac (1300 – 1368) is the author of the influential treatise *Chirurgia Magna*.

To close this rather incomplete account of medieval scientific literature in Latin, we mention two important figures for the development of science. Albertus Magnus (Albert the Great, or Albert of Cologne, 1200 – 1280) was instrumental in the dissemination of Aristotle's works on the natural sciences and made original contributions to Botany and Zoology. These original works appear within his Aristotelian commentaries *De Vegetalibus* and *De Animalibus*. More relevant than Albertus Magnus is his younger contemporary Roger Bacon (1214 – 1292). A disciple of Grosseteste, Bacon was an indefatigable student of languages, including Hebrew and Greek, and of Mathematics and Physics. Through his omnivorous studies, he developed a rather atypical unprejudiced view of human civilizations, expressing it in his recognition that pagan, Moslem and Jewish thinkers must have been inspired by God. His contributions to science itself (mainly in the field of Optics) are less important than his unyielding defense of the experimental method and the use of Mathematics to express physical thoughts.

Most of these ideas can be found in his *Opus Maius*, consisting of seven parts written in a lively style.

The rise of Italian Humanism and of the wider European movement known as the Renaissance marks the transition into the third period of Latin literature. The humanists advocated and practiced a return to the Greek and Roman sources and the grammatical purification of Latin. Paradoxically perhaps, this humanistic point of view seems to have retarded the development of science for a good hundred years. The impetus of original scholastic medieval science was halted as attention was fixed on the achievements of classical antiquity. Even when the scientific revolution finally took form in the sixteenth century, the debt to scholastic science went often unrecognized, although many of the important scientific writings of the thirteenth and fourteenth centuries had been committed to print and were used by the new scientists. An example of this borrowing is quite evident in the Kinematics of Galileo, inspired no doubt by the legacy of the Merton school, from whose works he sometimes quotes verbatim. Be that as it may, the center of gravity of Latin scientific literature moves drastically and justifiably toward the modern era, while the classical and early medieval periods are virtually dwarfed by the new achievements.

The modern era

Some experts use the term “Neo-Latin” to encompass “all writings in Latin since the dawn of humanism in Italy from about 1300 CE, viz. the age of Dante and Petrarch, down to our own time”¹. It would be impossible to do justice in this brief introduction to the hundreds of contributors to Latin scientific literature in this seven-hundred-year period. What follows, therefore, is a selection of authors in approximate chronological order, indicating their fields of activity and, in many cases, the title of their most significant works. It is worth noting that many of these authors wrote both in Latin and in their mother tongue, and some even in three or four European languages. The criterion for an author to enter this list, however, is simply to have written at least one book or scientific article in Latin.

Martin Waldseemueller (1470 -1518), *Cosmographiae Introductio*. Geography.

Nicolaus Copernicus (Mikolaj Kopernik. 1473 – 1543), *De Revolutionibus Orbium Caelestium*. Astronomy.

Juan Luis Vives (1492 – 1540), *De Anima et Vita Libri Tres*. Psychology.

Georgius Agricola (Georg Bauer, 1494 – 1555), *De Re Metallica*. Mineralogy.

¹ IJsewin, Jozef: Companion to Neo-Latin Studies, 2nd edition, Leuven University Press, Louvain, Belgium, 1990. See also the first edition (North-Holland Publ. Co., Amsterdam, 1977).

Geronimo (Girolamo) Cardano (1501 – 1576), *De Malo Recentiorum Medicorum Medendi Usu Libellus; Artis Magnae sive Regulis Algebraicis (Ars Magna); Liber de Ludo Aleae*. Medicine, Mathematics.

Gerardus Mercator (Gerhard Kremer, 1512 – 1594), *Nova et aucta Orbis Terreae Descriptio ad Usus Navigantium Accommodata; Atlas sive Cosmographicae Meditationes de Fabrica Mundi et Fabricati Figura*. Geography, Cartography.

Andreas Vesalius (1514 – 1564), *De Humani corporis Fabrica Libri Septem*. Anatomy.

William Gilbert (1540 -1603), *De Magnete Magnetisque Corporibus et de Magno Magnete Tellure Physiologia Nova*. Physics, Magnetism.

Tycho Brahe (1546 -1601), *Astronomiae Instauratae Progymnasmata; Astronomiae Instauratae Mechanica*. Astronomy.

Andreas Libavius (1550 – 1616), *Alchemia*. Chemistry.

John Napier (1550 – 1617), *Mirifici Logarithmorum Canonis Descriptio; Mirifici Logarithmorum Canonis Constructio*. Mathematics.

Galileo Galilei (1564 – 1642), *Nuncius Sidereus*. Astronomy and Physics.

Johannes Kepler (1571 – 1630), *Mysterium Cosmographicum; Astronomia Nova; De Harmonice Mundi; Epitome Astronomiae Copernicanae; Apologia pro Tychone contra Ursum; Somnium; Dioptrice*. Astronomy and Optics.

Jan Baptista van Helmont (1577 – 1644), *Ortus Medicinae vel Opera et Opuscula Omnia*. Chemistry and Medicine.

William Harvey (1578 – 1657), *Exercitatio Anatomica de Motu Cordis et Sanguinis in Animalibus*. Medicine.

René Descartes (1596 – 1650), *Regulae ad Directionem Ingenii*. Philosophy, Mathematics and Physics.

Otto von Guericke (1602 – 1686), *Experimenta Nova Magdeburica*. Physics.

Bernardus Varenius (1622 – 1655), *Geographia Generalis in qua Affectiones Generales Telluris Explicantur*. Geography.

Christiaan Huygens (1629 – 1695), *Horologium Oscillatorium*. Physics.

Isaac Barrow (1630 – 1677). *Lectiones Opticae et Geometricae*. Mathematics.

Isaac Newton (1642 – 1727), *Philosophiae Naturalis Principia Mathematica*. Mathematics and Physics.

Gottfried Wilhelm Leibniz (1646 – 1716), *Hypothesis Physica Nova; Historia et Origo Calculi Differentialis*. Mathematics and Philosophy.

Jakob (1655 – 1705) and Johann (1667 – 1748) Bernoulli. Much of their mathematical and physical work was written in Latin and collected in their *Opera Omnia*.

Hermann Boerhaave (1668 – 1738), *Institutiones Medicae; Atrocis nec Descriptii Prius Morbi Historia; Aphorismi de Cognoscendis et Curandis Morbis*. Medicine.

Giovanni Battista Morgagni (1682 – 1771), *De Sedibus et Causis Morborum per Anatomen Indagatis*. Anatomy and Pathology.

Carolus Linnaeus (Carl von Linné, 1707 – 1778), *Species Plantarum; Systema Naturae; Genera Plantarum; Philosophia Botanica*. Botany.

Leonhard Euler (1707 – 1783), *Introductio in Analysin Infinitorum; Institutiones Calculi Differentialis; Institutiones Calculi Integralis*. Mathematics.

Albert von Haller (1708 – 1777), *Elementa Physiologiae Corporis Humani*. Physiology and Medicine.

Luigi Galvani (1737 – 1798), *De Viribus Electricitatis in Moti Musculari Commentarius*. Physiology and Physics.

Alessandro Volta (1745 – 1828), *De Vi Attractiva Ignis Electricis*. Physics.

Carl Friedrich Gauss (1777 – 1855), many articles in Latin. Mathematics and Physics.

Leopold Kronecker (1823 -1891), some articles in Latin. Mathematics.

2. THE PRONUNCIATION OF LATIN

Reading aloud

Although present interest in Latin is mostly directed toward reading and understanding, rather than speaking, the practice of reading aloud is highly recommended. It is advisable to read a paragraph in its entirety before any attempt at translation has been made, and to try to give some intonation as if one understood the meaning of the passage at first reading. This technique, even when producing comic results, ends up developing the ability of extracting the main intuitive clues for understanding a passage. After the passage has been carefully translated and understood, it is recommended to read it aloud once more, this time with the correct intonation.

Latin pronunciation has varied significantly, both in time and space. Scholars have been able to determine with relative accuracy the sounds of the letters in the Classical period. This “restituted” pronunciation is today used in the Classics departments at most universities. More difficult is to know how exactly the Roman speech sounded in terms of intonation, that musical quality of the spoken word, and how this intonation varied with region and with social class. Another difficulty for the modern speaker may be the distinction between short and long vowels, which curiously has all but disappeared in the Romance languages (particularly in those closer to Latin, such as Italian and Spanish). But even the purest classical pronunciation would not necessarily be the correct one for reading, say, medieval or modern texts. There existed already in the Middle Age a number of regional variations affecting mainly the sounds of certain consonants. With the passage of time, the tendency to pronounce Latin in each country using the sounds of the letters in the national language grew beyond control. Thus, the letter “c” before “e” or “i” sounded like our “k” in ancient Rome, but later like our “ss” in England, like “ts” in Poland, and like “tch” in Italy and in ecclesiastical Latin.

The consonants

There is general agreement about the sound of the following consonants:

b, d, f, (k), l, m, n, p, q, r, x, (y), (z).

The pronunciation of these consonants is identical to their sounds in modern Italian or Spanish. Notice in particular that the “d” and the “l” are more dental than their English counterparts, and that the “r” is slightly trilled. The bracketed letters are seldom used. The “k” was used in certain proper names, and the “y” and the “z” are additions of the first century BCE to render foreign (Greek) words. In Latin the letter “y” is considered as a vowel, so it will be discussed later as such. Doubling a consonant simply doubles its duration.

For the letter “c”, there is no disagreement as to its sound (“k”) before the vowels “a”, “o” and “u”. In classical Latin this sound was also produced before the remaining vowels (“e” and “i”), whereas medieval and Church Latin tended to pronounce it as a soft “tch”. The alternative pronunciations described above are not recommended, since they represent extremely localized variants.

A similar situation can be observed with regard to the consonant “g”. Before “a”, “o” and “u” it is pronounced like in English. Classical Latin used the same sound (namely, “ghe”, “ghi”) before the remaining vowels, but the later tendency was to pronounce it as in English or Italian before “e” and “i”.

The letter “h” was aspirated (like in the English word “her”) during the classical period, particularly at the beginning of a word. Between vowels, “h” started to lose its sound and eventually became mute in all cases (just like in modern Spanish).

Technically, the letter “j” does not exist in Latin. Nevertheless, it is used in some editions of Latin texts to replace “i” as a consonant (for example: jam = iam, juxta = iuxta). It is always pronounced like a strong “i” (or like the English consonant “y”).

The “s” should always be pronounced as in the English word “set”, although the softer pronunciation (as in the English word “rose”), or Italian origin can be tolerated.

The letter “t” is pronounced placing the tongue at the front teeth, like in modern Italian and Spanish. Nevertheless, in the particular combination “ti + vowel”, there developed in later Latin the alternative pronunciation “ts”. Many Latin words are affected by this variant, such as those that correspond to the English words ending in “-tion” (institutio, relatio, etc.), which drop the final “n”.

The letter “v” was pronounced originally as the English “w” in “was”. The norm in later Latin was to pronounce it as the “v” of modern English. In writing, the “v” is interchangeable with the letter “u”. The letter “w” does not exist in Latin.

A few consonant pairs deserve special treatment. In the classical period, an “h” placed after another consonant (“c”, “p”, “t”) simply represented the successive pronunciation of each individual sound, namely, the addition of an aspiration after the first consonant. Later, however, the group “ch” would be pronounced as “k”, while “ph” and “th” would be pronounced as in modern English (in words such as “philosophy” and “theology”). These combinations are typical in Latin transcription of Greek words. The group “gn” is more problematic, but one can reasonably assume that it was originally pronounced as the succession of the individual sounds (as in the English word “magnification”). An acceptable later variant is as in modern Italian (as in “gnocchi” or “signora”, a sound more or less

equivalent to the Spanish “ñ”, the Portuguese “nh”, or roughly the combination “n + y”).

Vowels and diphthongs

The original vowel characters in Latin are five: “a”, “e”, “i”, “o”, “u”. As already mentioned, the extra letter “y” was added later to represent the Greek letter *υ* (upsilon), whose original sound is similar to the German “ü” or the French “u”. Eventually, the sound of this letter would become indistinguishable from that of the vowel “i”. Each of the five basic vowels can be short or long, the long vowel having the same sound as its short counterpart but lasting roughly twice as long. The sound of the vowels is captured by Spanish and Italian, although these languages do not make a systematic distinction between short and long vowels. In Italian, for example, the vowel in the stressed syllable of a word tends to be longer than in an unstressed syllable. There are enough Italian words in English that we don’t need to resort to approximate English equivalents. Good examples are; Pizza, spaghetti, cappuccino, numero uno, tutti, etc. The length of vowels is never indicated in Latin texts, except possibly in grammars, which use a superimposed bar to indicate a long vowel (e.g., ā) and a cup for a short vowel (e.g., ă). Although the exact pronunciation of the length of vowels is not important in itself as far as scientific texts are concerned, knowing the length of a vowel may be important in determining where the stress of a word falls.

A minor point to be made is a gentle warning about the occasional interchangeability of the vowels “i” and “u”. This anomaly seems to have its origin in the existence of an “intermediate sound” (*sonus medius*) between the two vowels, which ended up corrupting the spelling of some words. Thus, one may sometimes find “optumus” for “optimus” and, conversely, “monimentum” for “monumentum” in classical literature.

A diphthong is a combination of two vowels pronounced in a single syllable. The Latin diphthongs are: “ae”, “au”, “ei”, “eu” and “oe”. The combination “ui” is pronounced as two syllables, except in a few special words (*huius*, *cuius*, *huic*, *cui*, *hui*). Any combination of vowels not mentioned above is to be considered and voiced as two separate syllables. There is some evidence to suggest that in classical times the diphthong “au” tended to be pronounced as “o” by many people, but this practice was not necessarily entrenched in medieval times. On the other hand, the diphthong “ae” tended to be pronounced as “e”, and this practice managed to affect even the spelling of words. It is not infrequent to find the substitution of “e” for “ae” in scientific Latin, a fact that can cause some confusion to the punctilious translator. Perhaps this is the right moment to mention other such anomalies to be found in facsimile reproductions of manuscripts and original editions. It is not uncommon to find that many words have been severely contracted by, for instance, replacing an “n” or an “m” by an over-bar. Modern editions, on the other hand, never yield to such temptations.

Syllabification and accentuation

The division of a word into its component syllables is a relatively easy task in Latin. Every syllable has just one vowel or diphthong. If a consonant separates two vowels, it belongs to the syllable of the second vowel (or diphthong). The case of two or more consonants between vowels is only slightly more complicated. In the general case, it is only the last consonant of the group that goes with the second vowel, while the other consonants are attached to the preceding vowel. Nevertheless, the combination of any of the consonants “b”, “c”, “d”, “g”, “p” or “t” with a following “l” or “r” counts as a single consonant, for obvious phonetic reasons. The same is true for the combinations “ch”, “ph”, “th” and “qu” (in this last combination, the symbol “u” does not count as a vowel, although it is pronounced as such). Finally, the letter “x” counts as two consonants (“k” + “s”).

Every polysyllabic word in Latin has a stressed syllable². The stress or accent is never indicated graphically. Nevertheless, the rules for determining the accented syllable are very simple, provided one knows the length of the vowels involved. A syllable in Latin can be long on two accounts. It can be long “by nature” if it contains a long vowel or a diphthong. And it can be long “by position” if, having a short vowel, it ends in a consonant (according to the rules of syllabification). A syllable which is not long either by nature or by position, is to be considered a short syllable. Having established the rules for determining the length of a syllable, the rules for the accent of a polysyllabic word are as follows: (1) the stress never falls on the last syllable (“ultima”); (2) if the word has just two syllables, the accent falls necessarily on the first syllable; (3) if the one-but-last syllable (“penultima”) is long, it carries the accent. Otherwise, the accent falls on the preceding syllable (“antepenultima”). The accent cannot go any further back.

² The importance of stressing the correct syllable is illustrated in a comic episode involving Luis XVIII and his ministers in 1821. It is said that at a cabinet meeting the king, who knew Latin, exhorted the ministers with the words “macte animo”, which is more or less equivalent to “bravo!” Naturally, he followed the French practice of stressing the last syllable of every word. The shocked ministers, thinking the king was speaking French, understood “marchez animaux!” (Cited in Traina, A., “L’alfabeto e la pronunzia del latino”, 3rd ed., Pàtron, Bologna, 1967).

PART II: COMPENDIUM OF LATIN GRAMMAR

CHAPTER I: PRESENT INDICATIVE OF THE VERB “TO BE”

The *conjugation* of Latin verbs abides by fairly regular patterns, consisting of the addition of (personal) suffixes to an invariable *stem*. The verb “to be” is (like in English) somewhat of an anomaly, with the stem exhibiting an erratic behaviour. Because of its importance and ubiquity, it is best to memorize this verb, at least in the *present tense* of the *indicative mood* (or *mode*).

Number	Person	Form	Meaning
Singular	1	sum	I am
	2	es	you are
	3	est	he (she, it, there) is
Plural	1	sumus	we are
	2	estis	you (pl.) are
	3	sunt	they (there) are

The *infinitive* (to be) is **esse**. Note that, because of the unambiguousness of the personal endings, the *personal pronouns* (I, you, etc.) need not be (and usually are not) used. To make some sentences with this verb we need *nouns* and *adjectives*. Fortunately, so many nouns and adjectives in English derive from Latin (particularly in the sciences) that you should have no trouble at all translating the following sentences:

Circulus est figura plana.

Physica et biologia scientiae sunt.

Philosophus esse difficile est.

Even in these simple examples you may have noticed a few of the peculiarities of Latin. Firstly, there are no *articles*, whether definite (the) or indefinite (a, an). Thus, the first sentence could be translated as: “A circle is a plane figure”, or “The circle is a plane figure”, both translations being correct. When the context is insufficient to establish the degree of definiteness, Latin adds *demonstrative* or *possessive adjectives* (“This circle...”, “Our circle...”, etc.), a practice followed in some modern languages, such as the Slavic languages.

A second feature of Latin is one that makes its style at once so beautiful and, sometimes, so difficult to translate: words in a sentence can be juggled without altering the meaning of the sentence. The heavily *inflected* character of verbs, nouns and adjectives allows for this degree of freedom without causing (almost) any ambiguities. As an example, notice that the verb was placed at the end in the last two sentences, but in the middle of the first. The following are some of the equivalent combinations:

Circulus plana est figura.

Circulus figura plana est.

Difficile philosophus esse est.

Difficile est philosophus esse.

In more complex sentences the possibilities multiply, and some of the classical authors seem to have experienced a perverse delight in pushing the limits of such freedom. Fortunately for us, most scientific writings do not go so far, whether in the interest of clarity or, more probably, because their authors' mastery of Latin leaves something to be desired.

The *conjunction* **et** (and) in an enumeration can be replaced by the *suffix* **-que** appended to the word that follows **et**. Thus, we could have said:

Physica biologiaeque scientiae sunt.

The *adversative conjunction* “but” is rendered in Latin by **sed**.

Difficile sed bonum philosophus esse est.

NEGATION AND INTERROGATION

To negate the action of a verb, the negative *adverb* **non** is placed before the verb.

Artes non sunt scientiae.

The term “nothing” is rendered by the noun **nihil**.

Nihil sumus.

The compound **neque** means “and not”. It can be abbreviated as **nec**. “Neither ... nor ... is rendered as “**neque ... neque ...**”

A question may be indicated by raising the voice, by placing the verb at the beginning of the sentence, or by some other rhetorical device. Nevertheless, if more precision is desired, the *enclitic particle* **-ne** is usually appended to the first word of the sentence to indicate a legitimate question whose answer is not known or not expected to be bluntly “yes” or “no”.

Estne philosophia scientia?

Is philosophy a science? (I would like to know)

If the answer is expected to be “no”, the word **num** is used as an introduction:

Num est philosophia scientia?
Is perchance philosophy a science? (Certainly not!)

If the expected answer is “yes”, the compound **nonne** can be used:

Nonne est philosophia scientia?
Is it not the case that philosophy is a science? (Of course it is!)

PRINCIPAL PARTS

Every Latin verb is designated by its *principal parts*, a device which helps to avoid any confusion that might otherwise arise as to how the verb should be conjugated. There are as many as four principal parts, and dictionaries actually list verbs in this way. It is, therefore, a recommended policy to learn verbs by memorizing their principal parts. The first two of the four principal parts are: the first person singular and the infinitive of the present indicative active. Provisionally, until the remaining two principal parts are introduced, we shall list verbs by the first two. Thus, the verb “to be” is, so far, **sum, esse, ...**

DIGRESSION ON DERIVED VERBS

The English verbs: defer, confer, infer, refer, transfer, prefer, proffer, offer, and differ, are all derived from the basic Latin verb **ferō, ferre, ...**, whose primary meaning is “to carry, to bear”. The derived verbs are obtained by placing before the basic verb a short *prefix* conveying the added nuances of meaning. As we shall learn later, many of the prefixes can also be used as independent *prepositions* with nouns. In the examples above we have used the prefixes **dē-** (away), **con-** (with), **in-** (in, into), **re-** (back, again), **trans-** (across), **prae-** (before), **prō-** (before, out), **ob-** (towards), **dis-** (apart). Some phonetic and orthographic changes take place when these prefixes meet with incompatible consonants (e.g., ob+fero = **offerō**, etc.). In the case of the verb **sum, esse, ...**, there are a few derived verbs, whose conjugation follows that of the parent verb:

absum, abesse, ... = not to be there, to be absent, to be away

adsum, adesse, ... = to be near, to be present

dēsum, dēesse, ... = to be less, to be in defect, to be missing

intersum, interesse, ... = to be between or involved, there to be a difference

praesum, praesesse, ... = to be in charge of, to preside

supersum, superesse, ... = to be above, to survive

THE VERB “TO BE ABLE”

Another very important verb which follows the conjugation of **sum, esse, ...** is formed by anteposing the particle **pot-**, which carries the meaning of “able”. Thus, we obtain:

pot + sum = **possum** (I can, I am able)
pot + es = **potes**
pot + est = **potest**
pot + sumus = **possumus**
pot + estis = **potestis**
pot + sunt = **possunt**

We again observe a typical phonetic change to avoid the clash between two incompatible consonants:

t + s = **ss**

The infinitive is further contracted to **posse** (rather than “potesse”).

A CHALLENGE

Practically every Latin root has found its way into English, either directly, through French, or through the use of scientific terminology. The open challenge is, therefore, to find for every Latin word you encounter a related English word.

EXERCISES

Translate:

- 1) It is not difficult to survive.
- 2) Can they be away?
- 3) Philosophy is neither an art nor a science.
- 4) Sine scientia artes nihil sunt. (**sine** = without)
- 5) Si superesse non potestis studentes non estis. (**si** = if)
- 6) Linea est longitudo sine latitudine. (Euclid, Adelard)
- 7) In scientiis nihil interest.
- 8) Sine philosophia superesse non possumus.

CHAPTER II: PRESENT INFINITIVE AND INDICATIVE ACTIVE

Grammarians classify Latin verbs into four groups according to their *conjugation* patterns. In the *present indicative active*, as well as in many other tenses, the differences among the patterns are so minor that it may be best to study them all at once. One way to characterize each of the four conjugation groups consists of recognizing a “dominant” vowel, as follows:

CONJUGATION	DOMINANT VOWEL
1 st	ā or a
2 nd	ē
3 rd	e
4 th	ī

All *infinitives* end in the syllable **–re** preceded by the characteristic vowel.

Examples:

1 st :	cogitō, cogitāre, ...	to think
	dō, dare, ...	to give
2 nd :	habeō, habēre, ...	to have (in possession)
	debeō, debēre, ...	must, to have to, to owe
	videō, vidēre, ...	to see
3 rd :	dicō, dicere, ...	to say, to tell
	trahō, trahere, ...	to draw, to pull
	faciō, facere, ...	to do, to make
	capiō, capere, ...	to seize, to take
4 th :	audiō, audīre, ...	to hear, to listen
	inveniō, invenīre, ...	to find, to invent

The present indicative *stem* is obtained by deleting the last syllable (-re) from the infinitive. The conjugation of the present indicative is then obtained by adding the *personal endings* to the stem. The personal endings are:

Number	Person	Personal ending
Singular	1	-ō
	2	-s
	3	-t
Plural	1	-mus
	2	-tis
	3	-nt

You have probably recognized most of these endings from the conjugation of **sum, esse, ...** The exception is the first person singular, where we have now **-ō** instead of **–m**. When

adding the endings to the present stem, a few changes take place which can be summarized as follows:

a (or **ā**) + **ō** = **ō** (vowel contraction)
e + **ō** = **ō** (or **iō**)
ē + **ō** = **eō** (vowel shortening)
ī + **ō** = **iō**
ā + **t** = **at**
ē + **t** = **et**
ī + **t** = **it**
ā + **nt** = **ant**
ē + **nt** = **ent**
e + **s** = **is** (vowel change)
e + **t** = **it**
e + **mus** = **imus**
e + **tis** = **itis**
e + **nt** = **unt** (or **iunt**)
i + **nt** = **iunt**

In short, the consonant endings tend to reduce the length of the vowel, the short **e** tends to change to a short **i**, and the **ō** ending either absorbs or shortens the preceding vowel. The alternative endings indicated in parenthesis correspond to verbs of the third declension whose first person singular ends in **iō**, such as **faciō**. But because a verb is designated by the principal parts, there is no cause for confusion. Thus, since we say **dicō, dicere, ...** we know that the third person plural will be **dicunt**, while for the verb **capiō, capere, ...** the third person plural will be **capiunt**. Both verbs belong to the third conjugation. Remember that the main skill needed in translating is recognition, so you do not have to memorize all the details, but just concentrate on internalizing the basic patterns, with particular attention to the personal endings.

Following are full conjugations of the present indicative of verbs in all categories. It is always beneficial to read aloud, always remembering the rules for accentuation.

		1	2	3a	3b	4
	1	cōgitō	habēō	dīcō	faciō	audiō
Singular	2	cōgitās	habēs	dīcis	facis	audīs
	3	cōgitat	habet	dīcit	facit	audit
	1	cōgitāmus	habēmus	dīcimus	facimus	audīmus
Plural	2	cōgitātis	habētis	dīcitis	facitis	audītis
	3	cōgitant	habent	dīcunt	faciunt	audiunt
Infinitive		cōgitāre	habēre	dīcere	facere	audire

Non cogitas sed dicis

You don't think, but you speak. (Or: you are not thinking, but just speaking)

In Latin, the present indicative active can also convey the meaning of continued action (“you are thinking”, as opposed to “you think”), for which there is no separate verbal form.

EXERCISES

- 1) Formulate criteria to deduce, from the first two principal parts, the conjugation group to which a verb belongs. These criteria should not be based on the length of vowels, since lengths are never indicated in actual texts.
- 2) To which conjugation group does each of the following verbs belong? In the case of the 3rd conjugation, indicate whether it is type “3a” or type “3b”. **Accipio, accipere, ...** (to get, to receive, to accept); **appello, appellare, ...** (to call by name, to name); **contineo, continere, ...** (to contain, to include), **duco, ducere, ...** (to lead); **fugio, fugere, ...** (to flee, to run away); **intellego, intellegere, ...** (to understand); **lego, legere, ...** (to pick, to read); **maneo, manere, ...** (to remain, to stay); **moveo, movere, ...** (to move something); **sentio, sentire, ...** (to feel, to realize); **tango, tangere, ...** (to touch).
- 3) Conjugate each of the verbs of the previous question in full in the present indicative active. Make sure to say them aloud, paying attention to the stressed syllables and, if possible, to the vowel length.

TRANSLATION EXERCISES

- 1) Aren't you (pl.) doing anything?
- 2) If they cannot see, they must listen.
- 3) It is difficult to understand if we are not thinking.
- 4) If you don't see, you cannot read. But if you don't read, can you see?
- 5) Si nihil dicis nihil intellegimus.
- 6) Circulus centrum continet.
- 7) Num potest linea recta infinita centrum habere?
- 8) Tempus fugit, spatium manet.
- 9) Nec scientiam nec philosophiam habetis.

CHAPTER III: FIRST- AND SECOND-DECLENSION NOUNS AND ADJECTIVES

Latin nouns and adjectives exhibit a high degree of variability. In their different inflections they may display *number* (singular or plural), *grammatical gender* (feminine, masculine, neuter), and *case*. The case of a noun is used to indicate its various functions vis-à-vis a verb (subject, object, complement), another noun (description, possession), or a preposition (motion, time, relation). Similarly, adjectives must follow the gender, number and case of the noun they modify. As with verbs, grammarians classify nouns into five groups according to their *declension* patterns, that is, according to the way they stray or “incline” away (de-cline) from the basic form as the case changes. Adjectives, on the other hand, can belong only to any of the first three declensions.

It would be tempting to present all declension patterns at once, as we did with the verb conjugations. Unfortunately, though, the commonality between the declensions is less apparent than their differences. Nevertheless, the first two declensions are so similar that they warrant a common presentation in this chapter. The vast majority of Latin nouns (and all adjectives) belong to one of the first three declensions, so a separate chapter will be devoted to the third declension. The fourth and fifth declensions need to be studied too, since a few very common Latin words such as **motus** (motion) and **res** (thing) belong to them.

Latin recognizes six cases: *Nominative*, *Genitive*, *Dative*, *Accusative*, *Ablative*, and *Vocative*. Their main (though by no means only) functions are as follows:

1. Nominative: subject of a sentence.
2. Genitive: possession (the possessor goes in the genitive case), and a few other functions commonly expressed in English by the word “of” preceding the noun.
3. Dative: indirect object of a verb. Verbs implying giving, transferring, saying, etc, tend to be accompanied by a dative to indicate the person (or thing) to whom something has been transmitted.
4. Accusative: direct object of a verb. In addition, certain prepositions of motion and time require a noun in the accusative case (to indicate motion into, towards, or through, and time or place after, during, etc.).
5. Ablative: practically everything else falls under this rubric. Most prepositions require the ablative case (to indicate place or time in, at, or from which, means by which, thing (or person) with or without which, or the manner how an action takes place.
6. Vocative: addressing a person (or thing). This is the least important of all the cases, particularly in scientific literature, where it is usually relegated to the opening sentence in the introduction (dear reader ..., o great prince ..., and so on) or to address an interlocutor in dialogues.

Excluding the vocative case, one has to somehow internalize ten possibly different endings (five singular and five plural), so it is a good policy to develop a skill for pattern recognition to serve as a useful (albeit sometimes dangerous) guide.

Most nouns of the first declension are feminine, while all nouns of the second declension are either masculine or neuter. The few exceptions to the feminine rule are masculine words borrowed from Greek (such as **nauta** (sailor), **poeta** (poet), and **planeta**). We

exemplify the first and second declensions with the nouns **figura** (f: figure, shape), **angulus** (m: corner, angle), and **spatium** (n: space).

		1 st declension	2 nd declension (m)	2 nd declension (n)
Singular	N	figūra	angulus	spatium
	G	figūrae	angulī	spatiī
	D	figūrae	angulō	spatiō
	Ac	figūram	angulum	spatium
	Ab	figūrā	angulō	spatiō
	V	(figūra)	(angule)	(spatium)
Plural	N	figūrae	angulī	spatia
	G	figūrārum	angulōrum	spatiōrum
	D	figūrīs	angulīs	spatiīs
	Ac	figūrās	angulōs	spatia
	Ab	figūrīs	angulīs	spatiīs
	V	(figūrae)	(angulī)	(spatia)

We see that, as with verbs, there is an invariable stem to which characteristic endings are added. We do not list the endings since they are quite obvious from the examples.

Hints for pattern recognition:

- The nominative singular of 1st declension always ends in **-a**.
- Most, but not all, masculine nouns have a nominative singular in **-us**, while neuters end in **-um**.
- The accusative neuter singular and plural are always (and in all declensions) identical, respectively, to the nominative singular and plural.
- In both 1st and 2nd declensions the ablatives are identical to the corresponding datives. The plurals end in **-īs** regardless of gender.
- The accusative singular ends in **-m**.
- Genitive plurals end in **-rum**.
- Neuter plural nominatives (and, of course, accusatives) end in **-a**.
- Except for nominative and accusative, neuters follow exactly the masculine pattern (that is why they are grouped together).
- Except for masculine singular, the vocative is the same as the nominative.

A few masculine nouns have the nominative in **-er** (instead of **-us**). They otherwise follow the regular pattern (sometimes dropping the “e” before the “r”) Any doubt as to this point is easily dispelled by the dictionary custom to list nouns by giving both the nominative and the genitive singular. This policy avoids also other possible ambiguities, for instance those arising from the fact that some 3rd and 4th declension nouns whose nominative ends in **-us** (such as **corpus** and **motus**), which might otherwise appear to be of second declension (but their genitives are: **corporis** and **motūs**). As a rule, always look at the genitive to obtain the correct stem, since the nominative is sometimes adulterated, as in the following examples.

Examples:

- **liber, librī** (m., book)
- **puer, puerī** (m., boy)
- **vir, virī** (m., man, male)

In all these examples, the conjugation follows regularly from the genitive on. (There is a bit of an issue with the vocative, but we shall not dwell on it).

Adjectives must agree in number, gender and case with the noun they qualify. Except for third-declension adjectives, to be studied later, adjectives follow the first declension for the feminine, and the second declension for masculine and neuter. It would seem logical, therefore, to list the forms of adjectives in the order: feminine, masculine, neuter. Nevertheless, dictionaries and grammars tend to list the masculine first, followed by the feminine and the neuter. To avoid confusion in pattern recognition and memory habits, we will adhere to the usual order (masculine, feminine, neuter).

Example: **magnus, magna, magnum** (great, large)

		masculine	feminine	neuter
Singular	N	magnus	magna	magnum
	G	magnī	magnae	magnī
	D	magnō	magnae	magnō
	Ac	magnum	magnam	magnum
	Ab	magnō	magnā	magnō
	V	(magne)	(magna)	(magnum)
Plural	N	magnī	magnae	magna
	G	magnōrum	magnārum	magnōrum
	D	magnīs	magnīs	magnīs
	Ac	magnōs	magnās	magna
	Ab	magnīs	magnīs	magnīs
	V	(magnī)	(magnae)	(magna)

Adjectives with masculine in **-er** are self-explanatory. Example: **piger, pigra, pigrum** (slow, lazy). The genitive masculine is **pigrī**.

PREPOSITIONS

Prepositions are words placed before a noun to indicate a relation to the noun. Examples of prepositions in English are: for, to, towards, from, away, after, with, without. In Latin, prepositions invest the noun affected with a declension case. Some prepositions govern two different cases, and in each instance they have a slightly different meaning. Thus, the Latin preposition **in**, when governing an accusative noun, means “into”, namely, it acquires a connotation of motion towards. If, on the other hand, the noun affected is in the ablative, then **in** means “in, inside”. (A similar practice exists in modern German).

Following is a list of the most common Latin prepositions together with the case (or cases) they govern and the corresponding approximate meanings. Notice that, as a rule, the accusative conveys a connotation of motion towards or through something, and the passage of time; but you should be careful not to overdo such criteria and try to memorize the cases. Remember that since Latin writers tend to juggle the words of a sentence, the knowledge of the case governed by a preposition can be of great help in disentangling the mess. For example: the preposition **de** (about, on) governs the ablative case. So, if the phrase **de figurarum natura** is to be translated, we would reason as follows: **figurarum** can only be in the genitive (plural) case, so it cannot be governed by **de**. The word **natura** (nature, a 1st-declension noun) could be in the nominative singular (if the final **-a** is short), or in the ablative singular (if the final **-ā** is long). We then decide that, because of the preposition, the latter is the case and translate: “On the nature of figures”. A careless analysis could have rendered “On the figures of nature” or some other incorrect possibility of combining the words at random. It is to be noted that not all situations requiring a preposition in English do so in Latin. In fact, the declensions themselves have a prepositional nuance. For example, the English “of” has no equivalent in Latin, since possession is directly indicated by the genitive case (e.g., **figurarum** = of the figures). Another important example along similar lines is the ablative case, which automatically carries a connotation of “means by which” (e.g., **scribo calamo** = I am writing with a pen, I write by means of a pen).

Preposition	Case(s)	Meaning(s)	Examples
ab (optional: ā before consonant)	ablative	from, by (agent)	ā puerō = by the boy ab angulō = from the corner
ad	acc.	to (towards), up to, approximately	ad angulum = towards the corner
ante	acc.	in front of, before	ante oculōs = in front of the eyes ante bellum = before the war
apud	acc.	“chez”, among	apud romanōs = among the Romans apud claudium = at Claudius’ house
circā	acc.	near, around	circā stellās = near the stars
circum	acc.	around	circum figuram = around the figure
contrā	acc.	against	contrā romanōs = against the Romans
cum	ablative	with	cum virō = with the man
dē	ablative	about (concerning), down from	liber dē naturā = a book about nature
ex (optional ē before consonant)	ablative	out of, out from	ex librīs philosophī = from the philosopher’s books
extrā	acc.	outside, beyond	extrā terram = beyond the earth
in	acc ablative	into (direction) in (position)	in angulum = into the corner in angulō = in the corner

inter	acc.	between, among, during	inter virōs = between men
intrā	acc.	within	intrā horam = within an hour
ob	acc.	because of, in front of	ob magnam formam = because of (its) great beauty
per	acc.	through, because of	per campus currit = she runs through the field
post	acc.	after, behind	post longam vitam = after a long life
prae	acc.	in front of, in preference to	officium prae otium = duty before leisure
prō	ablative	in front of, in place of, on behalf of	dicit prō amicō = he speaks for his friend
propter	acc.	because of, on account of	propter errata = because of mistakes
sine	ablative	without	sine dubiō = without a doubt
sub	acc. ablative	downwards under, below	sub terrās = down to hell sub terrīs = underground, in hell
super	acc. ablative	about, onto above, over, on	cometa cadet super terram = a comet is falling on the earth liber est super mensā = the book is on the table
suprā	acc.	above, beyond	suprā caelos = beyond the heavens
trans	acc.	on the other side of	trans fluvium = on the other side of the river
ultrā	acc.	beyond	ultrā officium = beyond duty

CHAPTER IV: THIRD-DECLENSION NOUNS AND ADJECTIVES

It is a characteristic of the third declension that the stem is often shortened in the nominative singular, so that it is imperative to remember both the nominative and the genitive singular, which contains the full stem. Although there is no mathematical way to establish any rules for the shortened nominative, a certain ineffable quasi-musical pattern emerges with some practice and familiarity.

Third-declension nouns may be of any of the three genders. The feminine and masculine nouns follow identical patterns, while neuter nouns differ in only two respects: (i) the nominative and accusative are identical (a rule never broken in Latin), and (ii) the nominative and, therefore, also the accusative, plural have the typical neuter ending **-a**. Otherwise, the third declension is gender-indifferent.

Examples:

- lĕx, legis** (f., law)
- qualitĕs, qualitĕtis** (f., quality)
- homo, hominis** (m., man, human being)
- factor, factōris** (m., factor, doer)
- corpus, corporis** (n., body)
- tempus, temporis** (n., time)

		Stem: leg-	Stem: factor-	Stem: corpor-
Singular	N	lĕx	factor	corpus
	G	lĕgis	factōris	corporis
	D	lĕgī	factōrī	corporī
	Ac	lĕgem	factōrem	corpus
	Ab	lĕge	factōre	corpore
	V	(lĕx)	(factor)	(corpus)
Plural	N	lĕgēs	factōrēs	corpora
	G	lĕgum	factōrum	corporum
	D	lĕgibus	factōribus	corporibus
	Ac	lĕges	factōrēs	corpora
	Ab	lĕgibus	factōribus	corporibus
	V	(lĕgēs)	(factōrēs)	(corpora)

Notice that the genitive plural ending is **-um** (not **-ōrum**), so for instance, of men = **hominum**, of the qualities = **qualitātum**, etc. In each case, the stem is obtained by deleting the ending **-is** from the genitive singular.

Although the declension patterns themselves are quite indifferent to gender, there are some general rules for certain nominative endings which permit to recognize the gender in many cases. The most common are:

- Feminine: **-tās, -tātis** (English: -ty)
- tūs, -tūtis**
- tudō, -tūdinis** (English: -tude)
- tiō, -tiōnis** (English: -tion)

- Masculine: **-or, -ōris** (English: -or)

- Neuter: **-us** (with short **u**)
- e**
- al** (English: -al)
- ar**

In the last three categories (namely neuter nouns with nominatives in **-e**, **-al**, or **-ar**) there is a slight irregularity in the ablative singular ending (**-ī**, instead of **-e**) and an added “**i**” in the nominative (and accusative) and genitive plural endings (**-ia**, instead of **-a**, and **-ium**, instead of **-um**). These irregularities do not gravely impair recognition. Moreover, they become the rule for all third declension adjectives. There is, however, one especially irregular third-declension noun which must be learned: **vīs, vīs** (f., force; in plural it may mean “strength”):

		Stem: vī-
Singular	N	vīs
	G	vīs
	D	vī
	Ac	vim
	Ab	vī
	V	(vīs)
Plural	N	vīrēs
	G	vīrium
	D	vīribus
	Ac	vīrēs
	Ab	vīribus
	V	(vīrēs)

Note: Carefully distinguish **vīs, vīs** (a feminine third-declension noun) from **vir, virī** (a masculine second-declension noun). In fact, they don't have a single form in common! Practice translating into Latin: A man of strength, The men have strength, etc.

Third-declension adjectives have the same *oblique* forms for feminine and masculine, with the neuter exhibiting similar patterns to neuter nouns. By oblique we mean all cases except the nominative. Some adjectives do exhibit different nominative singular for feminine and masculine, and this is indicated in dictionaries by listing three (masculine, feminine, neuter) rather than just two (masculine-feminine, neuter) entries.

Examples: **cēler**, **cēleris**, **cēlere** (swift); **brevis**, **breve** (short). As already mentioned, some specific adjectival endings include an additional “i”.

		M/F	N	M/F	N
Singular	N	brevis	breve	cēler/cēleris	cēlere
	G	brevis	brevis	cēleris	cēleris
	D	brevī	brevī	cēlerī	cēlerī
	Ac	breve	breve	cēlerem	cēlere
	Ab	brevī	brevī	cēlerī	cēlerī
	V	(brevis)	(breve)	(cēler/cēleris)	(cēlere)
Plural	N	brevēs	brevia	cēlerēs	cēleria
	G	brevium	brevium	cēlerium	cēlerium
	D	brevibus	brevibus	cēleribus	cēleribus
	Ac	brevēs	brevia	cēlerēs	cēleria
	Ab	brevibus	brevibus	cēleribus	cēleribus
	V	(brevēs)	(brevia)	(cēlerēs)	(cēleria)

Many adjectives of the third declension can be seen as *present participles* (to be studied later). Their nominative singular ends in **-ens**, and they have identical forms for all genders.

THE “Q”-WORDS

Many of the English “w”-words (who, what, which, why, when, ...) and relative pronouns (that, ...) and adverbs (how, ...) and other important “little” words of very frequent use, start in Latin with a “q”.

The relative pronoun

The dominant element to master the “q”-words is the *relative pronoun* (that, which, who), used prevalently in *subordinate clauses*. Surprisingly perhaps, English has preserved declined forms for the relative pronoun:

	N	who
	G	whose
S & P	D	(to) whom
	Ac	whom
	Ab	(in, from, ...) whom

The declension of the Latin relative pronoun (**quī**, **quae**, **quod**) is a peculiar mixture of the first, second and third declensions. The following table shows the full declension. Notice the highlighted common forms for the genitive and dative singular and, as usual, for the dative and ablative plural.

		masculine	feminine	neuter
Singular	N	quī	quae	quod
	G	cuius =====	cuius =====	cuius =====
	D	cui =====	cui =====	cui =====
	Ac	quem	quam	quod
	Ab	quō	quā	quō
Plural	N	quī	quae	quae
	G	quōrum	quārum	quōrum
	D	quibus =====	quibus =====	quibus =====
	Ac	quōs	quās	quae
	Ab	quibus =====	quibus =====	quibus =====

In a subordinate clause, as in English, the relative pronoun acquires the case dictated by its function in the clause (subject, direct object, etc.). The gender and number, naturally, are dictated by the gender and number of the thing represented by the pronoun.

Examples:

Circulus est figura plana, in cuius mediō centrum est.

Circulus est figura plana, quae in mediō centrum habet.

Leges quās dicis falsae sunt.

The interrogative pronoun

Based on the relative pronoun, the interrogative forms undergo some changes in the singular, but remain identical to those of the relative pronoun in the plural. The changes in the singular forms can be summarized as follows: (i) the masculine and feminine forms coalesce into the masculine ones; (ii) the nominative (and neuter accusative) acquire the new forms **quis, quid** (instead of quī, quod). Thus, for example, we may say:

Quid facere possum?

Quis librum habet?

The complete declension of the interrogative pronoun is:

		Masculine	feminine	neuter
Singular	N	quis		quid
	G	cuius ==		cuius =====
	D	cui ==		cui =====
	Ac	quem		quid
	Ab	quō		quō
Plural	N	quī	quae	quae
	G	quōrum	quārum	quōrum
	D	quibus =====	quibus =====	quibus =====
	Ac	quōs	quās	quae
	Ab	quibus =====	quibus =====	quibus =====

There is a subtlety with the interrogative pronoun: it has to be distinguished grammatically from the interrogative adjective. In context, it is not difficult to tell the difference between the two. A pronoun, literally, stands for a noun, whereas an adjective is attached to a noun. In the case of the interrogative adjective, therefore, the “q”-word will be usually followed by a noun. In that case, the forms revert to those of the relative pronoun.

Example:

Quid habes in mente?
What do you have in mind?

Quod punctum et quae figura habes in mente?
Which point and which figure do you have in mind?

Variants of the relative pronoun

A common variant of the relative (and interrogative) pronoun is obtained by adding the ending **-dam** to all cases. This device confers an indefinite flavour to the pronoun, which can then be used as an adjective. The meaning is conveyed in English by words such as “a certain”, or “some”.

Example

Quaedam leges verae sunt.
Some laws are true.

Homo quidam audit quod dicis.
A certain man is hearing what you say.

Another common variant is obtained by doubling the pronoun, which conveys then the idea of “any”, or “whatever”. Upon doubling, some minor spelling changes may occur (quidquid = quicquid). The addition of the ending **-quam** has an effect similar to the

doubling. If the syllable **-que** is appended, the connotation is “each” (quisque = each one).

More “q”-words

Following is a list of some of the most common “q”-words and their approximate meanings. Notice that most of them are indeclinable adverbs (the exception is *quantus*, which functions as an adjective).

quam: than, as.
quamquam: however
quamvis: however
quando: when
quantus, quanta, quantum: how much
quare: why, because of which
quasi: as if, like
quatenus: as long as
quemadmodum: how
quomodo: how
quidem: indeed, certainly
quin:
ne ... quidem: not even
quod: because
quondam: once
quoniam: since (causal)
quoque: also
quot: how many

HINTS FOR TRANSLATION

We are now in a position of being able to express rather sophisticated thoughts in Latin. A long text follows as an example. All verbs are in the infinitive or present indicative active and all nouns and adjectives belong to the first three declensions. A few useful hints for translation are:

- Do not panic. Latin translation is at first a slow analytic process. Do not get discouraged.
- Don't start translating sequentially (why?). Rather, have a good look at a whole sentence at a time, even a whole paragraph.
- Try to see if you can identify the main clause in each sentence. For example, in the sentence: “The book you lent me yesterday, written by the famous physicist Isaac Newton, who lived in England in the XVII-th century, contains many interesting ideas”, the main sentence can be construed as: “The book contains many interesting ideas”. This smaller sentence stands alone, while all the rest can be deleted without altering the main thought. The subordinate clauses, on the other hand, cannot stand alone. They are usually introduced by

a relative pronoun whose, case is determined by its function within the subordinate clause, as already explained. Some sentences contain more than one main clause connected by a conjunction (“and”, “but”), so you must subdivide such a sentence into its main components.

- Look for the main verb and its subject. (In the example above: “contains”, and “the book”, respectively). The subject will be in the nominative case. Check the agreement in person and number between subject and verb. If no subject is found, it may be implicit in the context. For example, if the next sentence of our example were: “t should be recommended to all students” the subject would be “it”, which in Latin would not normally appear explicitly. As we shall see later, Latin sometimes omits the verb “to be”, so that some sentences may appear not to have a verb. Also, there are some constructions in Latin that use the verb in the infinitive and the subject in the accusative, as we shall also study later.
- Finish translating the main clause. Use a dictionary if necessary. Keep an open mind as to the shades of meaning of words. Pay great attention to cases; do not just try to glue words together without regard to their function in the sentence, usually quite clearly indicated by the case.
- Once you have finished translating the main clause, start tackling the subordinate clauses. In very long sentences, it might be useful to distinguish between different levels of subordination. For example: “who lived in England in the XVII-th century”, can be seen as subordinate to a subordinate clause.
- Read your translation and try to see if it makes global sense. Adjust some of the adjectives and adverbs within the permitted ranges of their meanings. Remember that Latin is not as rich a language, in terms of sheer vocabulary, as English. Many words, therefore, must be made to serve what in English appears as a double duty. Moreover, with the passage of time, and with different local influences and liturgical and theological uses, Latin words changed their meanings slightly. The context is always very important.
- Having said all that, it is a good policy to trust your instinct too. Personally, I always read a whole paragraph aloud before doing anything else. I let the sound of the words penetrate my consciousness and, at the same time, I try to grasp some idea of what is being talked about. This policy becomes very useful as a general guide, because the translator has at least some notion about where the sentence is aiming. Finally, after the translation is complete, I read again the original Latin aloud. This exercise builds up the intuition for further readings, particularly if they are by the same author. It is usually the case that the first few sentences of a text are the most difficult to translate.

TRANSLATION EXERCISE

De notione historicae cosmologiae

Cosmologia est pars Philosophiae Naturalis seu Physicae antiquorum. Philosophia Naturalis est scientia philosophica de corporibus, duasque partes seu capitula principalia habet: prima pars est de corporibus inorganicis et secunda de corpore vivo. Primam partem Cosmologiam, secundam Psychologiam apellamus.

Initio philosophi Graeci vident in mundo mutationes constantes, in quibus lignum, exempli gratia, fit carbo, aer, cineres et terra. Rogant igitur: quomodo est possibile simul esse unum et diversum per mutationes? Plerique admittunt in solutione problematis realitatem identici et diversi. Et identitatem explicant per materiam quandam homogeneam sub omnibus mutationibus; alterationes autem seu mutationes explicant per motum localem. Sic Thales Milesius (640-548 ac) ait materiam homogeneam esse aquam. Empedocles (495-435 ac) dicit materiam homogeneam esse quatuor elementa, quae sunt: aer, terra, aqua, ignis. Democritus (460 ac) dicit materiam homogeneam esse atomos cum diversa dispositione et motu. Etiam admittit spatium, in quo atomi sunt in motu perpetuo, esse infinitum, et asserit aggregationes diversorum corporum resultare quando atomi collidunt et fortasse coalescunt. Heraclitus vero non admittit permanentiam sed tantummodo diversitatem. Omnia fluunt, dicit, et vocat realitatem ignem, cuius natura mutare est.

(Adapted from “Philosophiae Scholasticae Summa”, Vol. II, B.A.C., 1955)

fit = becomes

motus, motus = motion (4th declension; acc sing: motum; abl sing: motu)

dicit materiam esse aquam = says matter to be water. This construction, used very commonly in Latin *indirect statements*, is known as the *infinitive-accusative* construction. It appears several times in the text above.

CHAPTER V: MORE ABOUT VERBS

We have only scratched the surface of the Latin verb. What is missing?

- Other tenses: future, past, ...
- Other moods: subjunctive, imperative.
- The passive voice

The future tense

In this chapter we will complete all remaining tenses of the indicative mood in the active voice. We have already mastered the present tense. The *future* tense has two different systems of endings: one for the first two conjugations, and the other one for the third and fourth. The future endings for the first two conjugations are very simple as they abide by the following rule: between the stem and the present personal endings, we insert the letters **-bi-**, except in the first person singular, where the “**i**” disappears, and the third person plural, where it changes to a “**u**”. Thus we have:

cogitābo	habēbo
cogitābis	habēbis
cogitābit	habēbit
cogitābimus	habēbimus
cogitābitis	habēbitis
cogitābunt	habēbunt

For the remaining two conjugations, a characteristic “**e**” tends to replace (3a) or supplement (3b and 4) the characteristic “**i**” of the present tense. The first person singular ends in **-am**.

dīcam	faciam	audiam
dīcēs	faciēs	audiēs
dīcet	faciet	audiet
dīcēmus	faciēmus	audiēmus
dīcētis	faciētis	audiētis
dīcent	facient	audient

The verbs “to be” and “to be able” have, as usual, special forms, somewhat similar to those of the first two conjugations, but with the “**b**” replaced by an “**r**”. These forms are worth memorizing, since they have other uses.

erō	poterō
eris	poteris
erit	poterit
erimus	poterimus
eritis	poteritis
erunt	poterunt

The perfect tense

As in English, there are several past tenses in Latin (and one more future tense) to convey different degrees of remoteness or simultaneity. Thus we say: “By the time I arrive, you will have finished your job”. This is an instance of *future perfect*, which exists also in Latin. In English, we have a *simple past* (“I thought”), a *perfect past* (“I have thought”), and a *pluperfect* (“I had thought”). In addition, we have a *continuous past* (“I was thinking, I used to think”), and combinations thereof. In Latin, the simple and perfect past coalesce into one tense, called the *perfect*. The continuous past becomes the *imperfect*. The *pluperfect* remains as in English. Of all these tenses, the most difficult to internalize is the perfect, because it often undergoes, literally, a radical change, that is, a change at the root. So much so, that the first person singular of the perfect tense is the standard third principal part of the verb designation (and there is still one more to go!). You will remember that so far a verb was designated by the first person singular of the present indicative, followed by the infinitive (for example: **cogitō, cogitāre, ...** and **audiō, audīre, ...**). This way of designating (and remembering) verbs helps in getting the right conjugation. Now we will add the perfect, which, as we said, generally exhibits a radical change. The good news is that, once the perfect stem is known, the conjugation is completely regular and identical for all verb groups! The endings are:

-ī
-istī
-it
-imus
-istis
-ērunt

The third principal part of a verb is, by convention, the first person singular of the perfect indicative. The stem is, therefore, obtained by simply removing the final **-ī**. Even the verbs “to be” and “to be able” are, in this respect, completely regular. Here are the first three principal parts of a few verbs:

audiō, audīre, audivī, ...
cogitō, cogitāre, cogitavī, ...
dicō, dicere, dixī, ...
faciō, facere, fēcī, ...
habeō, habēre, habuī, ...
sum, esse, fuī, ...
possum, posse, potuī, ...

Verbs of the first conjugation, moreover, form their perfect stems regularly, by adding a “v” to the present stem.

cogitāvī	dīxī	fuī
cogitāvistī	dīxistī	fuisti
cogitāvit	dīxit	fuit
cogitāvimus	dīximus	fuimus
cogitāvistis	dīxistis	fuistis
cogitāvērunt	dīxērunt	fuērunt

The perfect stem is also used regularly to form the *perfect infinitive*. All that has to be done is to add the ending **-isse** to the perfect stem. Examples: **cogitāvisse** = to have thought, **dīxisse** = to have said, **fuisse** = to have been, etcetera.

The imperfect tense

The imperfect is extremely regular. The endings are:

- bam**
- bās**
- bat**
- bāmus**
- bātis**
- bant**

In the fourth conjugation and in the conjugation 3b, these endings are preceded by an “ē”.

cogitābam	habēbam	dīcēbam	faciēbam	audiēbam
cogitābas	habēbas	dīcēbas	faciēbas	audiēbas
cogitābat	habēbat	dīcēbat	faciēbat	audiēbat
cogitābāmus	habēbāmus	dīcēbāmus	faciēbāmus	audiēbāmus
cogitābātis	habēbātis	dīcēbātis	faciēbātis	audiēbātis
cogitābant	habēbant	dīcēbant	faciēbant	audiēbant

The verbs “to be” and “to be able”, similarly to the future tense, exchange the “B” for an “r”:

eram	poteram
erās	poterās
erat	poterat
erāmus	poterāmus
erātis	poterātis
erant	poterant

The future perfect and the pluperfect

We are left with just two tenses: the future perfect and the pluperfect. But they are relatively easy, since they are formed with the perfect stem by adding, respectively, the future or the imperfect of the verb “to be”.

Example:

cogitō, cogitāre, cogitāvī, ...

Perfect stem: **cogitāv-**

Future perfect	Pluperfect
cogitāverō	cogitāveram
cogitāveris	cogitāverās
cogitāverit	cogitāverat
cogitāverimus	cogitāverāmus
cogitāveritis	cogitāverātis
cogitāverint	cogitāverant

Notice that in the third person plural of the future perfect the ending is **-erint** (rather than the expected **-erunt**). The future perfect and pluperfect forms have an underlying logic which, not surprisingly, is similar to that in English. When we say “I will have heard” (future perfect), we are also combining a future of the auxiliary (to have) with a past of the main verb (to hear). In Latin, the auxiliary is “to be”, conveying the meaning of “I will be in the situation of having heard”. A similar logic applies to the pluperfect.

Summary of the indicative mood

There are no more tenses left, so we can summarize some of the features of the whole conjugation of the indicative active system as follows:

- A verb is characterized (so far) by three *principal parts*: the first person singular of the present indicative (e.g., **dīcō**), the present infinitive (**dīcere**), and the first person singular of the perfect indicative (**dīxī**). These parts are sufficient to determine the whole conjugation pattern unambiguously.
- The infinitive determines the conjugation group, while the first person of the present permits to decide between 3a and 3b (e.g., **capiō, capere, cēpī,...** must be 3b since it has an “i” before the “o”. It cannot be 4 since the infinitive is not in **-īre**).
- The present, imperfect and future of the verb “to be” are crucial for various reasons, some of which are: (i) For themselves, as they are ubiquitous in literature of every kind; (ii) for conjugating that other ubiquitous verb “to be able”, which is essentially a combination of **pot-** and **esse**; (iii) for conjugating many derived verbs, such as “to be absent” (**abesse**); (iv) the future perfect and the pluperfect of all verbs are formed regularly from the perfect stem (obtained by deleting the final “-i” from the fourth principal part) by adding,

respectively, the future and imperfect forms of **esse**; and, finally, (v) some tenses of the passive voice (to be studied later) are formed regularly from forms of the auxiliary **esse**.

- The differences in conjugation between the five classes of verbs are not very severe, and are actually quite logical considering the different characteristic vowels (**a, e, i**) and their lengths. The only drastic departure occurs in the future tense, where there is a rift between the first and second conjugations on the one hand, and the third and fourth, on the other.
- The forms of the imperfect are easily recognized by the characteristic “**-ba-**”, which appears in all persons and in all conjugations of all verbs (except “to be” and its derived verbs, which exhibit a characteristic “**-ra-**”).
- Many regularities are discernible, cutting along all tenses and all conjugations: (i) the first person singular always ends in **-ō** or **-m**; (ii) the second person singular always ends in **-s** or **-sti**; (iii) the third person singular always ends in **-t**; (iv) the first person plural always ends in **-mus**; (v) the second person plural always ends in **-tis**; and (vi) the third person plural always ends in **-nt**. These regularities are invaluable as far as recognition is concerned.

CHAPTER VI: THE FOURTH AND FIFTH DECLENSIONS

The fourth declension comprises mostly masculine nouns, a few neuters and even fewer feminine nouns. The letter “**u**” prevails in most endings and one needs to be on guard not to mistake a fourth declension noun with a second declension one. It is the genitive that permits to tell the difference most definitely. The masculine and feminine forms are identical, while the neuter forms exhibit typical discrepancies.

		motus (motion, m)	manus (hand, f)	cornū (horn, n)
Singular	N	motus	manus	cornū
	G	motūs	manūs	cornūs
	D	motuī	manuī	cornū
	Ac	motum	manum	cornū
	Ab	motū	manū	cornū
	V	(motus)	(manus)	(cornū)
Plural	N	motūs	manūs	Cornua
	G	motuum	manuum	cornuum
	D	motibus	manibus	cornibus
	Ac	motūs	manūs	cornua
	Ab	motibus	manibus	cornibus
	V	(motūs)	(manūs)	(cornua)

Comparing with the third declension, the similarities are many, taking into consideration that the “**u**” takes over in almost all endings.

If “**u**” is the vowel of choice for the fourth declension, “**e**” is for the fifth. There aren’t many nouns in this group, but at least one of them is very common, so it is best too have familiarity with this declension. As in the fourth, there is a third declension flavour throughout. Only one noun (**diēs, diēī**) is masculine; the rest are feminine.

		diēs (day, m)	rēs (thing, f)
Singular	N	diēs	rēs
	G	diēī	reī
	D	diēī	reī
	Ac	diem	rem
	Ab	diē	rē
	V	(diēs)	(rēs)
Plural	N	diēs	rēs
	G	diērum	rērum
	D	diēbus	rēbus
	Ac	diēs	rēs
	Ab	diēbus	rēbus
	V	(diēs)	(rēs)

THE DEMONSTRATIVE PRONOUNS AND ADJECTIVES

There are three different demonstrative pronouns (and adjectives) in Latin, to signify: “this one here”, “that one there”, and “that one over there by you”. They follow basically the pattern of first and second declension adjectives, with similar irregularities to those of the relative pronoun (**quī, quae, quod**).

hic, haec, hoc (“this one here”)

		masculine	feminine	neuter
Singular	N	hic	haec	hoc
	G	huius =====	huius =====	huius =====
	D	huic =====	huic =====	huic =====
	Ac	hunc	hanc	hoc
	Ab	hōc	hāc	hōc
Plural	N	hī	hae	haec
	G	hōrum	hārum	hōrum
	D	hīs =====	hīs =====	hīs =====
	Ac	hōs	hās	haec
	Ab	hīs =====	hīs =====	hīs =====

ille, illa, illud (“that one there”)

		masculine	feminine	neuter
Singular	N	ille	illa	illud
	G	illius =====	illius =====	illius =====
	D	illī =====	illī =====	illī =====
	Ac	illum	illam	illud
	Ab	illō	illā	illō
Plural	N	illī	illae	illa
	G	illōrum	illārum	illōrum
	D	illīs =====	illīs =====	illīs =====
	Ac	illōs	illās	illa
	Ab	illīs =====	illīs =====	illīs =====

Iste, ista, istud (“that one over there by you”) follows exactly the same pattern as **ille, illa, illud**.

IRREGULAR ADJECTIVES (AND PRONOUNS)

A few very important and common adjectives (and pronouns) of the first/second declension exhibit the following irregularity: in the genitive and dative singular they are declined as the demonstrative pronouns (and adjectives) we have just learned. Otherwise, they are completely regular. These adjectives are:

ūnus, ūna, ūnum (one)
alius, alia, aliud (other; notice the neuter form in the nominative singular)
alter, altera, alterum (the other one of two)
ipse, ipsa, ipsum (-self)
tōtus, tōta, tōtum (all, whole)
ūllus, ūlla, ūllum (some, any)
nūllus, nūlla, nūllum (no, not any)
sōlus, sōla, sōlum (alone)

THE PERSONAL PRONOUNS

For the first and second persons, the personal pronouns are completely gender indifferent.

First-person personal pronoun

ego	(I)	nōs	(we)
meī	(of me)	nostrum/nostrī	(of us)
mihī	(to me)	nōbis	(to us)
mē	(me)	nōs	(us)
mē	(by, with ... me)	nōbis	(by, with ... us)

Second-person personal pronoun

tu	(you)	vōs	(you)
tuī	(of you)	vestrum/vestrī	(of you)
tibi	(to you)	vōbis	(to you)
tē	(you)	vōs	(you)
tē	(by, with ... you)	vōbis	(by, with ... you)

We note that the genitive forms of the first- and second-person personal pronouns are not to be used to indicate possession, but only reference. Example: “your recollection” indicates possession, whereas “the recollection of you by the witness” indicates reference. In one case we are answering the question “whose recollection?”, and in the other the question “the recollection of whom?”, and these are two very different things. For possession, we must use the *possessive adjectives* discussed below.

Third-person personal pronoun

The third-person personal pronoun is: **is, ea, id** (he, she, it). It is also used to express a lighter form of “this” or “that”. It follows the pattern of the demonstrative pronouns with the addition of an initial “e” to most forms. Adding the suffix “-dem”, we obtain an emphasis in the sense of “the very same”. Some small orthographical irregularities occur (is + dem = idem, id + dem = idem, eum + dem = eundem, etc.).

is, ea, id (“he, she, it”)

		masculine	feminine	neuter
Singular	N	is	ea	id
	G	eius =====	eius =====	eius =====
	D	eī =====	eī =====	eī =====
	Ac	eum	eam	id
	Ab	eō	eā	eō
Plural	N	eī	eae	ea
	G	eōrum	eārum	eōrum
	D	eīs =====	eīs =====	eīs =====
	Ac	eōs	eās	ea
	Ab	eīs =====	eīs =====	eīs =====

THE REFLEXIVE PRONOUNS

The first- and second-person personal pronouns are used also as reflexive (myself, yourself). For the third person, the reflexive pronoun can be obtained from the second person by substituting “s” for “t” in the singular forms. The plural forms of the third-person personal pronoun are identical to the singular counterparts:

S/P

N	N/A
G	suī
D	sibī
Ac	sē
Ab	sē

THE POSSESSIVE ADJECTIVES

The first- and second- person possessive adjectives are regular first/second declension adjectives:

meus, mea, meum (my)
noster, nostra, nostrum (our)
tuus, tua, tuum (your)
vester, vestra, vestrum (your, pl.)

For the third person, a subtle difference exists which avoids a possible confusion that may happen in English. If I say: “John sold his house”, I may mean that he sold his own house or that, if perchance John is a real estate agent, that he sold someone else’s house, whose name may have been mentioned in a previous sentence. In English we remedy this ambiguity, when necessary, by specifying “John sold his own house”, although this is not always done. In Latin this ambiguity is avoided altogether by the existence of two different forms of possessive adjectives of the third person. For “his own, her own, its own”, Latin uses a regular first/second declension adjective:

suus, sua, suum (his own, her own, its own, their own).

To indicate possession by a third party, the genitive forms of the possessive pronoun are used:

eius, eius, eius (his, her, its)
eōrum, eārum, eōrum (their)

PRACTICE

Punctus est illud cui pars non est.

Linea recta est ab uno puncto ad alium extensio.

Superficies est quod longitudinem et latitudinem tantum habet cuius extremitates quidem lineae. (tantum = only)

CHAPTER VII: THE PASSIVE VOICE. DEPONENT VERBS

In English, the passive voice of a verb is formed by a combination of some form of the auxiliary verb “to be” and the past participle of the main verb. Thus, for example, we have:

Present:	The lesson is learned
(Present continuous):	The lesson is being learned
Past:	The law was formulated
(Perfect):	The law has been formulated
(Past continuous):	The law was being formulated
Pluperfect:	The city had already been taken (when the reinforcement arrived)
Imperfect:	The poem was being recited (as I entered the theatre)
Future:	The command will be obeyed

Future perfect: The child will have been born (by the time the sailor returns)

Latin follows a similar idea only for the perfect, the pluperfect, and the future perfect. The present, imperfect, and future, on the other hand, have special one-word forms characterized by a ubiquitous “r” in most of the endings. These passive endings are as follows:

-r
-ris
-tur
-mur
-minī
-ntur

To form the passive voice for the present, imperfect, or future, the technique is the following: simply replace the active endings by the passive ones. Some examples:

cogitātur	(it is thought)
faciebantur	(they were being done)
dīcētur	(it will be said)
audiēris	(you will be heard)

For the remaining tenses (those having some “perfect” character, perfect meaning “completed”) we need, as in English, the passive perfect participle. In Latin, this is

precisely the fourth and last principal part of a verb. A participle is really a verbal adjective, and so it can be declined as a regular 1st/2nd declension adjective and used as such. As a principal part, it is usually given in the neuter singular nominative. Verbs of the first conjugation form the passive perfect participle by adding **-tum** to the present stem:

cogitō, cogitāre, cogitāvī, cogitātum

The meaning of **cogitātum** is roughly: “in the state of having been thought”. In other conjugations, the fourth principal part has to be learned separately. Examples:

dīcō, dīcere, dīxī, dictum (verba dicta = the words said)
faciō, facere, fēcī, factum (res facta = the thing done)
audiō, audīre, audivī, audītum (voces auditae = the voices heard)

To form the compound tenses, one proceeds as in English, but in Latin there must be agreement in gender and number between the participle and the subject of the verb.

Example: Perfect passive of **audīre**

M	F	N
audītus sum	audīta sum	audītum sum
audītus es	audīta es	audītum es
audītus est	audīta est	audītum est
audītī sumus	audītae sumus	audīta sumus
audītī estis	audītae estis	audīta estis
audītī sunt	audītae sunt	audīta sunt

Notice that the perfect passive (“I was heard”) is formed with the *present* form of **esse**. This is, in a way, very logical, since the “past” connotation is already implied in the participle:

audītus sum = I am in the state of having been heard = I was heard

To say “I am heard” you must use the present passive: **audior**.

For the pluperfect, one uses the *imperfect* of **esse**:

audītus eram = I had been heard (I was in a state of having been heard)

A remote-pluperfect is sometimes encountered (**audītus fuī**).

For the future perfect, the future of **esse** is used:

audītus erō = I will have been heard
(as opposed to **audiar** = I will be heard).

The passive infinitives are formed as follows: the present passive infinitive is obtained from the active infinitive by changing the final **-e** to **-ī**, except for verbs of the third conjugation, where the whole ending **-ere** is changed to **-ī**. Examples:

cogitāre = to think
vidēre = to see
dīcere = to say
capere = to seize
audīre = to hear

cogitārī = to be thought
vidērī = to be seen, to seem
dīcī = to be said
capī = to be seized
audīrī = to be heard

The perfect passive infinitive is formed, naturally, with the past participle and the infinitive **esse**. Examples:

cogitātus esse = to have been thought (masculine singular)
visum esse = to have been seen (neuter singular)
facta esse = to have been done (neuter plural or feminine singular).

Notice that even in the infinitive the participle has a gender and a number. For example, in not very idiomatic Latin,

Haec verba dicta esse debebant
These words needed to be said

When we use a passive verb, the thing being done becomes the subject of the sentence and, therefore, it goes in the nominative case. The doer or agent, on the other hand, goes in the ablative case preceded by the preposition **ab** (or **a**, before consonants). This is similar to the English “by” or “at the hands of”. Let’s hear Isaac Newton in his *Principia Mathematica Philosophiae Naturalis*:

Projectilia perseverant in motibus suis nisi quatenus a resistentia aeris retardantur.

Or Euclid, in Adelard of Bath’s translation of the *Elements*:

Et hic quidem punctus circuli centrum dicitur.

DEPONENT VERBS

Many verbs in Latin do not have active forms. They are known as “deponent verbs”. They are conjugated in the passive forms, which acquire then an active meaning. Only three principal parts are valid for deponent verbs. Examples:

Arbitror, arbitrārī, arbitrātus sum = to judge, to deem, to think

Sequor, sequī, secūtus sum = to follow

Experior, experīrī, expertus sum = to try

Conor, conārī, conātus sum = to attempt

The conjugation group of each verb can be deduced from the form of the infinitive.

CHAPTER VIII: PARTICIPLES. GERUNDIVE AND GERUND

We are by now familiar with the passive perfect participle, which is always listed as the fourth principal part of a verb. We have seen that a participle, as a verbal adjective, is a hybrid object: it is declined as an adjective while carrying the meaning of a verb. In English, participles appear in the present active and in the past (or perfect) passive forms. For example:

I am *thinking*.

It is *thought*.

Latin has two additional forms for the *future* active and passive.

The present participle is declined as an adjective of the third declension, and is generally formed by adding **-ns** to the present (active) stem. The genitive is in **-ntis**. For verbs of the conjugations 3b and 4, the characteristic “i” is preserved. Thus we have:

Cogitans, cogitantis (thinking)

Videns, videntis (seeing)

Capiens, capientis (seizing)

Audiens, audientis (hearing)

Notice that an adjective can be also used as a noun (e.g., The good will prosper; The thinking devoted to this matter). This is the origin of many English nouns (and adjectives) derived from Latin present participles. They normally end (in English) in **-nt**. Examples: agent, sentient, mordant, vigilant, gradient, continent, dependent.

The future active participle is declined as an adjective of the 1st/2nd declension. It is obtained by adding **-ūrus, -ūra, -ūrum** to the stem obtained by deleting the ending **-um** from the fourth principal part (i.e., from the passive perfect participle). Example:

videō, vidēre, vīdī, vīsum

The stem of the passive perfect participle is, therefore, **vis-**. Thus we obtain:

visūrus, visūra, visūrum (about to see).

Similarly,

Cogitaturus magnam notionem es
(You are about to think a great idea)

Another important use of the future active participle is its role in the regular formation of the future infinitive, by adding the infinitive *esse*. For example:

cogitatūrus (-a, -um) esse = to be about to think.

The *passive future participle* is formed, like the present active participle, from the present active stem. The endings are **-ndus, -nda, -ndum**. Examples:

Agenda (n pl) = the things to be done

Haec agenda sunt = these things must be done

Delenda est Carthago = Carthage must be destroyed

You have to be imaginative when translating participles. They are relatively easy to translate in context. You should feel free to provide extra explanatory words such as: “while”, “since”, “although”, “when”, etc.

As you may have noticed, there are two participial forms absent: the present passive and the perfect active. Here, deponent verbs have a compensatory advantage: on the one hand, they don't have a passive voice (since their active voice uses up already the passive system). When it comes to participles, on the other hand, they suddenly recover an active root so as to from a present active participle. Thus:

arbitrans = judging

arbitrātus = having judged

arbitratūrus = about to judge

arbitrandus = to be judged

So, in the case of deponent verbs, we have three active participles (rather than two) and one passive participle (rather than two).

The future passive participle is also called the *gerundive*, and we have seen that it is always passive in meaning, whether the verb is regular or deponent. There is, however, a commonly used device, called the *gerund*, whereby its meaning becomes that of an active noun. The gerund is always a neuter singular noun that can be used in all cases except the nominative (and, of course, the vocative). Example:

Cogitandō intellegimus = by thinking we understand

Because of its verbal origins, the gerund can still take an object:

Philosophus scit artem cogitandi antiquas notiones novo modo

There is a wicked alternative to this construction that is best left to the intuition during the process of translation. The rule is as follows: if the gerund takes a direct object, one

could forget about the gerund altogether and revert to the gerundive as an adjective. For example, using the gerund we could say:

Philosophus scit artem cogitandi ideas
(The philosopher knows the art of thinking ideas)

But, using the gerundive, we could also say, with the same meaning:

Philosophus scit artem idearum cogitandarum
(literally: The philosopher knows the art of the ideas to be thought)

We see that the former direct object (“ideas”) steals the case and place of the gerund (the genitive case), and the gerundive then acts as an adjective with a passive meaning.

CHAPTER IX: THE SUBJUNCTIVE AND ITS USES

The basic uses of the subjunctive mood are two: (i) the expression of wishes, hopes, fears and other types of ideas involving some measure of uncertainty; (ii) the expression of different types of conditional statements. In fact, (ii) can be seen as a particular case of (i), but it is best to treat them separately.

In English, the subjunctive mood is expressed by the use of forms that mostly coincide with indicative ones. Not so in Latin. Examples of English subjunctive:

Let there be a line ...

It is expected that he write a test ...

If I were more thoughtful ...

We see that in (proper) English the subjunctive forms manifest themselves though indicative forms used somewhat “strangely”: sometimes the infinitive is used (“it is necessary that the triangle be equilateral”), sometimes “were” appears instead of “was”, and so on. Although it may be possible to somehow manage in English without a conscious knowledge of the subjunctive, this would be unthinkable in Latin or in any of the modern Romance languages. Even young children in, say, Spain or Latin America become aware of the right constructions and the need to use them if they are to get what they want (e.g., in Spanish: “quiero que me compres un regalo” = (literally) “I want that you buy me a present”). In scientific Latin, the subjunctive is used extensively for conditional sentences. It is quite fortunate that Latin did not develop a separate form for the “conditional” or “potential” mood, which English introduces through the use of “should” or “would”:

If I had more money, I would buy a new car”.

For these “contrary-to-fact” sentences (“but I don’t, so I won’t”), Latin uses the subjunctive twice.

If you have mastered the present of the indicative mood, your memory will not be overly taxed by the present subjunctive forms. The rule of thumb is as follows: the **ā** of the first conjugation changes to an **ē**, whereas the other conjugations (that did not have an **ā** in the indicative) acquire an **ā**. The first person singular requires a special treatment consisting in adding an “-m”.

cogitō (I think)
cogitās
cogitat
cogitāmus
cogitātis
cogitant

cogitem (that I think, let me think))
cogitēs
cogitet
cogitēmus
cogitētis
cogitent

And so:

faciam, faciās, faciat, ...
dīcam, dīcās, dicat, ...

The same substitutions are applicable to **the** passive forms:

cogiter, cogitēris, cogitētur, ...
sequar, sequāris, sequātur, ...

To express the sense of purpose, the subjunctive is often preceded by one of the particles: **ut** = so that, or **nē** = so that ... not. Examples:

haec dicō ut audiās
I say these things so that you (may) hear

moneō tē nē errēs
I warn you so that you may not err

Used in isolation, the subjunctive often expresses a wish or a command:

audiāmus = let us hear

hoc cogitent = let them think this.

The verbs “to be” and “to be able”, as usual, have special forms:

sim	possim
sīs	possīs
sit	possit
sīmus	possīmus
sītis	possītis
sint	possint

The imperfect subjunctive is formed by simply adding the personal endings (active or passive) to the present active infinitive (i.e., the second principal part). Thus:

cogitarem
cogitarēs
cogitaret
cogitarēmus
cogitarētis
cogitarent

viderer
viderēris
viderētur
viderēmur
viderēmini
viderentur

essem
essēs
esset
essēmus
essētis
essent

Notice the sequence of tenses:

Haec dīcō ut audiās (I say this (so) that you may hear)
Haec dīxī ut audirēs (I said this (so) that you might hear)

These are *purpose clauses*. They have to be distinguished from *result clauses*, which are often (but not always) introduced by words such as **ita** (so) or **tam** (to such a degree).

Ita dīxī ut audirēs (I spoke in such a way that you heard me)

In this last example, your hearing was actually the result of my way of speaking. The difference between purpose and result clauses is also reflected in the negation:

Purpose: **monuī tē ne errārēs**
Result: **tam monuī tē ut non errārēs**

There are only two tenses left: perfect and pluperfect. The rules of formation are simple. In the active system, the perfect is formed by appending (to the perfect stem) **–eri** followed by the personal endings.

cogitaverim, cogitaverīs, ...

The pluperfect active is formed from the perfect infinitive followed by the personal endings:

cogitavisse, cogitavissēs, ...

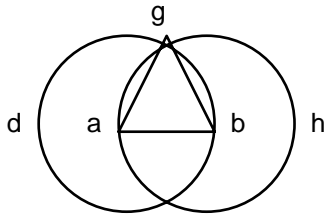
The passive system, on the other hand, follows the usual rules for compound tenses:

Perfect passive: **cogitātus sim, cogitātus sīs, ...**
Pluperfect passive: **cogitātus essem, cogitātus essēs, ...**

A THEOREM FROM EUCLID'S ELEMENTS (In Adelard's translation from Arabic)

Nunc demonstrandum est quomodo superficiem triangulam equalium laterum super lineam rectam assignat(a)e quantitatis faciamus. Sit linea assignata ab . Ponaturque centrum supra a occupando spacium quod est inter a et b circulo, supra quem gdb . Item ponatur supra centrum b occupando spacium inter a et b circulo alio, supra quem gah . Exeantque de punto g supra quem incisio circulorum due linee recte ad punctum a et ad punctum b . Sintque ill(a)e ga et gb . Dico quia ecce fecimus triangulum equalium laterum supra lineam ab assignatam.

Rationis causa: Quia punctum a factum est centrum circuli gdb , facta est linea ag equalis linee ab . Et quia punctum b est centrum circuli gah , facta est linea bg equalis linee ba . Sicque unaqueque linearum ga et gb equalis est linee ab . Equalium autem uni rei unumquodque equale alteri. Itaque linee tres ag et ab et bg invicem equales. Triangulus igitur equalium laterum abg factus est supra lineam ab assignatam. Et hoc est quod in hac figura demonstrare intendimus.



A few hints: Notice that sometimes “punctus” is “puntus”, and that it can be treated as either masculine or neuter. Some $-ae$ endings are contracted to $-e$. The combination “occupando circulo” may be construed as “for a circle occupying”, but you may find other ways of translating it. Exeant comes from the verb *exire*, considered in the next chapter. Long vowels are never explicitly indicated in a real-life text, so you must exercise extra caution when deciding the case of a word.

CONDITIONAL SENTENCES

Conditions in Latin are introduced by **si** (= if). There are many different kinds of conditions, and some of them may require just the indicative mood, while others require the subjunctive. Example:

Si studēs discis (If you study, you learn)

Notice that in this statement there is no implication as to whether you are studying or not. It is just a statement of cause and effect (“if A then B”). But we could also cast a shadow of scepticism by saying:

Si studeās discas (If you should study, you would learn)

The subjunctive has been used to convey the should/would combination, but still without a clear implication as to the real present or future state of affairs. A much more technical construction is the so-called *contrary-to-fact* condition. When we say in English:

If I studied I would learn

the implication is clear: but I don't study, so actually I won't learn. Or in the past:

If I had studied, I would have learned (but I didn't, so I haven't)

These sentences consist always of two parts: the condition not fulfilled (prothesis) and the outcome not achieved (apodosis). Latin, mercifully, uses the subjunctive for both. For the present condition, the imperfect subjunctive is used. For the past condition, the pluperfect subjunctive. Notice how similar to English this policy really is! Our last two examples would be translated, respectively, as:

Si studērem discerem

Si studissem didicissem

In mathematical proof, this is the kind of statement that would be typically used in the so-called *reductio ad absurdum*, such as in Euclid's proof of the infinity of prime numbers.

THE EDUCATION OF A GOOD ARCHITECT

An excerpt from *De Architectura* by Vitruvius (1st c BCE?):

Architecti est scientia pluribus disciplinis et variis eruditionibus ornata cuius iudicio probantur omnia quae ab ceteris artibus perficiuntur opera. Ea nascitur ex fabrica et ratiocinatione. ... Itaque architecti qui sine litteris contenderant ut manibus essent exercitati non potuerunt efficere ut haberent pro laboribus auctoritatem; qui autem ratiocinationibus et litteris solis confisi fuerunt umbram non rem persecuti videntur. At qui utrumque perdidicerunt, uti omnibus armis ornati, citius cum auctoritate quod fuit propositum sunt adsecuti.

Probare: to test

Perficio: to achieve, to carry out.

CHAPTER X: SOME SPECIAL VERBS

There are a few Latin verbs that exhibit significant irregularities. They are, on the other hand, so important that they cannot be ignored. Their importance derives not just from their intrinsic meanings (to carry, to go, etc), but also from the fact that they are used to form many derived verbs, some of which you will recognize from their English versions.

The first such verb is **ferō** (= I carry). Its principal parts are: **ferō, ferre, tuli, lātum**. Notice the missing “e” in the infinitive (ferere > ferre) as well as the surprisingly different forms for the third and fourth principal parts. The main irregularity in conjugation is the sometimes missing “e” in some forms of the present indicative. Otherwise, the conjugation is regular.

Active: **ferō, fers, fert, ferimus, fertis, ferunt**
Passive: **feror, ferrīs, fertur, ferimur, ferimini, feruntur**

Fero is used in many figurative meanings: to bear, to tolerate, to endure, etc. As already mentioned, it is the basis for many derivatives, such as:

conferō, conferre, contuli, collatum (to bring together, to compare)
(note: n + l = ll)

offerō, offerre, obtuli, oblatum (to offer) (b+f = ff)

Many other derivatives are used (refero, defero, infero, transfero, effero, ...).

Next in importance is **fiō** (I am made, I become). This verb is active in form but passive in meaning (effectively, the passive of facio). Remember the “fiat lux”, let light come into existence. This passive character is obvious in the principal parts:

fiō, fierī, factus sum

which betray what is going on, and show that the only thing that is irregular is the present stem, i.e., fio (instead of facior), fiam (instead of faciar), and so on.

Indicative: **fio, fis, fit, fimus, fitis, fint**
 fiebam, ...
 fiam, fies, fiet, ...
Subjunctive: **fiam, fias, fiat, ...**
 fierem, fieres, ...

“To go” is expressed by **eō, ire, iī, itum**. From the infinitive it is clear that this is a fourth conjugation verb. Its irregularities derive from the brevity of its stem (just one vowel), which, in conjugation, wavers between e and i. Some of the derived verbs are:

abeo = I depart

pereo = I die
exeo = I go out (“exit”)
ineo = I go into

The final three verbs we will deal with are all mutually related:

volō, velle, voluī	(I wish, I want)
nōlō, nōlle, nolūī	(non volo, I don’t wish, i am not willing)
mālō, nālle, māluī	(magis volo, I prefer, I rather wish)

Note: do not confuse velle with the regular first conjugation verb volo, volare = to fly.
Some of the forms of velle are as follows:

Present indicative:	volo, vīs, vult, volumus, vultis, volunt
Present subjunctive:	velim, velis, velit, velīmus, velītis, velint
Imperf. subjunctive:	vellem, velles, vellet, ...

CHAPTER XI: COMPARISON OF ADJECTIVES. ADVERBS

In Latin, as in English, there are three degrees of intensity to any adjective: Examples:

Big	bigger	biggest
Good	better	best
Important	more important	most important

We refer to the second degree as *comparative* (A is bigger than B, etc), and to the third degree as *superlative* (A is the biggest of all, etc). From the three English examples, we can appreciate that there is sometimes a *regular* form of comparative and superlative (ending in –er and –est, respectively), sometimes an *irregular* form (good, better, best; bad, worse, worst; etc), and a *generic* form (making use of the auxiliary words *more*, *most*). The same is true in Latin.

The regular forms in Latin are obtained as follows: to the adjective stem (which is best seen in the genitive singular) the endings **–ior, –ior, –ius**, and **–issimus, –issima, –issimum** are added for the comparative and the superlative, respectively. The comparative is then declined in the third declension, and the superlative in the first/second (regardless of the declension group of the original adjective). Examples:

longus, longa, longum	(= long)	
longior, longior, longius	(= longer)	
longissimus, longissima, longissimum	(= longest)	
brevis, brevis, breve	(= short)	
brevior, brevior, brevius	(= shorter)	
brevissimus, brevissima, brevissimum	(= shortest)	

The declension of the comparative follows the rule of nouns, rather than that of adjectives (that is, it lacks the characteristic “i” in some forms). For example, the full declension of longior is: longior, longioris, longiori, longiorem longiore; longiores, longiorum, longioribus, longiores, longioribus.

As for irregular comparatives and superlatives, here are some of the commonest:

Bonus, melior, optimus
Magnus, maior, maximus
Malus, peior, pessimus
Multus, plus, plurimum
Parvus, minor, minimus

The generic form (not often used) is achieved by **magis** (= more) and **maximē** (= most), which are adverbs.

The comparative conjunction is **quam** (= than). Because it places two objects in a state of comparison, the two sides being compared must go in the same case. Examples:

Haec linea longior quam illa est.
Librum habeo minorem quam tuum.

ADVERBS

Adverbs modify (or qualify) adjectives, verbs, or other adverbs. They are not declined. In English, there are regular adverbs (formed by adding *-ly* to the adjective, e.g.: important, importantly), and irregular adverbs (e.g., well). The same is true in Latin: The regular endings are:

-ē, for the 1st/2nd declension adjectives,
-iter, for the 3rd declension adjectives.

Thus we have:

Longius	>	longē
Brevis	>	breviter

Many common adverbs do not follow these rules, including, naturally, those that do not directly derive from adjectives (*ita*, *tam*, *semper*, etc). They have to be learned or found in the dictionary.

Adverbs, as adjectives, can also appear in comparative and superlative degrees. The comparative is usually identical with the neuter nominative singular of the comparative form of the adjective (it ends, therefore, in **-ius**). The superlative is formed by the ending **-ē** added to the superlative stem of the adjective. Examples:

Breviter, brevius, brevisimē (shortly, more shortly, most shortly)
Bene, melius, optimē
Male, peius, pessimē

Translate the following sentences:

Bonus orator breviter dicit.
Hic orator brevius dicit quam tu.
Hic orator brevissime dicit.

CHAPTER XII: SPECIAL CONSTRUCTIONS

Having acquired a considerable part of Latin grammar, we need now to describe a few very common constructions used to convey ideas in an aesthetically pleasing and economic way. The first such construction we will tackle is the so-called *accusative-infinitive* construction, which is used for indirect statement (or, less accurately, reported speech). Consider the following example:

They think: “he is right”.
They think that he is right.
They think him to be right.

The first sentence is a *direct statement*. The second is an *indirect statement*, and so is the third. The accusative-infinitive construction closely resembles the third option: the subject of the reported sentence (“he is right”) becomes the direct object (“him”) of the main verb (a verb of thinking, in this case), while the verb of the reported sentence (“is”) moves to the infinitive (“to be”).

Consider the following examples:

Magister dicit: “lex vera est”.
Magister dicit legem veram esse.

Magister dixit: “lex vera est”.
Magister dixit legem veram esse.

The tense of the infinitive indicates: contemporaneity with the tense of the main verb if the infinitive is present; precedence, if it is perfect; subsequence, if it is future. The accusative-infinitive construction (with verbs of thinking, believing, saying, understanding, etc) is so strong that sometimes the main verb is not even mentioned. Thus, Newton starts his chapter on the laws of motions as follows:

Lex 1. Corpus omne perseverare in statu suo quiescendi vel movendi uniformiter in directum, nisi quatenus a viribus impressis cogitur statum illum mutare.

In this example, the main verb (dico, perhaps) is absent.

The second important construction is the *ablative absolute*. When a circumstance surrounding the statement at hand, but not involving the subject or the object of the statement, needs to be briefly stated, then the subject of the collateral circumstance is placed in the ablative. Take for instance:

Legē scriptā, philosophus ex urbe discessit.

This can be translated as:

Once the law had been written	>	
Because the law had been written	>	
The law having been written	>	the philosopher departed from the city
Although the law had been written	>	
.....	>	

Another important construction is the *passive periphrastic*, which we have already encountered, albeit without this technical name. For example:

Hoc demonstrandum est mihi (this has to be proven by me)

Note that the agent goes in the dative (not the ablative) case because what Latin is saying is: “This is for me to be proven”).

A final special construction is:

Cum + subjunctive (= when, since, although, ...)

Examples:

Cum legem scribat peribit	(when he writes the law, he will die)
Cum legem scriberet periit	(since he wrote down the law, he died)
Cum legem scripsisset periit	(once he had written the law, he died)