Universal Terminology

Chapter 4 : Summary of partonomy

This chapter summarizes, chapter by chapter, the content of partonomy as presented in the book.

An overview of partonomy is presented first. The division into 18 chapters, based on the systems of the human body, is described, highlighting its key points.

The remainder of the document devotes a section to each chapter. For each chapter, an explanation is provided regarding the rationale behind its subchapters and further subdivisions. Quantitative documentation is also presented graphically.

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Chapter	global units	lists	generic units	lists	total
corpus humanum	319	27	0	0	319
systema skeletale	1912	138	80	12	1992
systema articulare	1042	101	81	17	1123
systema musculare	1076	94	52	12	1128
systema digestorium	448	54		0	
dentitio	220	15		4	
systema respiratorium	274	42		5	
systema urinarium	99	13		2	
systema genitale femininum	155	24		0	
systema genitale masculinum	174	24		1	
systema trunci	180	16		0	
glandulae endocrinae	44	7		0	
systema cardiovasculare	1785	143		27	
systema lymphaticum	233	21		2	
systema nervosum centrale	2567	180		22	
systema nervosum periphericum	1056	101		5	
organa sensoria	759	72		14	
integumentum commune	74	8		3	
Total			213	126	4562

Table 4.1: List of the 18 chapters of the $\mathbf{T}_{logy}$. For each chapter, the number of constituent units and sub-lists is provided for both the global partonomy and the generic partonomy. The total number of units under "global" refers to the anatomical entities included in the global partonomy, excluding, however, the entities in the generic lists (the total for which appears under "generic"). The true total number of units in the entire partonomy is the sum of these two values. All sub-lists can be accessed directly via the tables below, which are specific to each chapter. Last update of numeric values: October 2026.

4.1 The partonomic hierarchy

The present terminology is based on two main hierarchies: taxonomy and partonomy. Each of these hierarchies is extensively documented elsewhere. For a general introduction, see the *chapter 7*. For taxonomy, see the *chapter 12*, and for partonomy, see the *chapter 13*.

Formally, there are two types of partonomy: the DEF:*global partonomy* and the DEF:*generic partonomy*. Each chapter potentially involves both types. Accordingly, in the analysis of each chapter that follows, the contribution of each type must be analyzed and quantified. For each case, a specific table is created.

This section introduces the partonomic hierarchy in terms of its content: how is the human body divided into the number of systems commonly found in anatomy? This division results in 18 chapters intended to cover the entirety of the human body from the perspective of gross anatomy. Extensions are always possible to cover certain specialties such as histology or embryology, but are not part of the $\mathbf{T}_{logy}$. The table 4.1 is an overview of all chapters of the $\mathbf{T}_{logy}$.

Anatomy has always distinguished systems within the human body, each oriented by a primary function which serves to define it. Typically, the P1:urinary

system is concerned with the filtration of blood, the production of urine, its storage and elimination, which defines it as being composed primarily of the en:*kidney*, the en:*ureter* and the en:*bladder*. Each system comprises, as its parts, a set of organs, parts of organs, and other assemblies of body parts.

A system can also be divided into several subsystems. Such a partitioning into systems and subsystems directly structures the organization of the human body, as seen in the $\mathbf{T}_{logy}$. For example, the musculoskeletal system is broken down into three subsystems in the $\mathbf{T}_{logy}$: these are the p1:skeletal system, the p1:articular system, and the p1:muscular system. Similarly, the nervous system is made up of the p1:central nervous system, the p1:peripheral nervous system, and the p1:sensory organs.

The main line of division into systems and subsystems is that defined in the FMA. However, the FMA does not explicitly define certain systems in the system, such as the p1:articular system, the p1:lymphatic system, or the p1:dentition, while describing all the other parts. Furthermore, the FMA represents the p1:central nervous system, the p1:peripheral nervous system, and the p1:sensory organs differently as distinct entities. Finally, the FMA considers the p1:endocrine glands as a set of heterogeneous structures, but a system is often much more than a set. From all these differences, we must deduce that the FMA has a stricter definition of the systems of the human body, which has the effect of limiting the number of occurrences.

Under these circumstances, it was necessary to modify the taxonomy to expand it to meet the needs of the $\mathbf{T}_{logy}$. In this regard, see the t1:sstem10150 for the systems present and the t1:sstem division10152 for the subsystems.

In addition, two chapters deviate from this division into systems and have a more general scope. The chapter on p1:general anatomy (is intended to cover all the parts of the body that cannot be assigned to one of these systems. It consists primarily of body parts or regions that are externally visible.

The chapter on the p1:trunk system is a collection of cavities and compartments of the trunk. It also contains entities that cannot be assigned to a single system, and for this reason, they become part of this chapter. It consists primarily of anatomical entities internal to the trunk.

The chapter on p1:dentition is new. It is considered to form a system in itself, and therefore it should be separated from the p1:digestive system.

The genital systems deserve a mention. Human anatomy terminology—the field of the $\mathbf{T}_{logy}$—studies two distinct global objects despite many perfectly identical common parts in terms of terminological description, but being completely different with respect to the nuclei of all the cells that compose them. These are the en:*male human body* and the en:*female human body*. Each of these two objects has its own genital system as a part. Therefore, there is a chapter on the p1:female genital system and a chapter on the p1:male genital system, but there is no such thing as a single genital system!

The quantitative distribution of the 18 chapters is the subject of 4.1.

The partonomic hierarchy is thus comprised of 18 chapters. Each chapter is summarized below in terms of its structure and content.

Each chapter is presented using three types of tables (unless the chapter is empty). The first table is a **chapter chart** that visually displays the proportions of the chapter's main sections—typically P2-level lists, though sometimes grouped together if the data is too widely dispersed. The figures are accurate as of the collection date shown in the table's caption. They may differ slightly

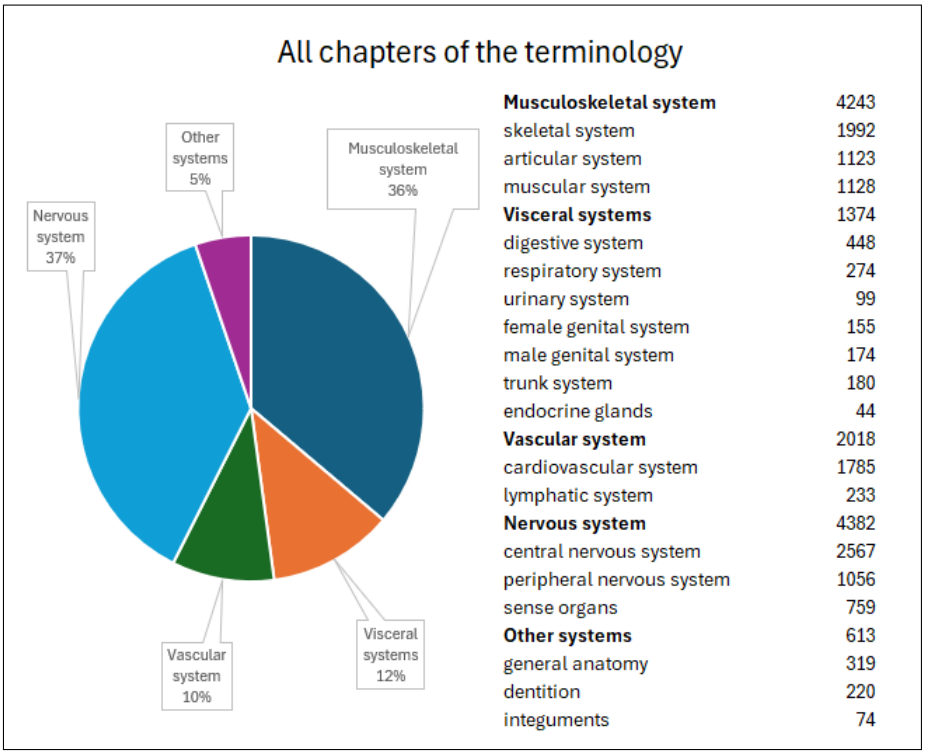

Figure 4.1: Distribution of units across the entire $\mathbf{T}_{logy}$. Last update of numeric values: October 2026. The 18 chapters have been grouped into 5 parts for an overview. The distribution is as follows: one-third for the musculoskeletal system, one-third for the nervous system, one-sixth for the vascular system, and one-sixth for all the remaining terminology. Each part will be discussed in a section below, in order to explain its content in more detail.

from current values. This also applies to the other two types of tables.

The second table consists of the **exhaustive list of lists** that make up the chapter. Each list is a hyperlink that allows it to be opened immediately by accessing the $\mathbf{T}_{logie}$website, provided a suitable internet connection is available. The "Level" column indicates the level of the list, ranging from P1 to P4. The "Section" column provides the term at the top of the list that identifies it. The P1 column contains a single value representing the number of units in the chapter, as given in Table 4.1. This value is necessarily the sum of the entire P2 column, including values from a table which has been splited into multiple parts. The P2 column displays a value only for lists at level P2; this value represents the number of units belonging to that list. It also displays the units specific to level P1. The value given is necessarily the sum of all values in column P3 from this row up to the row preceding the next P2 row (or the end of the table). Column P3 displays a value only for lists at level P3; this value represents the number of units belonging to that list. It also displays the units specific to level P2. The value given is necessarily the sum of all values in column P4 from this row up to the row preceding the next P3 row (or the end of the table). Column P4 displays a value only for lists at level P4; this value represents the number of units belonging to that list. It also displays the units specific to level P3.

The third table consists of the **list of generic lists** found in this chapter. Each term is a hyperlink that opens the corresponding list. The number of units in the generic list is provided, along with the total number of generic list units for the chapter.

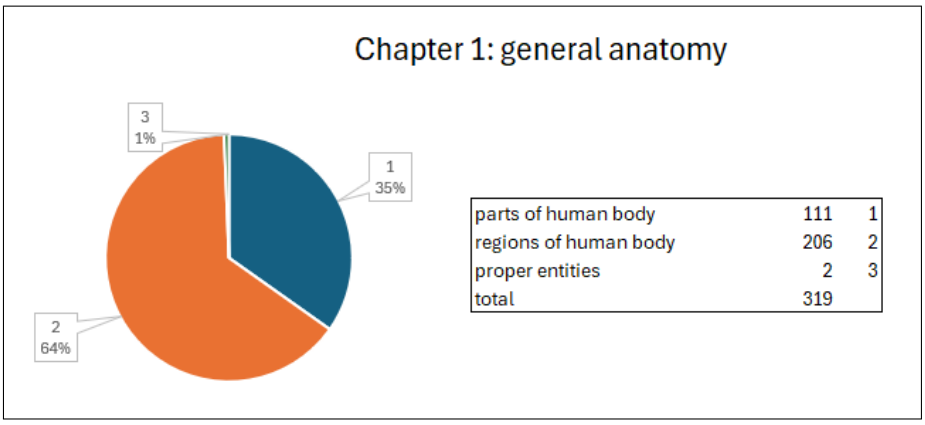

Figure 4.2: Distribution of units in Chapter 1: P1:General Anatomy Last update of numeric values: October 2026. There is a greater presence of immaterial units in the P2:regions of human body than material units in the P2:cardinal parts of human body. This is due to the fact that the entire surface of the human body has been subdivided with a certain degree of detail into numerous specific subsurfaces.

4.2 Chapter 1: General anatomy

The general anatomy chapter is defined by default as containing everything that cannot be attributed to another system or subsystem of the human body. It consists of general entities that pertain to the entire body or to several of its systems and cannot be specifically attributed to any one of them.

It is important to remember here that, by definition, the partonomy of the human body is a hierarchy with simple inheritance; consequently, each entity can only appear once in the hierarchy. An entity cannot appear simultaneously in general anatomy and in a system of the human body. Thus, the nose belongs to the respiratory system and not to general anatomy. However, it does appear in the latter as a reference. This basic principle of scientifically sound terminology has certainly not been respected by several authors of anatomical terminologies.

Table 4.2 documents the P1:general anatomy chapter by highlighting all the lists and sublists that comprise it, while providing direct links to these lists.

The chapter on P1:general anatomy is formally composed of two parts in the $\mathbf{T}_{logy}$. There is a certain parallelism between the two parts, since each describes the entire body according to two different aspects of materiality. La répartition des unités de ce chapitre est donnée dans la figure 4.2.

The first part consists exclusively of material entities, namely different parts of the human body, under the name P2:parts of the human body. The second part consists exclusively of immaterial entities, namely different regions or surfaces of the human body, under the name P2:regions of the human body.

We recall, however, that TA98 had a third part, which, however, has no place in this chapter. This part consists of several groups of non-physical entities. It is unclear how such entities could be inserted into a partonomy; it is nonsensical. These entities are therefore redirected to the taxonomy, which is obviously their natural place.

Level	Sections of this chapter	P1	P2	P3	P4
1	human body	319	2		
2	**cardinal parts of human body**		111	2	
3	head			14	
3	trunk			19	
3	upper limb			38	9
4	hand				29
3	lower limb			38	9
4	foot				29
2	**regions of human body**		206	4	
3	regions of head			25	
3	cervical regions			16	
3	thoracic regions			14	
3	regions of abdomen			7	
3	dorsal regions			12	
3	perineal region			4	
3	regions of upper limb			53	18
4	regions of hand				35
3	regions of lower limb			64	24
4	regions of foot				40
3	cavities			7	

Table 4.2: This table provides a comprehensive summary of all the lists and sub-lists constituting the chapter P1:general anatomy. The overall partonomic list for this chapter is at level P1. It is subdivided into as many levels as necessary—specifically levels P2, P3, and P4. Each list at any level can be directly reach by clicking its name above.

P2 P2:**parts of the human body**.

The human body is divided into five parts, four of which are further subdivided: these are the P3:head, the P3:trunk, the P3:upper limb (pair), and the P3:lower limb (pair). The head itself is divided into two parts: the EN:*neurocranial region* and the EN:*face*. The trunk is subdivided into four parts: the EN:*thorax*, the EN:*abdomen*, the EN:*pelvis*, and the EN:*back*. The upper limb has 3 parts: the EN:*shoulder*, the EN:*axilla*, and the EN:*free part of the upper limb*, plus a reference to the EN:*pectoral girdle*. A subsection is created specifically for the P4:hands. The lower limb has 3 parts: the EN:*buttocks*, the EN:*hip*, and the EN:*free part of the lower limb*, plus a reference to the EN:*pelvic girdle*. A subsection is created specifically for the P4:feet.

P2 P2:**regions of the human body**.

The human body is divided into 9 regions: these are the P3:head regions, the P3:cervical regions, the P3:thoracic regions, the P3:abdominal regions, the P3:back regions, the P3:perineal regions, the P3:regions of the upper limb (pair), the P3:regions of the lower limb (pair), and the P3:cavities. Note that the section on cavities isn't really a section, as it only contains useful references to help locate them in their respective chapters. A subsection is created specifically for the P4:regions of the hand and the P4:regions of the foot.

The following comments apply to this chapter:

- Generally, references (marked by the eye icon) point directly to the chapter where the entity in question is located.This entity belongs to the referenced chapter and therefore is not part of this chapter.
- Each finger is made up of three segments (proximal, middle, and distal) except for the thumb and the big toe (which lack the middle segment). These entities have been added, along with their corresponding regions.
- The EN:*eye* corresponds to the visible part of the eyeball, plus the entities that complement it.
- The EN:*pectoral girdle* is definitively considered by most anatomists to be a single midline entity, and not a paired entity of two half-girdles. Furthermore, it is formed of bones and joints, and is therefore part of the EN:*articuloskeletal system* and cannot be reduced to a part of the EN:*skeletal system*. The same applies to the EN:*pelvic girdle*.
- The fingers and toes are all composed of three segments—proximal, intermediate, and distal—with the exception of the thumb (big toe), which consists of two segments. These entities, which were absent from TA98, have been added to this chapter. The same applies to the corresponding regions.

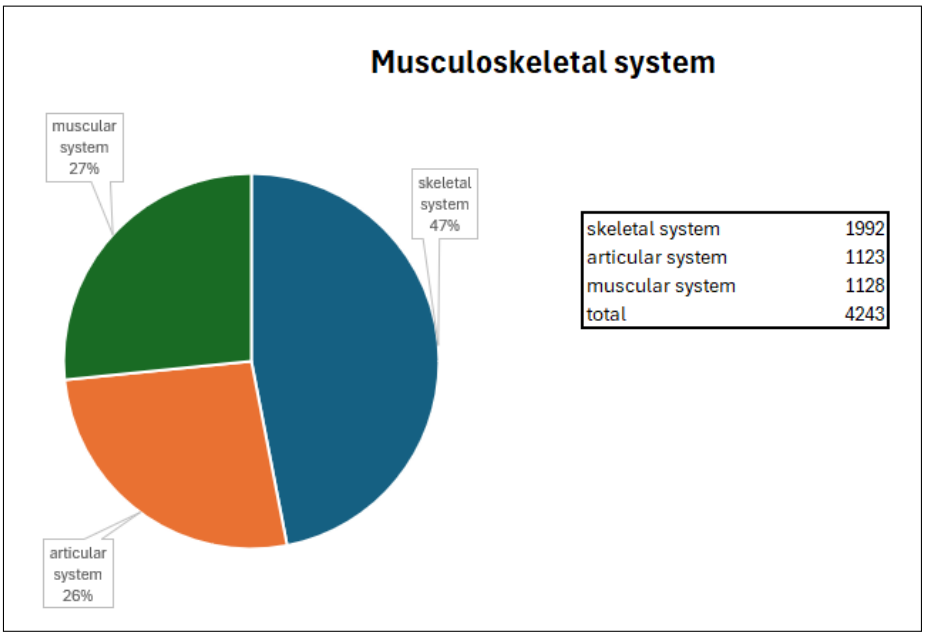

Figure 4.3: The P0:musculoskeletal system is divided into three subsystems: the P1:skeletal system, the P1:articular system, and the P1:muscular system. Values were collected in November 2026.

4.3 Musculoskeletal System

The P0:musculoskeletal system comprises three subsystems, which are discussed in the following sections and are chapters of the $\mathbf{T}_{logy}$. These are the P1:skeletal system, the P1:articular system, and the P1:muscular system.

The division into three subsystems is shown in figure 4.3.

In addition, the EN:*pectoral girdle* and the EN:*pelvic girdle* naturally belong to this system as children of the EN:*articuloskeletal system*.

In this regard, it is important to dispel a very common misunderstanding about the pectoral and pelvic girdles. There are three basic axioms that must be satisfied regarding these girdles:

- Each girdle is a single entity, not a pair of hemi-girdles.
- The girdles consist of a set of bones and joints; therefore, they are part of the articuloskeletal system. They cannot be part of the skeletal system. If they were, consisting solely of bones, they would be hemi-girdles.
- The girdles must be included in modern terminology for historical reasons. Although their presence is not absolutely necessary, it is required.

These three axioms express the position of the majority of anatomists. Consequently, the following points are established in the $\mathbf{T}_{logy}$:

- A girdle, as a simple unit, cannot be part of a paired unit: that would be nonsensical. A girdle therefore cannot be part of a limb, as presented in TA98.

- The articulo-skeletal system should be created as a subsystem of the musculoskeletal system.
- The articulo-skeletal system is itself divided into the skeletal system and the articular system.
- Any mention of girdles at other locations in the $\mathbf{T}_{logy}$must necessarily be made by reference.

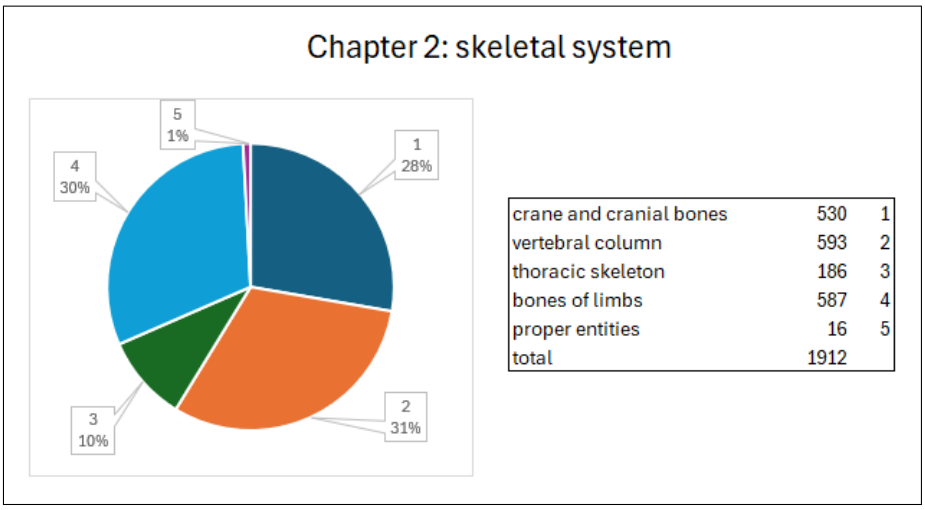

Figure 4.4: Distribution of units for Chapter 2: P1:skeletal system. Last update of numeric values: October 2026.

4.4 Chapter 2: Skeletal System

The chapter on the skeletal system examines the human skeleton. All constant bones are explicitly listed and separately identified so that the $\mathbf{T}_{logy}$can serve as a reference for computer applications.

The distribution of units within this chapter is shown in Figure 4.4.

This chapter is divided into an EN:*axial skeletal system* comprising the P2:cranium, the P2:cranial bones, the P2:vertebral column, and the P2:thoracic skeleton, and an EN:*appendicular skeletal system* comprising the P2:bones of the upper limb and the P2:bones of the lower limb. Each of these P2 parts is examined below.

P2 P2:**cranium**.

This list comprises 8 sublists at the P3 level. They are: the P3:aspects of cranium, the P3:subdivisions of cranium, the P3:terms of cranium, the P3:fontanelles, the P3:calvaria, the P3:cranial base, the P3:orbit and the P3:bony nasal septum.

P2 P2:**bones of cranium**.

This list refers to 15 bones of cranium, each of which is subsequently examined in detail, in the order of the 6 bones forming the cranial cavity, followed by the 9 anterior bones of the head.

For the cranial cavity, these are: the P3:parietal bone (paired), the P3:frontal bone, the P3:occipital bone, the P3:sphenoid bone, the P3:temporal bone (paired), and the P3:ethmoid bone. Among these lists, only those for the sphenoid bone and the temporal bone feature 3 and 4 sub-lists, respectively.

These are the anterior bones of the head: the P3:inferior nasal concha (pair), the P3:lacrimal bone (pair), the P3:nasal bone (pair), the P3:vomer, the P3:maxilla (pair) with 4 sub-lists, the P3:palatine bone (pair), the P3:zygomatic bone (pair), the P3:mandible with 2 sub-lists, and the P3:hyoid bone.

Table 4.3 documents the first part of the P1:skeletal system chapter by highlighting all the lists and sub-lists that comprise it, while providing direct links to those lists.

P2 P2:**vertebral column**.

Level	Section of this chapter	P1	P2	P3	P4
1	skeletal system	1912	5		
2	**bones**		11		
2	**cranium**		113	3	
3	aspects of cranium			6	
3	subdivisions of cranium			6	
3	terms of cranium			16	
3	fontanelles			5	
3	calvaria			13	
3	cranial basis			23	
3	orbit			28	
3	bonny nasal septum			13	
2	**bones of cranium**		417	2	
3	parietal bone			19	
3	frontal bone			33	
3	occipital bone			42	
3	sphenoid			58	14
4	- body of sphenoid				19
4	- lesser wing				7
4	- greater wing				18
3	temporal bone			87	5
4	- petrosal part				57
4	- tympanic part				9
4	- squamous part				10
4	- articular tubercle				6
3	ethmoid			18	
3	inferior nasal concha			4	
3	lacryimal bone			4	
3	nasal bone			3	
3	vomer			5	
3	maxilla			57	2
4	- body of maxilla				25
4	- frontal process				4
4	- palatine process				9
4	- alveolar process				17
3	palatine bone			20	
3	zygomatic bone			12	
3	mandible			49	1
4	- body of mandible				32
4	- branch of mandible				16
3	hyoid bone			4	
	total from part 2		1366		

Table 4.3: Skeletal system: part 1 of 2. Skull and cranial bones. This table provides a comprehensive summary of all the lists and sub-lists that make up the first part of the P1:skeletal system chapter. The overall partonomic list for this chapter is at level P1. It is subdivided into as many levels as necessary—levels P2, P3, and P4. Any list at any level can be accessed directly by clicking its name above.

This list enumerates all the vertebrae from the most rostral to the most caudal. This list is highly repetitive, given the minimal variation from one vertebra to the next. However, it is important to list each one exhaustively and identify every part. The vertebral column comprises six divisions, listed below.

The description of a P3:typical vertebra comes first and outlines features common to all vertebrae. These features are subsequently revisited with specific details for each individual type.

There are 7 P3:cervical vertebrae. Three are distinctive: the first, the P4:atlas; the second, the P4:axis; and the seventh, the P4:vertebra prominens. Cervical vertebrae 3 through 6 are typical.

The 12 P3:thoracic vertebrae are relatively typical. The same applies to the 5 P3:lumbar vertebrae. The P3:sacrum and the P3:coccyx follow.

P2 P2:**thoracic skeleton**.

This list naturally follows the list for the vertebral column and complements it. This list comprises four parts: the P3:ribs (pair), the P3:costal cartilages (pair), the P3:sternum, and the P3:thoracic cage. Only the first list includes 12 sub-lists to enumerate each rib individually.

The chapter continues by moving on to the EN:*appendicular skeletal system*, specifically the treatment of the lower and upper limbs.

P2 P2:**bones of the upper limb**.

This list is organized into 8 parts: 2 parts for the EN:*bones of the pectoral girdle*, 6 parts for the bones of the EN:*free part of the upper limb*, including 3 parts for the EN:*bones of the hand*.

The EN:*bones of the pectoral girdle* are the P3:scapula and the P3:clavicle.

The bones of the EN:*free part of the upper limb* are the P3:humerus, the P3:radius, and the P3:ulna.

The 27 EN:*bones of the hand* are the 8 P3:bones of the wrist, the 5 P3:bones of the metacarpus, and the 14 P3:phalanges of the hand, with the latter list comprising 3 sub-lists.

P2 P2:**bones of the lower limb**.

This list is organized into 13 parts: 1 part for the EN:*bones of the pelvic girdle*, 1 part for the P3:pelvis, and 11 parts for the bones of the EN:*free part of the lower limb*, including 7 parts for the EN:*bones of the foot*, with 3 sub-lists for the P3:phalanges of the foot.

The EN:*bones of the pelvic girdle* consist of the EN:*sacrum*—included here for reference as it is part of the EN:*vertebral column*—and the P3:hip bones, each represented in a sub-list, namely the P4:ilium, the P4:ischium, and the P4:pubis.

The bones of the EN:*free part of the lower limb* are the P4:femur, the P4:patella, the P4:tibia, and the P4:fibula.

The 26 EN:*bones of the foot* are the P3:talus, the P3:calcaneus, the P3:navicular bone, the 3 P3:cuneiform bones, the P3:cuboid bone, as well as the 5 P3:metatarsal bones and the 14 P3:phalanges of the foot, with the latter list comprising 3 sub-lists.

Table 4.4 documents the second part of the P1:skeletal system chapter by highlighting all the lists and sub-lists that comprise it, while providing direct links to those lists.

The chapter on the P1:skeletal system includes generic partonomy lists. These lists are enumerated in Table 4.5.

The following comments apply to this chapter:

Level	Section of this chapter	P1	P2	P3	P4
	total from part 1		530		
2	**vertebral column**		593	14	
3	typical vertebra			20	
3	cervical vertebra			158	2
4	- atlas				15
4	- axis				21
4	- any cervical vertebra (4x)				96
4	- vertebra prominens				24
3	thoracic vertebra			261	1
4	- any thoracic vertebra (12x)				260
3	lumbar vertebra			104	4
4	- any lumbar vertebra (5x)				100
3	sacrum			32	
3	coccyx			4	
2	**thoracic skeleton**		186	2	
3	ribs			150	7
4	- any rib (12x)				143
3	costal cartilages			13	
3	sternum			9	
3	thoracic cage			12	
2	**bones of upper limb**		237	9	
3	scapula			25	
3	clavicle			12	
3	humerus			31	
3	radius			23	
3	ulna			19	
3	bones of wrist			14	
3	metacarpal bones			24	
3	phalanges of hand			80	1
4	- any phalanx of hand (3x)				79
2	**bones of lower limb**		350	11	
3	hip bones			57	11
4	- ilium				22
4	- ischium				7
4	- pubis				17
3	pelvis			23	
3	femur			32	
3	patella			11	
3	tibia			33	
3	fibula			22	
3	talus			21	
3	calcaneus			16	
3	navicular bone			8	
3	cuneiform bones			4	
3	cuboid bone			10	
3	metatarsal bones			23	
3	phalanges of foot			79	1
4	- any phalanx of foot (3x)				78
1	skeletal system	1912	16		

Table 4.4: Skeletal system: part 2 of 2.

Generic lists	Units
bone	21
long bone	8
epiphysis	4
typical cervical vertebra	9
thoracic vertebra	4
rib	12
metacarpal bone	4
phalanx of hand	5
distal phalanx of hand	2
metatarsal bone	4
phalanx of foot	5
distal phalanx of foot	2
Total	80

Table 4.5: Generic lists of the skeletal system. Each list can be accessed directly by clicking on its name above.

- The wrist is considered part of the hand, in accordance with a classical anatomical perspective. There are 8 wrist bones. Similarly, the tarsus is part of the foot. There are 7 tarsal bones.
- The ossicles of the middle ear are described in the chapter on the sense organs.
- The mandible is a single entity, although it is a paired structure during the first year of life.
- Dentition is not covered in this chapter. It is addressed in a dedicated chapter, separate from the chapter on the digestive system.
- The pectoral and pelvic girdles were discussed in the preceding section on the musculoskeletal system. This has implications that are evident in this chapter.

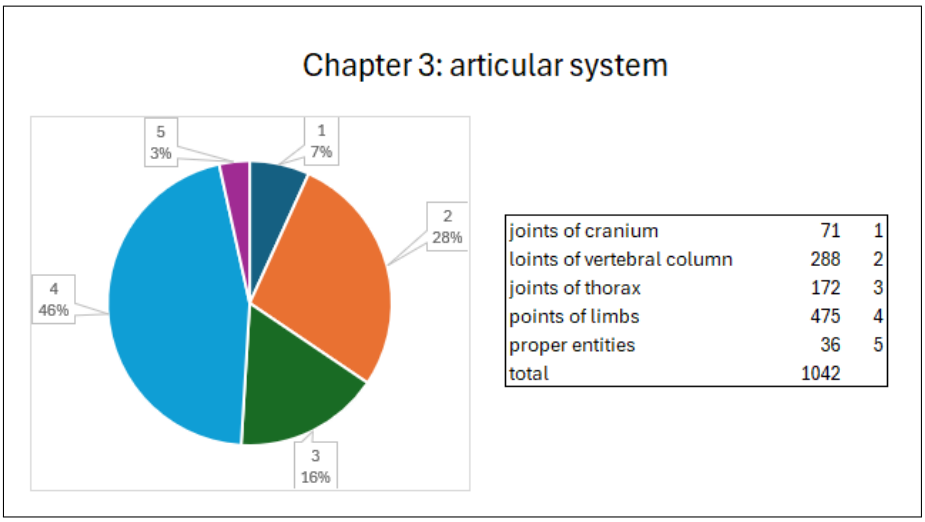

Figure 4.5: Distribution of units in Chapter 3: P1:articular system. The data of this chapter were last updated in October 2026. It can be seen that nearly half of this chapter (46%) relates to the limbs, and close to one-third (28%) relates to the vertebral column.

4.5 Chapter 3: Articular system

The chapter on the articular system examines the joints of the human skeleton. All joints of every type are explicitly listed and individually identified, so that the $\mathbf{T}_{logy}$can serve as a reference for computer applications.

The P2:laryngeal joints and the P4:joints of the auditory ossicles are not included in this chapter but are covered in their respective chapters.

The organization of the units in this chapter is shown in Figure 4.5.

This chapter classifies all the joints of the human body into five sections (plus the two sections mentioned above and covered in other chapters). These are: the P2:joints of the skull, the P2:joints of the vertebral column, the P2:joints of the thorax, the P2:joints of the upper limb, and the P2:joints of the lower limb. Each of these P2-level sections is examined below.

P2 P2:joints of the skull.

This list comprises 5 sub-lists at the P3 level. For the fibrous joints of the skull, these are: P3:cranial syndesmoses, P3:cranial sutures, and P3:dentoalveolar syndesmoses. For the cartilaginous joints of the skull, there are the P4:cranial synchondroses. And finally, the P3:synovial cranial joints. The latter include the P4:temporomandibular joint as well as the P4:atlanto-occipital joint.

P2 P2:joints of the vertebral column.

This list comprises three sub-lists at the P3 level. For fibrous joints, these are the P3:syndesmoses of the vertebral column. For cartilaginous joints, these are the P3:cartilaginous joints of the vertebral column. For synovial joints, these are the P3:joints of the vertebral column. All these lists are generally subdivided into P4 lists based on the cervical, thoracic, lumbar, and sacral regions of the vertebral column.

P2 P2:joints of the thorax.

This list comprises three sub-lists at the P3 level. For fibrous joints, these are the P3:syndesmoses of the thorax. For cartilaginous joints, these are the P3:synchondroses of the thorax. For synovial joints, these are the P3:joints of the thorax. Some of these lists are further divided into P4 lists.

Table 4.6 documents the first part of the chapter P1:articular system, covering the joints of the skull, vertebral column, and thorax; it highlights all the constituent lists and sub-lists while providing direct links to them.

P2 P2:joints of the upper limb.

This list comprises four sub-lists at the P3 level. For the pectoral girdle section, these are: the P3:syndesmosis of the pectoral girdle and the P3:joints of the pectoral girdle, presented in two sub-lists. For the free upper limb section, these are: the P3:radioulnar syndesmosis and the P3:intersegmental joints of the free upper limb, which is divided into nine sub-lists covering the entire free upper limb.

P2 P2:joints of the lower limb.

This list comprises 8 sub-lists at the P3 level. For the pelvic girdle section, these are: the P3:syndesmoses of the pelvic girdle, the P3:pubic symphysis, and the P3:sacroiliac joint. For the free lower limb section, these are: the P3:tibiofibular syndesmoses, the P3:hip joint, the P3:knee joint, the P3:tibiofibular joint, and the P3:joints of the foot, the latter being divided into 10 sub-lists.

Table 4.7 documents the second part of the chapter on the P1:articular system concerning the upper and lower limbs, highlighting all the lists and sub-lists that comprise it, while providing direct links to these lists.

The chapter on the P1:articular system includes generic partonomy lists. These lists are enumerated in Table 4.8.

The following comments apply to this chapter:

- The joints of the larynx are listed in the chapter on the respiratory system.
- The joints of the auditory ossicles are listed in the chapter on the sense organs.

Level	Section in the chapter	P1	P2	P3	P4
1	articular system	1042	6		
2	**joints**		30	16	
3	fibrous joints			10	
3	cartilaginous joints			3	
3	synovial joints			1	
2	**joints of cranium**		71	3	
3	cranial syndesmoses			7	
3	cranial sutures			35	
3	dentoalveolar syndesmoses			3	
3	cranial synchondroses			7	
3	cranial synovial joints			16	1
4	temporomandibular joints				10
4	atlantooccipitl joint				5
2	**joints of vertebral column**		288	1	
3	syndesmoses of vertebral column			139	13
4	- any syndesmosis of vertebra (3x)				27
4	- any interspinous ligament (3x)				26
4	- any yellow ligament (3x)				27
4	- any intertransverse ligament (3x)				25
4	segments of supraspinous ligament				21
3	synchondroses of vertebral column			100	2
4	- any intervertebral symphysis (3x)				93
4	sacrococcygeal joint				5
3	joints of vertebral column			48	3
4	median atlantoaxial joint				11
4	uncovertebral joints				6
4	- any zygoapophysial joint (3x)				26
4	lumbosacral joint				2
2	**joints of thorax**		172	1	
3	syndesmoses of thorax			25	
3	synchondroses of thorax			20	7
4	costochondral joints				13
3	joints of thorax			126	2
4	joints of head of rib				33
4	costotransverse joints				53
4	sternocostal joints				25
4	interchondral joints				13
	total from part 2		475		

Table 4.6: Articular system: part 1 of 2.

Level	Section in the chapter	P1	P2	P3	P4
	total from part 1		561		
2	**joints of upper limb**		217	4	
3	syndesmoses of pectoral girdle			4	
3	synovial joints of pectoral girdle			14	1
4	acromioclavicular joint				6
4	sternoclavicular joint				7
3	radioulnar syndesmosis			5	
3	synovial joints of free upper limb			190	4
4	glenohumeral joint				12
4	elbow joint				14
4	distal radioulnar joint				6
4	radiocarpal joint				16
4	carpal joints				24
4	carpometacarpal joints				16
4	intermetacarpal joints				15
4	metacarpophalangeal joints				31
4	interphalangeal joints				52
2	**joints of lower limb**		258	8	
3	syndesmoses of pelvic girdle			3	
3	pubic symphysis			5	
3	sacroiliac joint			9	
3	tibiofibular syndesmosis			4	
3	interosseous membrane			5	
3	hip joint			13	
3	knee joint			33	
3	tibiofibular joint			3	
3	joints of foot			175	1
4	ankle joint				10
4	subtalar joint				6
4	transverse tarsal joint				5
4	cuneonavicular joint				3
4	intercuneiform joints				3
4	tarsal ligaments				23
4	tarsometatarsal joints				9
4	intermetatarsal joints				22
4	metatarsophalangeal joints				32
4	interphalangeal joints of foot				61
1	articular system	1042	6		

Table 4.7: Articular system: part 2 of 2.

Generic lists	units
dentoalveolar syndesmose	7
intervertebral symphysis	4
joint of head of rib	3
costotransverse joint	5
sternocostal joint	3
costoxiphoid ligaments	3
interchondral joint	4
carpometacarpal joint	3
intermetacarpal joint	5
metacarpophalangeal joint	4
interphalangeal joint of hand	3
intermetatarsal joint	5
metatarsophalangeal joint	4
interphalangeal joint of foot	4
syndesmosis	3
synchondrosis	2
synovial joint	19
Total	81

Table 4.8: Generic lists for the articular system. Each list can be accessed directly by clicking on its name above.

4.6 Chapter 4: Muscular system

The chapter on the muscular system examines the muscles of the human body and other associated structures. All muscles—of every type—are explicitly listed and individually identified, so that this terminology can serve as a reference for computational applications. Also included, to a partial extent, are the muscle compartments, fasciae, tendons, tendon sheaths, and synovial bursae, which round out this chapter.

The organization of the units within this chapter is presented in Figure 4.6.

Five introductory sections define the intrinsic entities of the muscular system. Following this, the chapter classifies all the muscles of the human body—along with other associated structures—into eight categories.

The five intrinsic entities are: the P2:muscles organs, the P2:tendons, the P2:fasciae, the P2:synovial bursae and the P2:tendon sheaths.

The eight parts are the following: the P2:part of head, the P2:cervical part, the P2:dorsal part, the P2:thoracic part, the P2:abdominal part ,the P2:pelvic part, the P2:muscular system of upper limb et the P2:muscular system of lower limb. Each of these P2-level parts is examined below.

P2 P2:part of head of muscular system.

This list includes 8 sublists at the P3 level: the P3:extraocular muscles, the P3:muscles of auditory ossicles, the P3:superficial muscles of the head, the P3:facial muscles, the P3:masticatory muscles, the P3:muscles of tongue, the P3:muscles of soft palate and the P3:fascias of the head. The sub-list of facial muscles is itself subdivided into 4 further sub-lists relating to the ear, the orbit, the nose, and the mouth.

P2 P2:cervical part of muscular system.

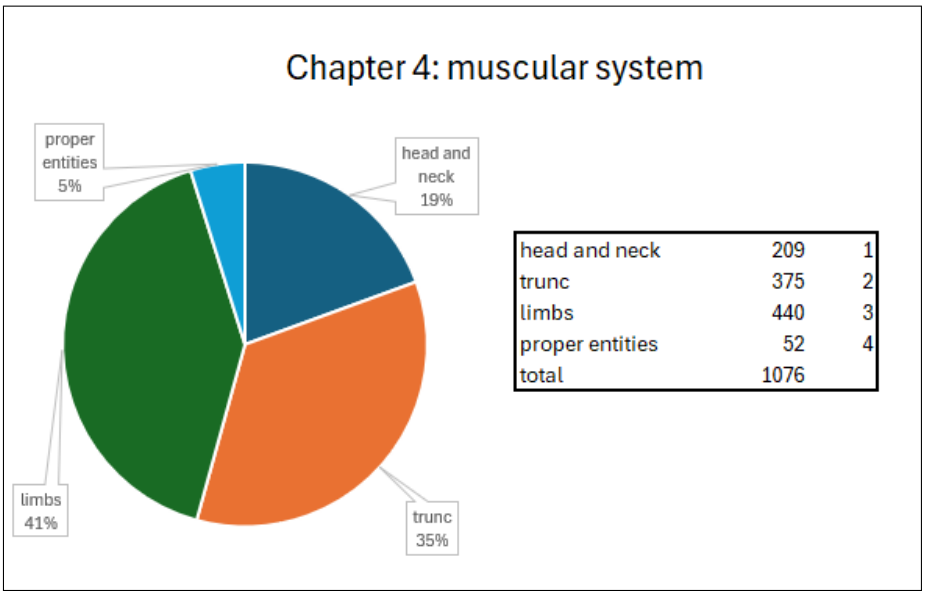

Figure 4.6: Distribution of units in Chapter 4: P1:muscular system. Last update of numerical values: November 2026. It is observed that the trunk and the limbs account for equal shares of three-quarters of the entities in this chapter.

This list includes 3 sublists at the P3 level: the P3:muscles of the neck, the P3:cervical fascia and the P3:bursae of the neck. The sub-list of the muscles of the neck is itself subdivided into 5 further sub-lists, relating to the suboccipital, suprahyoid, infrahyoid, pharyngeal, and laryngeal muscles.

P2 P2:**dorsal part of muscular system**.

This list includes 3 sublists at the P3 level: the P3:muscles superficiels du dos, the P3:muscles propres du dos et the P3:fascia thoracolombaire. The sub-list of intrinsic dorsal muscles is further subdivided into five additional sub-lists, relating to the erector spinae muscle, as well as the spinotransversal, transversospinal, interspinal, and intertransversal muscles.

P2 P2:**thoracic part of muscular system**.

This list includes 3 sublists at the P3 level: the P3:muscles of thorax, the P3:fasciae of thorax and the P3:diaphragm. The sub-list of muscles of thorax is further subdivided into three additional sub-lists, covering the levator costarum, intercostal, and subcostal muscles.

P2 P2:**abdominal part of muscular system**.

This list includes 2 sublists at the P3 level: the P3:muscles abdominaux and the P3:fascia abdominal.

P2 P2:**pelvic part of muscular system**.

This list includes 3 sublists at the P3 level: the P3:pelvic diaphragm, the P3:muscles of perineum and the P3:pelvic fascia.

P2 P2:**muscular system of upper limb**.

This list includes 5 sublists at the P3 level: the P3:compartiments du membre supérieur, the P3:muscles du membre supérieur, the P3:fascias du membre supérieur, the P3:bourses du membre supérieur and the P3:gaines de tendon du membre supérieur. The sub-list of upper limb muscles is further subdivided into

Level	Section in the chapter	P1	P2	P3	P4
1	muscular system	1076	1		
2	**organs muscles**		30		
2	tendons		1		
2	fasciae		12		
2	synovial bursae		5		
2	tendinous sheaths		3		
2	**part of the head**		113	2	
3	extraocular muscles			16	
3	muscles of auditory ossicles			3	
3	superficial muscles of the head			7	
3	muscles of face			45	1
4	auricular muscles				14
4	circumorbital muscles				9
4	muscles of nose				5
4	muscles of mouth				16
3	masticatory muscles			12	
3	muscles of tongue			11	
3	muscles of soft palate			8	
3	fasciae of head			9	
2	**cervical part**		96	1	
3	cervical muscles			77	16
4	suboccipital muscles				8
4	suprahyoid muscles				8
4	infrahyoid muscles				9
4	pharyngeal muscles				22
4	laryngeal muscles				14
3	cervical fascia			13	
3	bursae of neck			5	
2	**dorsal part**		139	2	
3	superficial muscles			12	
3	proper muscles			120	1
4	erector muscle of spine				16
4	spinotransverse muscles				4
4	transversospinal muscles				36
4	interspinal muscles				20
4	intertransverse muscles				43
3	thoracolumbar fascia			5	
	total of part 2		676		

Table 4.9: Chapter: muscular system (first part).

8 additional sub-lists, covering the humeral muscles, the muscles of the anterior and posterior compartments of the arm, the muscles of the superficial and deep layers within the anterior and posterior compartments of the forearm, and the muscles of the hand.

P2 P2:**muscular system of lower limb**.

This list includes 5 sublists at the P3 level: the P3:compartiments du membre inférieur, the P3:muscles du membre inférieur, the P3:fascias du membre inférieur, the P3:bourses du membre inférieur and the P3:gaines de tendon du membre inférieur. The sub-list of lower limb muscles is further subdivided into 8 additional sub-lists, covering the muscles of the hip joint, the muscles of the thigh compartments (3 sub-lists), the muscles of the leg compartments (3 sub-lists), and the muscles of the foot.

The chapter on the P1:muscular system includes generic partonomy lists. These lists are presented in Table 4.11.

The following comments apply to this chapter:

- Almost all smooth muscles that are active in other systems have been relocated to this chapter; however, this does not apply to striated muscles, which are considered part of the organs to which they belong, rather than part of the muscular system.
- The simplification of muscular system terminology—omitting the word "muscle"—has not been adopted. The rule, therefore, is to always include this word, regardless of the language.
- In English, there is a questionable practice of naming a muscle using its Latin term followed by the word "muscle." As this usage is quite common, such terms are included as synonyms.

Level	Section in the chapter	P1	P2	P3	P4
	total of part 1		399		
2	**thoracic part**		111	1	
3	thoracic muscles			82	12
4	levators muscles of ribs				19
4	intercostal muscles				39
4	subcostal muscles				12
3	fasciae of thorax			10	
3	diaphragm			18	
2	**abdominal part**		56	1	
3	muscles of abdomen			27	
3	abdominal fascia			28	
2	**pelvic part**		69	1	
3	pelvic diaphragm			23	
3	muscles of perineum			18	
3	pelvic fascia			27	
2	**upper limb**		211	1	
3	compartments of free part of upper limb			15	
3	muscles of upper limb			132	3
4	humeral muscles				12
4	muscles of anterior compartment of arm				9
4	muscles of posterior compartment of arm				9
4	m. of superficial part of anterior comp. of forearm				19
4	m. of deep part of anterior comp. of forearm				11
4	m. of superficial part of posterior comp. of forearm				24
4	m. of deep part of posterior comp. of forearm				11
4	muscles of hand				34
3	fasciae of upper limb			21	
3	bursae of upper limb			15	
3	tendinous sheath of upper limb			27	
2	**lower limb**		229	1	
3	compartments of free part of lower limb			9	
3	muscles of lower limb			119	1
4	muscles of hip joint				21
4	muscles of anterior compartment of thigh				16
4	muscles of medial compartment of thigh				10
4	muscles of posterior compartment of thigh				6
4	muscles of anterior compartment of leg				8
4	muscles of posterior compartment of leg				18
4	muscles of lateral compartment of leg				4
4	muscles of foot				35
3	fasciae of lower limb			48	
3	bursae of lower limb			32	
3	tendinous sheath of lower limb			20	
1	muscular system	1076	1		

Table 4.10: Chapter: muscular system (second part).

Generic lists	units
muscle	10
muscular fascicle	3
tendon	5
fascia of muscle	2
synovial bursa	3
tendinous sheath	2
intertransverse muscle	3
distal tendon	2
fibrous sheath of fingers	11
synovial sheath of fingers	4
fibrous sheath of toes	3
synovial sheath of toes	4
Total	52

Table 4.11: Generic lists for the muscular system. Each list can be accessed directly by clicking on its name above.

4.7 Chapter 5: Digestive system

4.8 Chapter 6: Dentition

4.9 Chapter 7: Respiratory system

4.10 Chapter 8: Urinary system

4.11 Chapter 9: Female genital system

4.12 Chapter 10: Male genital system

4.13 Chapter 11: Trunk system

4.14 Chapter 12: Endocrine glands

4.15 Chapter 13: Cardiovascular system

4.16 Chapter 14: Lymphatis system

4.17 Chapter 15: Central nervous system

4.18 Chapter 15: Peripheral nervous system

4.19 Chapter 17: Sense organs

4.20 Chapter 18: The integuments

4.21 Log of updates

22 Sep 2026 Release of chapter 3: articular system.

21 Sep 2026 Release of chapter 2: skeletal system.

1 Sep 2026 Translation in English of this chapter from the source French version.

25 Aug 2026 Creation of this document in French with chapter 1: general anatomy.

4.22 Credentials

This document is part of the book *Universal Terminology*, which accompanies the website Terminologia Anatomica, sponsored by the University of Fribourg, Switzerland. It expresses the authors' vision of the $\mathbf{T}_{logy}$on the foundations of the science of ontology, supporting the terminology presented here. While it is as accurate as possible, closely reflecting the reality of the terminological database and the software that supports it, approximations, errors, and ambiguities are possible and should be considered as unintentional.

Any comments regarding the content of this document, the website, and its presentation are welcome. An appropriate response will be provided as needed.

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