

## Chapter 1 : Learn the Skeletal System - A Fun & Interactive Game

*Naming the System examines contemporary trends in employment and unemployment, in hours of work, and in the nature of jobs. It shows how working life is being reconfigured today, and how the effects of this are masked by mainstream economic theories.*

Function[ edit ] An often-used analogy to explain the Domain Name System is that it serves as the phone book for the Internet by translating human-friendly computer hostnames into IP addresses. For example, the domain name `www`. Users take advantage of this when they use meaningful Uniform Resource Locators URLs , and e-mail addresses without having to know how the computer actually locates the services. An important and ubiquitous function of DNS is its central role in distributed Internet services such as cloud services and content delivery networks. The key functionality of DNS exploited here is that different users can simultaneously receive different translations for the same domain name, a key point of divergence from a traditional phone-book view of the DNS. This process of using the DNS to assign proximal servers to users is key to providing faster and more reliable responses on the Internet and is widely used by most major Internet services. That data can be used to gain insight on, and track responsibility for, a given host on the Internet. Postel directed the task of forging a compromise between five competing proposals of solutions to Paul Mockapetris. Mockapetris instead created the Domain Name System. It was widely distributed, especially on Unix systems, and is still the most widely used DNS software on the Internet. Each node or leaf in the tree has a label and zero or more resource records RR , which hold information associated with the domain name. The domain name itself consists of the label, possibly concatenated with the name of its parent node on the right, separated by a dot. A DNS zone may consist of only one domain, or may consist of many domains and sub-domains, depending on the administrative choices of the zone manager. DNS can also be partitioned according to class where the separate classes can be thought of as an array of parallel namespace trees. Authority over the new zone is said to be delegated to a designated name server. The parent zone ceases to be authoritative for the new zone. A domain name consists of one or more parts, technically called labels, that are conventionally concatenated, and delimited by dots, such as `example`. The right-most label conveys the top-level domain ; for example, the domain name `www`. The hierarchy of domains descends from right to left; each label to the left specifies a subdivision, or subdomain of the domain to the right. For example, the label `example` specifies a subdomain of the `com` domain, and `www` is a subdomain of `example`. This tree of subdivisions may have up to levels. The null label, of length zero, is reserved for the root zone. The full domain name may not exceed the length of characters in its textual representation. The characters allowed in labels are a subset of the ASCII character set, consisting of characters `a` through `z`, `A` through `Z`, digits `0` through `9`, and hyphen. This rule is known as the LDH rule letters, digits, hyphen. Domain names are interpreted in case-independent manner. Name servers[ edit ] The Domain Name System is maintained by a distributed database system, which uses the clientâ€”server model. The nodes of this database are the name servers. Each domain has at least one authoritative DNS server that publishes information about that domain and the name servers of any domains subordinate to it. The top of the hierarchy is served by the root name servers , the servers to query when looking up resolving a TLD. Authoritative name server[ edit ] An authoritative name server is a name server that only gives answers to DNS queries from data that has been configured by an original source, for example, the domain administrator or by dynamic DNS methods, in contrast to answers obtained via a query to another name server that only maintains a cache of data. An authoritative name server can either be a master server or a slave server. A master server is a server that stores the original master copies of all zone records. A slave server uses a special automatic updating mechanism in the DNS protocol in communication with its master to maintain an identical copy of the master records. Every DNS zone must be assigned a set of authoritative name servers. This set of servers is stored in the parent domain zone with name server NS records. An authoritative server indicates its status of supplying definitive answers, deemed authoritative, by setting a protocol flag, called the "Authoritative Answer" AA bit in its responses. Please help improve this article by adding citations to reliable sources. Unsourced material may be

challenged and removed. September Learn how and when to remove this template message Address resolution mechanism[ edit ] Domain name resolvers determine the domain name servers responsible for the domain name in question by a sequence of queries starting with the right-most top-level domain label. A DNS resolver that implements the iterative approach mandated by RFC ; in this case, the resolver consults three name servers to resolve the fully qualified domain name "www. For proper operation of its domain name resolver, a network host is configured with an initial cache hints of the known addresses of the root name servers. The hints are updated periodically by an administrator by retrieving a dataset from a reliable source. Assuming the resolver has no cached records to accelerate the process, the resolution process starts with a query to one of the root servers. In typical operation, the root servers do not answer directly, but respond with a referral to more authoritative servers, e. The resolver now queries the servers referred to, and iteratively repeats this process until it receives an authoritative answer. The diagram illustrates this process for the host that is named by the fully qualified domain name "www. This mechanism would place a large traffic burden on the root servers, if every resolution on the Internet required starting at the root. In practice caching is used in DNS servers to off-load the root servers, and as a result, root name servers actually are involved in only a relatively small fraction of all requests. Recursive and caching name server[ edit ] In theory, authoritative name servers are sufficient for the operation of the Internet. However, with only authoritative name servers operating, every DNS query must start with recursive queries at the root zone of the Domain Name System and each user system would have to implement resolver software capable of recursive operation. To improve efficiency, reduce DNS traffic across the Internet, and increase performance in end-user applications, the Domain Name System supports DNS cache servers which store DNS query results for a period of time determined in the configuration time-to-live of the domain name record in question. Typically, such caching DNS servers also implement the recursive algorithm necessary to resolve a given name starting with the DNS root through to the authoritative name servers of the queried domain. With this function implemented in the name server, user applications gain efficiency in design and operation. The combination of DNS caching and recursive functions in a name server is not mandatory; the functions can be implemented independently in servers for special purposes. Internet service providers typically provide recursive and caching name servers for their customers. In addition, many home networking routers implement DNS caches and recursors to improve efficiency in the local network. A resolver is responsible for initiating and sequencing the queries that ultimately lead to a full resolution translation of the resource sought, e. DNS resolvers are classified by a variety of query methods, such as recursive, non-recursive, and iterative. A resolution process may use a combination of these methods. A recursive query is one for which the DNS server answers the query completely by querying other name servers as needed. In typical operation, a client issues a recursive query to a caching recursive DNS server, which subsequently issues non-recursive queries to determine the answer and send a single answer back to the client. The resolver, or another DNS server acting recursively on behalf of the resolver, negotiates use of recursive service using bits in the query headers. DNS servers are not required to support recursive queries. Each server refers the client to the next server in the chain, until the current server can fully resolve the request. For example, a possible resolution of www. Circular dependencies and glue records[ edit ] Name servers in delegations are identified by name, rather than by IP address. This means that a resolving name server must issue another DNS request to find out the IP address of the server to which it has been referred. If the name given in the delegation is a subdomain of the domain for which the delegation is being provided, there is a circular dependency. In this case, the name server providing the delegation must also provide one or more IP addresses for the authoritative name server mentioned in the delegation. This information is called glue. The delegating name server provides this glue in the form of records in the additional section of the DNS response, and provides the delegation in the authority section of the response. A glue record is a combination of the name server and IP address. For example, if the authoritative name server for example. As ns1 is contained in example. To break the dependency, the name server for the top level domain org includes glue along with the delegation for example. The glue records are address records that provide IP addresses for ns1. Record caching[ edit ] A standard practice in implementing name resolution in applications is to reduce the load on the Domain Name System servers by caching results locally, or in intermediate resolver hosts. Results

obtained from a DNS request are always associated with the time to live TTL , an expiration time after which the results must be discarded or refreshed. The period of validity may vary from a few seconds to days or even weeks. As a result of this distributed caching architecture, changes to DNS records do not propagate throughout the network immediately, but require all caches to expire and to be refreshed after the TTL. Some resolvers may override TTL values, as the protocol supports caching for up to sixty-eight years or no caching at all. Negative caching , i. Multiple domain names may be associated with an IP address. The DNS stores IP addresses in the form of domain names as specially formatted names in pointer PTR records within the infrastructure top-level domain arpa. For IPv4, the domain is in-addr. For IPv6, the reverse lookup domain is ip6. The IP address is represented as a name in reverse-ordered octet representation for IPv4, and reverse-ordered nibble representation for IPv6. When performing a reverse lookup, the DNS client converts the address into these formats before querying the name for a PTR record following the delegation chain as for any DNS query. For example, assuming the IPv4 address Instead DNS resolution takes place transparently in applications such as web browsers , e-mail clients , and other Internet applications. When an application makes a request that requires a domain name lookup, such programs send a resolution request to the DNS resolver in the local operating system, which in turn handles the communications required. The DNS resolver will almost invariably have a cache see above containing recent lookups. If the cache can provide the answer to the request, the resolver will return the value in the cache to the program that made the request. If the cache does not contain the answer, the resolver will send the request to one or more designated DNS servers. In the case of most home users, the Internet service provider to which the machine connects will usually supply this DNS server: In any event, the name server thus queried will follow the process outlined above , until it either successfully finds a result or does not. It then returns its results to the DNS resolver; assuming it has found a result, the resolver duly caches that result for future use, and hands the result back to the software which initiated the request. Broken resolvers[ edit ] Some large ISPs have configured their DNS servers to violate rules, such as by disobeying TTLs, or by indicating that a domain name does not exist just because one of its name servers does not respond.

**Chapter 2 : R/S - Two Stereogenic Centers**

*Naming the System has 32 ratings and 6 reviews. Zach said: The best introductory overview of economics and capitalism from a left perspective that I've e.*

Abu Ameenah Bilal Philips Islam places great emphasis on the clear identification of family relationships. The Prophet SAW himself said, "Learn enough about your lineage to know your blood relatives and treat them accordingly. Although it is the duty of the Islamic state to take care of its citizens, the primary responsibility lies first and foremost on family members. Therefore, according to Islamic law, blood relationships should be clearly defined and any tampering with them is strictly forbidden. Names Imply a Genealogical Relationship This is clearly stressed in the Islamic naming system in which each name and its sequences implies a specific genealogical relationship. This system of naming people after their fathers and forefathers has appeared in most cultures. However, Allah SWT forbade it during the Madeenan stage of prophethood in which the majority of the religious, social and economic laws of Islam were revealed. For example, on one occasion he said, "He who knowingly attributed his fatherhood to someone other than his real father will be excluded from paradise. Islamic law is comprehensive. It regulates all aspects of human life in order to establish a social system in which human welfare is looked after and the worship of God is enshrined. Consequently, although some facets of the Islamic naming system may be more important than other, none are so irrelevant or unimportant that whether it is done or not makes no difference. The fact that European colonialism has managed to corrupt the application of the Islamic naming system especially among non-Arab Muslims does not in any way alter its validity. By colonial times the Western naming system had degenerated into a meaningless jumble of names followed by a family name. However, both of these degenerative Western trends have been widely adopted in Muslim lands along with other un-Islamic cultural trappings of European colonialism. New Muslims, unaware of the Islamic naming system, often adopt Arabic names in the chaotic European style. Legacy of Slavery In fact, those of African descent often erase even their family names on the basis that these names are remnants from the days of slavery. However, his name according to the Islamic naming system should have been Faisal George Williams, that is, Faisal the son of George Williams. Whether "Williams" was the name of his ancestors plantation owner or not is not of any consequence. New Muslims Should Keep Family Name This becomes especially important in the West where premarital and extra-marital relations are common leading to generations of illegitimate inter-related children. Consequently, when some of these half-brothers and sisters enter Islam under different assumed family names, there exists a very real possibility that some of them may unintentionally contract incestuous marriage. The practice among new Muslims of deleting their family names has frequently created deep resentment among their non-Muslim families which could have been easily avoided if the Islamic naming system had been adopted. Actually, the new Muslim is under no obligation to change even his or her "Christian name" unless it contains an un-Islamic meaning. Thus, the given name "Clive", which means cliff-dweller need not have been changed whereas "Dennis", a variation of Dionysus which was the Greek god of wine and fertility who was worshipped with orgiastic rites, would have to be changed. Similarly female names like "Lois" which means desirable or "Ann" or its diminutive forms Annie and Nancy which means grace, need not be changed while names like "Ingrid" which means daughter of Ing a god in Germanic mythology or "Laverne" taken from the name of the Roman goddess of spring and grain would also have to be changed. Some people became so well known by their Kunya that their actual names are almost forgotten. For example, among the Sahabah: The suffixed titles are of two types: The second type is known as Nisbah which refers to the place or tribe with which one is associated. The Nisabah suffix may also refer to a profession. Naming Girls Care should also be taken in naming girls, as the practice of giving girls two or three female names before the family name is a fairly recent Western practice which is inconsistent with the Islamic naming system. Thus, the name Asmaa Jameelah Zaynab Abdullah in the Islamic naming system means Asmaa was the illegitimate daughter of Jameelah and her mother Jameelah was also the illegitimate daughter of Zaynab, the daughter of Abdullah.

**Chapter 3 : Islamic Naming System**

*Naming the System is an accessible and serious economic presentation which has self-evidently been deftly researched and is skillfully argued A welcome addition to personal and academic economics studies reference collections and reading lists.*

Enantiomers are alike in all respects but one. They have the same melting point, the same boiling point and the same solubility in common solvents. The difference between the two enantiomers only shows up when we put them in a chiral environment. Our analogy with gloves can help here. In a pair of gloves, the left glove weighs the same as the right glove, it is the same size and typically the same color. It is made of the same material. The difference between them only shows up when we try one on. One fits the right hand better than the other. In this instance, the right hand is a chiral environment and the properties of the left and right gloves differ in that environment. A specific "chiral environment" for molecules is provided by polarized light. The outcome of this is that if we pass a beam of polarized light through a solution of one enantiomer, the plane of that polarization will be rotated either to the left or the right. This phenomenon is called optical activity. If we do the same experiment, but use the other enantiomer the mirror image of the first one the plane of polarization will be rotated in the opposite direction. In either case, the amount of the rotation the number of degrees in the angle between the plane of polarization before passage through the sample and the plane of polarization after passage through the sample is the same but the directions are opposite. Correspondingly, the terms for counter-clockwise rotation are levorotatory and -. It has been possible to determine the absolute configuration of a chiral molecule since That is, we can know for a specific molecule which of the two mirror image structures is the one which represents the actual arrangement in three dimensions. The system we use has two components. First we need to be able to list the four atoms or groups connected to the stereogenic carbon in a specific rank order. Then we need to have a way to distinguish the orientation of these groups or atoms in one enantiomer from the orientation in the other. Ranking Groups or Atoms: We rank groups or atoms by the atomic number of the atom directly attached to the stereogenic carbon. The group or atom with the highest atomic number gets the highest rank number 4. In 2-bromobutane below , this is bromine whose atomic number is The lowest rank goes to hydrogen atomic number one , so it gets rank number 1. That is fairly straightforward, but what do we do about the two carbons? They both have atomic numbers of six and are tied for ranking. The tie-breaker is to look next at the three atoms attached to each of these two carbons. We compare their atomic numbers until we find a difference. In 2-bromobutane one of these carbons is in a methyl group, so it is bonded to three hydrogens. The other "tied" carbon is carbon one of an ethyl group, so it is bonded to two hydrogens and a carbon. If we compare these two situations we find that there is no breaking the tie by comparing hydrogens, but the second carbon of the ethyl group has a higher atomic number than the hydrogen which is its competition on the methyl group. The tie is broken, the ethyl group has a higher 3 rank than the methyl group 2 , so we have all of the atoms or groups attached to the stereogenic carbon ranked. The "tie breaking" process can be extended to more complex situations. Study how it works for doubly bonded carbons in Section 4. Now that we have ranking for the four groups or atoms attached to the stereogenic carbon, we need to describe how they are oriented in space. We do this by turning our molecule so that the lowest 1 ranked atom or group is pointed behind the paper, away from us. Then we imagine a curved arrow which starts at the highest 4 ranked group, passes by the 3 group and ends at the 2 group. If this arrow points in a clockwise direction, we use the letter R from Latin rectus to describe the compound. If the arrow points counter-clockwise, we use the letter L Latin sinistrus. Practice this process using the problems in the text and bring up any questions in class. You can also practice with the on-line lab problems. What happens if we have two or more stereogenic centers in the same compound? Does it have a mirror image? Is it superimposable on its mirror image? Remember that we can rotate Fischer projections o in the plane of the paper. Notice that neither the mirror image nor the rotated mirror image is superimposable on the original structure. The original structure and its mirror image are enantiomers. Each will be optically active. Neither of the terms "enantiomer" or "identical" applies. The compounds are isomers though, and since they are connected

identically, they are stereoisomers. The word we use for this relationship is diastereoisomeric. Diastereoisomers may be recognized because they are connected identically, they have two or more stereogenic atoms and comparison of those atoms reveals that the relationship at one or more atom is identical and the relationship at the other or more atom is mirror-image. Since the diastereoisomer we made by changing the top stereogenic carbon of our original compound is not superimposable upon its mirror image, it too is optically active and has a mirror image enantiomer. Here is the complete set of enantiomeric and diastereoisomeric relationships for this case: The horizontal relationships here are between enantiomers, compounds which are non-superimposable mirror images. The vertical and diagonal relationships are between diastereoisomers, stereoisomers which are neither identical nor mirror images. Diastereoisomers show differences in properties other than optical activity. They typically have different melting and boiling points and solubilities and they may show differences in how fast they react with other reagents. These differences are not usually as large as those shown by compounds which are not isomers. Here are some on-line problems on this topic There is one more case to consider. What if the four atoms or groups bonded to one of the stereogenic atoms are the same as those bonded to the other. The product is a primary alcohol -CH<sub>2</sub>OH group, the same group as is at the bottom of this compound. The four atoms or groups attached to the top stereogenic carbon are the same as those attached to the bottom stereogenic carbon. As before, we make the mirror image and then we rotate it in the plane of the paper. The original structure is identical to its mirror image, so we do not have enantiomers here. A compound like this is called a meso compound. Since it is superimposable upon its mirror image, it is not optically active, even though it has two or more stereogenic carbon atoms. Another way to detect a meso compound is to look for a plane of symmetry within the molecule. This is particularly easy with Fischer projections, since what we have to do is to imagine a plane cutting the molecule precisely in two so that there is a bottom half and a top half. If the bottom half is the mirror image of the top half, we have a meso compound. A meso compound will have diastereoisomers as well. We can generate these by changing one of the stereogenic carbons and then making its mirror image. The latter two compounds are enantiomers. Each is a diastereoisomer of the original meso compound.

## Chapter 4 : Operating System Names

*@unik-names are human-readable names owned by individuals or organizations. They're passed on to the people with whom you do transactions. In addition to providing simple and secure access to all their public addresses, the system offers the possibility of exchanging trust information during a transaction.*

Contributors Chemists need a convenient way to distinguish one stereoisomer from another. The rules for this system of stereochemical nomenclature are, on the surface, fairly simple. Assign priorities to the four substituents, with 1 being the highest priority and 4 the lowest. Priorities are based on the atomic number. Trace a circle from 1 to 2 to 3. Determine the orientation of the 4 priority group. If it is oriented into the plane of the page away from you, go to step 4a. If it is oriented out of the plane of the page toward you go to step 4b. The first thing that we must do is to assign a priority to each of the four substituents bound to the chiral center. We first look at the atoms that are directly bonded to the chiral center: Two priorities are easy: Carbon has an atomic number of 6. To determine this, we move one more bond away from the chiral center: If the atom is the same, double bonds have a higher priority than single bonds. Therefore, the aldehyde group is assigned 2 priority and the CH<sub>2</sub>OH group the 3 priority. With our priorities assigned, we look next at the 4 priority group the hydrogen and see that it is pointed back away from us, into the plane of the page - thus step 4a from the procedure above applies. Then, we trace a circle defined by the 1, 2, and 3 priority groups, in increasing order. Its enantiomer, by definition, must be S -glyceraldehyde. Clearly, H is the 4 substituent and OH is 1. The 4 group, hydrogen, happens to be drawn pointing toward us out of the plane of the page in this figure, so we use step 4b: The circle traced from 1 to 2 to 3 is clockwise, which means that the chiral center has the S configuration. The drug thalidomide is an interesting - but tragic - case study in the importance of stereochemistry in drug design. Thalidomide contains a chiral center, and thus exists in two enantiomeric forms. It was marketed as a racemic mixture: Of the four bonds to the chiral center, the 4 priority is hydrogen. The nitrogen group is 1, the carbonyl side of the ring is 2, and the -CH<sub>2</sub> side of the ring is 3. The hydrogen is shown pointing away from us, and the prioritized substituents trace a clockwise circle: The other enantiomer, of course, must have the S configuration. Although scientists are still unsure today how thalidomide works, experimental evidence suggests that it was actually the R enantiomer that had the desired medical effects, while the S enantiomer caused the birth defects. Even with this knowledge, however, pure R -thalidomide is not safe, because enzymes in the body rapidly convert between the two enantiomers - we will see how that happens in chapter As a historical note, thalidomide was never approved for use in the United States. This was thanks in large part to the efforts of Dr. Unfortunately, though, at that time clinical trials for new drugs involved widespread and unregulated distribution to doctors and their patients across the country, so families in the U. Very recently a close derivative of thalidomide has become legal to prescribe again in the United States, with strict safety measures enforced, for the treatment of a form of blood cancer called multiple myeloma. In Brazil, thalidomide is used in the treatment of leprosy - but despite safety measures, children are still being born with thalidomide-related defects. Determine the stereochemical configurations of the chiral centers in the biomolecules shown below. Should the R enantiomer of malate have a solid or dashed wedge for the C-O bond in the figure below? Using solid or dashed wedges to show stereochemistry, draw the R enantiomer of ibuprofen and the S enantiomer of 2-methylerythritolphosphate structures are shown earlier in this chapter without stereochemistry.

**Chapter 5 : Tropical Cyclone Naming History and Retired Names**

*Naming the System also documents the inherently damaging consequences of inequality for the physical and psychological health of poor people. It turns out that income inequality rather than average income is the best predictor of unemployment, incarceration, and mortality rates within the fifty American states.*

The double-bond rule in determining priorities. How a double bond in the attached group helps determine E,Z. The "first point of difference" rule. How do you really compare the three atoms on one C with the three atoms on another C? Bottom of page; return links and contact information Introduction to the E,Z system The traditional system for naming the geometric isomers of an alkene, in which the same groups are arranged differently, is to name them as cis or trans. However, it is easy to find examples where the cis-trans system is not easily applied. IUPAC has a more complete system for naming alkene isomers. The Bettelheim textbook does not introduce it, but it is actually rather straightforward. In Ch 15 Sect 3 Bettelheim presents the R-S system for naming stereoisomers that differ only in the arrangement of groups around a chiral center. The R-S system is based on a set of "priority rules", which allow you to rank any groups. The general strategy of the E-Z system is to analyze the two groups at each end of the double bond. At each end, rank the two groups, using the CIP priority rules, discussed in Ch The Figure at the left shows the two isomers of 2-butene. You should recognize them as cis and trans. Start with the left hand structure the cis isomer. On C2 the left end of the double bond, the two atoms attached to the double bond are C and H. Now look at C3 the right end of the double bond. Similarly, the atoms are C and H, with C being higher priority. We see that the higher priority group is "down" at C2 and "down" at C3. Therefore, this is Z butene. Now look at the right hand structure the trans isomer. In this case, the priority group is "down" on the left end of the double bond and "up" on the right end of the double bond. Therefore, this is E butene. However, that is not a rule. This section and the following one illustrate some idiosyncrasies that happen when you try to compare the two systems. The real advantage of the E-Z system is that it will always work. In contrast, the cis-trans system breaks down with many ambiguous cases. The following figure shows two isomers of an alkene with four different groups on the double bond, 1-bromochlorofluoroiodoethene. It should be apparent that the two structures shown are distinct chemicals. However, it is impossible to name them as cis or trans. On the other hand, the E-Z system works fine Consider the left hand structure. On C1 the left end of the double bond, the two atoms attached to the double bond are Br and I. Now look at C2. The atoms are Cl and F, with Cl being higher priority. We see that the higher priority group is "down" at C1 and "down" at C2. Therefore, this is the Z isomer. Similarly, the right hand structure is E. E,Z will work -- but may not seem to agree with cis,trans Consider the molecule shown at the left. This is 2-bromobutene -- ignoring the geometric isomerism for now. This molecule is clearly cis. The two methyl groups are on the same side. More rigorously, the "parent chain" is cis. There is a methyl at each end of the double bond. On the left, the methyl is the high priority group -- because the other group is -H. On the right, the methyl is the low priority group -- because the other group is -Br. That is, the high priority groups are -CH3 left and -Br right. This example should convince you that cis and Z are not synonyms. There may seem to be a simple correspondence, but it is not a rule. Be sure to determine cis,trans or E,Z separately, as needed. The configuration at the left hand double bond is E; at the right hand double bond it is Z. Thus this compound is 1E,4Z -1,5-dichloro-1,4-hexadiene. Consider the compound shown at the left. This is 1-chloroethyl-1,3-butadiene -- ignoring, for the moment, the geometric isomerism. There is no geometric isomerism at the second double bond, at, because it has 2 H at its far end. What about the first double bond, at ? On the left hand end, there is H and Cl; Cl is higher priority by atomic number. Both of these groups have C as the first atom, so we have a tie so far and must look further. What is attached to this first C? For the ethyl group, the first C is attached to C, H, and H. For the ethenyl group, the first C is attached to a C twice, so we count it twice; therefore that C is attached to C, C, H. Since the priority groups, Cl and ethenyl, are on the same side of the double bond, this is the Z-isomer; the compound is Z chloroethyl-1,3-butadiene. At the bottom of p he shows and analyzes a double bond group. The group he shows is the attached group whose priority is being analyzed; he does not show the double bond to which it is attached, whose E,Z-ness is being

analyzed. Some students have found that unclear. In my example here, I show both explicitly. The double bond is being analyzed for E,Z; the double bond is being analyzed for priority as part of that. Ouellette raises this in Exercise 6. The first C has one atom of high priority but also two atoms of low priority. How do these "balance out"? Answering this requires a clear understanding of how the ranking is done. The simple answer is that the first point of difference is what matters; the O wins. To illustrate this, consider the molecule at the left. Is the double bond here E or Z? But the right end of the double bond requires a careful analysis. At the right hand end, the first atom attached to the double bond is a C at each position. A tie, so we look at what is attached to this first C. For the upper C, it is CCC since the triple bond counts three times. For the lower C, it is OHH -- listed in order from high priority atom to low. That is, the O of the lower group beats the C of the upper group. In other words, the O is the highest priority atom of any in this comparison; thus the O "wins". And what is the name? The "name" feature of ChemSketch says it is 2E 1-bromoethylidene pentynyl methyl ether. That name is well beyond our course! However, you may be able to figure out much of it. I will try to explain it, upon request. See Contact information, below.

**Chapter 6 : Naming Files, Paths, and Namespaces | Microsoft Docs**

*The Domain Name System (DNS) is a hierarchical decentralized naming system for computers, services, or other resources connected to the Internet or a private network. It associates various information with domain names assigned to each of the participating entities.*

Alkenes and Alkynes - unsaturated hydrocarbons Double bonds in hydrocarbons are indicated by replacing the suffix -ane with -ene. If there is more than one double bond, the suffix is expanded to include a prefix that indicates the number of double bonds present -adiene, -atriene, etc. Triple bonds are named in a similar way using the suffix -yne. The position of the multiple bond s within the parent chain is are indicated by placing the number s of the first carbon of the multiple bond s directly in front of the base name. Here is an important list of rules to follow: The parent chain is numbered so that the multiple bonds have the lowest numbers double and triple bonds have priority over alkyl and halo substituents. When both double and triple bonds are present, numbers as low as possible are given to double and triple bonds even though this may at times give "-yne" a lower number than "-ene". When there is a choice in numbering, the double bonds are given the lowest numbers. When both double and triple bonds are present, the -en suffix follows the parent chain directly and the -yne suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the location of the triple bond s is are indicated between the -en and -yne suffixes. See below for examples. For a branched unsaturated acyclic hydrocarbon, the parent chain is the longest carbon chain that contains the maximum number of double and triple bonds. If there are two or more chains competing for selection as the parent chain chain with the most multiple bonds , the choice goes to 1 the chain with the greatest number of carbon atoms, 2 the of carbon atoms being equal, the chain containing the maximum number of double bonds. If there is a choice in numbering not previously covered, the parent chain is numbered to give the substituents the lowest number at the first point of difference. Here are some examples: Alcohols Alcohols are named by replacing the suffix -ane with -anol. If there is more than one hydroxyl group -OH , the suffix is expanded to include a prefix that indicates the number of hydroxyl groups present -anediol, -anetriol, etc. The position of the hydroxyl group s on the parent chain is are indicated by placing the number s corresponding to the location s on the parent chain directly in front of the base name same as alkenes. The hydroxyl group takes precedence over alkyl groups and halogen substituents, as well as double bonds, in the numbering of the parent chain. When both double bonds and hydroxyl groups are present, the -en suffix follows the parent chain directly and the -ol suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the location of the hydroxyl group s is are indicated between the -en and -ol suffixes. Again, the hydroxyl gets priority in the numbering of the parent chain. Ethers You are only expected to know how to name ethers by their commmon names. The two alkyl groups attached to the oxygen are put in alphabetical order with spaces between the names and they are followed by the word ether. The prefix di- is used if both alkyl groups are the same. Aldehydes Aldehydes are named by replacing the suffix -ane with -anal. If there is more than one -CHO group, the suffix is expanded to include a prefix that indicates the number of -CHO groups present -anediol - there should not be more than 2 of these groups on the parent chain as they must occur at the ends. It is not necessary to indicate the position of the -CHO group because this group will be at the end of the parent chain and its carbon is automatically assigned as C The carbonyl group takes precedence over alkyl groups and halogen substituents, as well as double bonds, in the numbering of the parent chain. When both double bonds and carbonyl groups are present, the -en suffix follows the parent chain directly and the -al suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the -al suffix follows the -en suffix directly. Remember it is not necessary to specify the location of the carbonyl group because it will automatically be carbon 1. Again, the carbonyl gets priority in the numbering of the parent chain. They are shown in the examples at the end of this list but at this point these names will not be accepted by the computer. Eventually they will be accepted. Ketones Ketones are named by replacing the suffix -ane with

-anone. The position of the carbonyl group s on the parent chain is are indicated by placing the number s corresponding to the location s on the parent chain directly in front of the base name same as alkenes. When both double bonds and carbonyl groups are present, the -en suffix follows the parent chain directly and the -one suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the location of the carbonyl group s is are indicated between the -en and -one suffixes. Carboxylic Acids Carboxylic acids are named by counting the number of carbons in the longest continuous chain including the carboxyl group and by replacing the suffix -ane of the corresponding alkane with -anoic acid. If there are two -COOH groups, the suffix is expanded to include a prefix that indicates the number of -COOH groups present -anedioic acid - there should not be more than 2 of these groups on the parent chain as they must occur at the ends. It is not necessary to indicate the position of the -COOH group because this group will be at the end of the parent chain and its carbon is automatically assigned as C The carboxyl group takes precedence over alkyl groups and halogen substituents, as well as double bonds, in the numbering of the parent chain. If the carboxyl group is attached to a ring the parent ring is named and the suffix -carboxylic acid is added. When both double bonds and carboxyl groups are present, the -en suffix follows the parent chain directly and the -oic acid suffix follows the -en suffix notice that the e is left off, -en instead of -ene. The location of the double bond s is are indicated before the parent name as before, and the -oic acid suffix follows the -en suffix directly. Remember it is not necessary to specify the location of the carboxyl group because it will automatically be carbon 1. Again, the carboxyl gets priority in the numbering of the parent chain. Esters Systematic names of esters are based on the name of the corresponding carboxylic acid. Remember esters look like this: The alkyl group is named like a substituent using the -yl ending. This is followed by a space. The acyl portion of the name what is left over is named by replacing the -ic acid suffix of the corresponding carboxylic acid with -ate. Amines You are only expected to know how to name amines by their common names. They are named like ethers, the alkyl R groups attached to the nitrogen are put in alphabetical order with no spaces between the names and these are followed by the word amine. The prefixes di- and tri- are used if two or three of the alkyl groups are the same. Some books put spaces between the parts of the name, but we will not.

**Chapter 7 : Naming the System: Inequality and Work in the Global Economy by Michael D. Yates**

*Note that directory names are stored by the file system as a special type of file, but naming rules for files also apply to directory names. To summarize, a path is simply the string representation of the hierarchy between all of the directories that exist for a particular file or directory name.*

Taxonomy biology This rank-based method of classifying living organisms was originally popularized by and much later named for Linnaeus, although it has changed considerably since his time. The greatest innovation of Linnaeus, and still the most important aspect of this system, is the general use of binomial nomenclature, the combination of a genus name and a second term, which together uniquely identify each species of organism within a kingdom. For example, the human species is uniquely identified within the animal kingdom by the name *Homo sapiens*. No other species of animal can have this same binomen the technical term for a binomial in the case of animals. Prior to Linnaean taxonomy, animals were classified according to their mode of movement. Scholastic logicians and philosophers of nature defined the species man, for example, as *Animal rationalis*, where animal was considered a genus and *rationalis* Latin for "rational" the characteristic distinguishing man from all other animals. Treating animal as the immediate genus of the species man, horse, etc. A strength of Linnaean taxonomy is that it can be used to organize the different kinds of living organisms, simply and practically. Every species can be given a unique and, one hopes, stable name, as compared with common names that are often neither unique nor consistent from place to place and language to language. This uniqueness and stability are, of course, a result of the acceptance by working systematists biologists specializing in taxonomy, not merely of the binomial names themselves, but of the rules governing the use of these names, which are laid down in formal nomenclature codes. Species can be placed in a ranked hierarchy, starting with either domains or kingdoms. Domains are divided into kingdoms. Kingdoms are divided into phyla singular: Phyla or divisions are divided into classes, and they, in turn, into orders, families, genera singular: There are ranks below species: Groups of organisms at any of these ranks are called taxa singular: The Linnaean system has proven robust and it remains the only extant working classification system at present that enjoys universal scientific acceptance. However, although the number of ranks is unlimited, in practice any classification becomes more cumbersome the more ranks are added. Among the later subdivisions that have arisen are such entities as phyla, families, and tribes, as well as any number of ranks with prefixes superfamilies, subfamilies, etc. The use of newer taxonomic tools such as cladistics and phylogenetic nomenclature has led to a different way of looking at evolution expressed in many nested clades and this sometimes leads to a desire for more ranks. An example of such complexity is the scheme for mammals proposed by McKenna and Bell. Alternatives[ edit ] Over time, the understanding of the relationships between living things has changed. Linnaeus could only base his scheme on the structural similarities of the different organisms. It then became generally understood that classifications ought to reflect the phylogeny of organisms, their descent by evolution. This led to evolutionary taxonomy, where the various extant and extinct are linked together to construct a phylogeny. Such taxa may be either monophyletic including all descendants such as genus *Homo*, or paraphyletic excluding some descendants, such as genus *Australopithecus*. Originally, Linnaeus established three kingdoms in his scheme, namely for Plants, Animals and an additional group for minerals, which has long since been abandoned. Since then, various life forms have been moved into three new kingdoms: Monera, for prokaryotes i. This five kingdom scheme is still far from the phylogenetic ideal and has largely been supplanted in modern taxonomic work by a division into three domains: Bacteria and Archaea, which contain the prokaryotes, and Eukaryota, comprising the remaining forms. These arrangements should not be seen as definitive. They are based on the genomes of the organisms; as knowledge on this increases, classifications will change. Therefore, some systematists have proposed a PhyloCode to replace it.

## Chapter 8 : The 8 Principles Of Product Naming

*The rules for this system of stereochemical nomenclature are, on the surface, fairly simple. Rules for assigning an R/S designation to a chiral center 1: Assign priorities to the four substituents, with #1 being the highest priority and #4 the lowest.*

Climatology Names Wind Scale Extremes Models Breakpoints Reason to Name Hurricanes Experience shows that the use of short, distinctive names in written as well as spoken communications is quicker and less subject to error than the older, more cumbersome latitude-longitude identification methods. These advantages are especially important in exchanging detailed storm information between hundreds of widely scattered stations, coastal bases, and ships at sea. The use of easily remembered names greatly reduces confusion when two or more tropical storms occur at the same time. For example, one hurricane can be moving slowly westward in the Gulf of Mexico, while at exactly the same time another hurricane can be moving rapidly northward along the Atlantic coast. In the past, confusion and false rumors have arisen when storm advisories broadcast from radio stations were mistaken for warnings concerning an entirely different storm located hundreds of miles away. Can I have a tropical cyclone named for me? Tannehill describes in his book "Hurricanes" the major tropical storms of recorded history and mentions many hurricanes named after saints. Stewart, published by Random House in , and since filmed by Walt Disney. During World War II this practice became widespread in weather map discussions among forecasters, especially Army and Navy meteorologists who plotted the movements of storms over the wide expanses of the Pacific Ocean. In , the United States abandoned a confusing two-year old plan to name storms by a phonetic alphabet Able, Baker, Charlie when a new, international phonetic alphabet was introduced. That year, the United States began using female names for storms. In , male and female names were included in lists for the Atlantic and Gulf of Mexico. Instead a strict procedure has been established by an international committee of the World Meteorological Organization. For Atlantic hurricanes, there is a list of names for each of six years. In other words, one list is repeated every seventh year. The only time that there is a change is if a storm is so deadly or costly that the future use of its name on a different storm would be inappropriate for obvious reasons of sensitivity. If that occurs, then at an annual meeting by the committee called primarily to discuss many other issues the offending name is stricken from the list and another name is selected to replace it. There is an exception to the retirement rule, however. Before , when the first permanent six-year storm name list began, some storm names were simply not used anymore. For example, in , "Fern" was substituted for "Frieda," and no reason was cited. There are, however, a great number of destructive storms not included on this list because they occurred before the hurricane naming convention was established in

**Chapter 9 : Naming chiral centers: the R and S system - Chemistry LibreTexts**

*The 8 Principles Of Product Naming Even at the best of times, naming is a contentious and emotional business. Whether you're naming your baby, your boat, or your brand, the process can breed.*

Characters whose integer representations are in the range from 1 through 31, except for alternate data streams where these characters are allowed. For more information about file streams, see File Streams. Any other character that the target file system does not allow. Use a period as a directory component in a path to represent the current directory, for example ". For more information, see Paths. Use two consecutive periods.. Do not use the following reserved names for the name of a file: Also avoid these names followed immediately by an extension; for example, NUL. For more information, see Namespaces. Do not end a file or directory name with a space or a period. Although the underlying file system may support such names, the Windows shell and user interface does not. However, it is acceptable to specify a period as the first character of a name. When you create a long file name, Windows may also create a short 8. Note Not all file systems follow the tilde substitution convention, and systems can be configured to disable 8. Therefore, do not make the assumption that the 8. To get the 8. To get the long file name version of a short name, use the GetLongPathName function. To get the full path to a file, use the GetFullPathName function. This is true even if a long file name contains extended characters, regardless of the code page that is active during a disk read or write operation. Files using long file names can be copied between NTFS file system partitions and Windows FAT file system partitions without losing any file name information. In this case, the short file name is substituted if possible. Paths The path to a specified file consists of one or more components, separated by a special character a backslash , with each component usually being a directory name or file name, but with some notable exceptions discussed below. This prefix determines the namespace the path is using, and additionally what special characters are used in which position within the path, including the last character. If a component of a path is a file name, it must be the last component. Each component of a path will also be constrained by the maximum length specified for a particular file system. In general, these rules fall into two categories: Note that directory names are stored by the file system as a special type of file, but naming rules for files also apply to directory names. To summarize, a path is simply the string representation of the hierarchy between all of the directories that exist for a particular file or directory name. Relative Paths For Windows API functions that manipulate files, file names can often be relative to the current directory, while some APIs require a fully qualified path. A file name is relative to the current directory if it does not begin with one of the following: For more information, see the next section. A disk designator with a backslash, for example "C: This is also referred to as an absolute path. If a file name begins with only a disk designator but not the backslash after the colon, it is interpreted as a relative path to the current directory on the drive with the specified letter. Note that the current directory may or may not be the root directory depending on what it was set to during the most recent "change directory" operation on that disk. Examples of this format are as follows: A path is also said to be relative if it contains "double-dots"; that is, two periods together in one component of the path. This special specifier is used to denote the directory above the current directory, otherwise known as the "parent directory". Relative paths can combine both example types, for example "C This is useful because, although the system keeps track of the current drive along with the current directory of that drive, it also keeps track of the current directories in each of the different drive letters if your system has more than one , regardless of which drive designator is set as the current drive. A local path is structured in the following order: For example, the maximum path on drive D is "D: The Windows API has many functions that also have Unicode versions to permit an extended-length path for a maximum total path length of 32, characters. This type of path is composed of components separated by backslashes, each up to the value returned in the lpMaximumComponentLength parameter of the GetVolumeInformation function this value is commonly characters. These prefixes are not used as part of the path itself. They indicate that the path should be passed to the system with minimal modification, which means that you cannot use forward slashes to represent path separators, or a period to represent the current directory, or double dots to represent the parent

directory. When using an API to create a directory, the specified path cannot be so long that you cannot append an 8. The shell and the file system have different requirements. It is possible to create a path with the Windows API that the shell user interface is not able to interpret properly. However, you must opt-in to the new behavior. A registry key allows you to enable or disable the new long path behavior. The registry key will not be reloaded during the lifetime of the process. In order for all apps on the system to recognize the value of the key, a reboot might be required because some processes may have started before the key was set. You can also enable the new long path behavior per app via the manifest: Namespaces

There are two main categories of namespace conventions used in the Windows APIs, commonly referred to as NT namespaces and the Win32 namespaces. The NT namespace was designed to be the lowest level namespace on which other subsystems and namespaces could exist, including the Win32 subsystem and, by extension, the Win32 namespaces. Early versions of Windows also defined several predefined, or reserved, names for certain special devices such as communications serial and parallel ports and the default display console as part of what is now called the NT device namespace, and are still supported in current versions of Windows for backward compatibility.

**Win32 File Namespaces** The Win32 namespace prefixing and conventions are summarized in this section and the following section, with descriptions of how they are used. Note that these examples are intended for use with the Windows API functions and do not all necessarily work with Windows shell applications such as Windows Explorer. For this reason there is a wider range of possible paths than is usually available from Windows shell applications, and Windows applications that take advantage of this can be developed using these namespace conventions. For more information about the normal maximum path limitation, see the previous section **Maximum Path Length Limitation**. This is how access to physical disks and volumes is accomplished directly, without going through the file system, if the API supports this type of access. You can access many devices other than disks this way using the `CreateFile` and `DefineDosDevice` functions, for example. This allows you to access those devices directly, bypassing the file system. This works because these device names are created by the system as these devices are enumerated, and some drivers will also create other aliases in the system. For example, the device driver that implements the name "C: Always check the reference topic for each API to be sure. To illustrate, it is useful to browse the Windows namespaces in the system object browser using the Windows Sysinternals `WinObj` tool. The subfolder called "Global??

Named device objects reside in the NT namespace within the "Device" subdirectory. Here you may also find `Serial0` and `Serial1`, the device objects representing the first two COM ports if present on your system. A device object representing a volume would be something like "HarddiskVolume1", although the numeric suffix may vary. The name "DR0" under subdirectory "Harddisk0" is an example of the device object representing a disk, and so on. To make these device objects accessible by Windows applications, the device drivers create a symbolic link `symlink` in the Win32 namespace, "Global?? Without a `symlink`, a specified device "Xxx" will not be available to any Windows application using Win32 namespace conventions as described previously. With the addition of multi-user support via Terminal Services and virtual machines, it has further become necessary to virtualize the system-wide root device within the Win32 namespace. This prefix ensures that the path following it looks in the true root path of the system object manager and not a session-dependent path.