Lan

While joining the March for Science Day, which was held in New York City on May 4th, 2019, Language and Cognitive Sciences Research Institute organized an international scientific conference that covered a variety of topics in linguistics, computer sciences, social sciences, brain sciences and in related fields. The present volume of JYS reflects the papers presented at the conference.

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What are Counterfactuals? /Counterfactual Thinking

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As the name suggests, counterfactuals are sentences that describe events or situations that are counter to fact, hence factually false. The canonical form to express a counterfactual is a counterfactual conditional, which has a factually false antecedent (i.e. 'if' part) that is taken as suppositionally true. The antecedent 'If I had wings' expresses a non factual affirmative state that I have wings but also implicitly conveys its negation that I do not have wings. In simple (non condit0W* s>-46048 TJET/F2 12 .024h0c40243[002C0003>-3s>-46043eu644-3(n)-3(g)-ETf21(ha-3(egu

fly if I had wings? These considerations are examples of counterfactual thought, and the conditional 'If then' construction is the canonical form in which such thought is expressed.

Counterfactual thought is pervasive in everyday life and has various adaptive functions. For example, counterfactual thought enables people to reason about the cause of an event and thereby plays an important role in the processing of learning from experience. It also promotes emotions such as regret and relief, and as such helps to regulate behavior and emotions in order to adequately function in a physical and social environment. Counterfactual thinking is furthermore associated with the understanding of the perspectives and beliefs of others, which might qualify it as a developmental precursor of explicit Theory of Mind abilities. Counterfactual thought is thus considered to be a highly complex cognitive capability that develops relatively late in childhood and that is often impaired along with other cognitive functions in clinical conditions like autism, depression, Parkinson and schizophrenia.

According to cognitive accounts of counterfactual thought, the reason that counterfactuals are cognitively complex is that they trigger two incompatible representations. For instance, 'If I had wings, then I would be able to fly' expresses (1) the suppositional but factually false state of the speaker having wings and being able to fly, while also expressing (2) that the speaker does not have wings and therefore relies on conventional modes of transportation. This dual meaning is the characteristic feature of counterfactuals. From a linguistic perspective, this dual meaning makes counterfactuality a fascinating phenomenon that enables people to produce utterances that are factually false yet truthful. Counterfactuals hence broaden the scope of

communication and allow meaningful conversation about topics beyond mere veridical statements.

Characteristics of Counterfactual Thinking

Three types of circumstances make counterfactual thinking likely. First, the most common trigger for counterfactual thoughts is negative emotion or a problematic situation. When people feel bad about a negative outcome, they often ruminate about how that outcome could have been avoided; thus, counterfactual thoughts are more common after defeats than victories, failures than successes, and penalties than rewards. Second, counterfactual thoughts are more likely after a "near miss" or an event that almost occurred, because when something almost happens, it seems to invite speculation about alternatives. For example, missing a plane by 2 minutes is likely to spark more thoughts on how one might have caught the plane as compared to missing a plane by a full two2 hours. Third, people also think in "If only… " terms when they are surprised by an outcome, as when an unexpected result goes against what the person had assumed would happen, thereby drawing attention and causing reflection as to why the outcome occurred.

There are good reasons why negative feelings, near misses, and unexpected outcomes trigger counterfactuals, because in these situations, counterfactuals can be useful for guiding future

behavior. When people feel bad about something, this often tells them the situation needs attention. If counterfactuals include information that makes it easier for people to tackle a problem, they might be better prepared in the future. For example, thinking "If only I had studied harder…"after a failed exam helps a person concentrate on studying so as to perform better on future exams. Similarly, focusing on near misses rather than far misses is likely to lead to success in the future because only a small change in behavior should be effective. Finally, by definition, unexpected outcomes indicate a person did not make an accurate prediction about a situation.

Counterfactual thinking appears in children at a very young age, almost as soon as they begin to speak. Developmental psychologists believe that because counterfactual thinking is so closely related to goals, children start to think about alternative courses of action as they become aware of their own wants and desires. Counterfactual thinking also seems to transcend culture. A controversy in the early 1980s centered on whether native Chinese speakers are able to reason counterfactually, given that their language lacks the specific word phrases that indicate "if only." After some false conclusions were clarified with new research, psychologists had, by the late 1980s, concluded that the ability to imagine alternatives to the past is common to all people, regardless of language or upbringing.

Counterfactuals (Would and Might)

Counterfactuals come in different varieties. Here we have two examples:

(1) If Mr. Brown read a newspaper, he would read the Morning Union.

(2) If Mr. Brown read a newspaper, he might read the Morning Union.

"1" expresses a "would" counterfactual, "2" a "might" counterfactual. Finding the right truth-conditions for counterfactual has been one of the most hotly debated questions in semantics and the philosophy of science. Most scholars agree that the truth of counterfactuals in a world depends, in some way or other, on what is the case in that world. What makes the semantics of counterfactual sentences so difficult is that not all facts have equal weight: some are important, others are all together irrelevant.

There are two approaches to this problem. Philosophers like Goodman actually took it upon themselves to at least try to say what kind of factual premises are taken into account in the evaluation of a counterfactual. The idea was that after adding those premises to the antecedent of the counterfactual, the consequent should follow logically from the resulting set. Goodman eventually reached the conclusion that the additional premises aren't specifiable in a non-circular way.

An alternative view was advanced by Stalnaker and Lewis who carefully avoided nay precise characterization of the additional premises needed for a particular piece of counterfactual reasoning. Stalnaker and Lewis both stress the vagueness of counterfactual. Their goal was to

Optimality Theory

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1. Introduction

Optimality Theory (OT) is a linguistic model originally proposed by the linguists Alan Prince and Paul Smolensky in 1993. OT has been expanded by John J. McCarthy and Alan Prince, beginning in 1993. Although much of the interest in OT has been associated with its use in phonology (the area to which OT was first applied), the theory is also applicable to other subfields of linguistics (e.g. syntax, semantics). Optimality theory is usually considered a development of generative grammar, which shares its focus on the investigation of universal principles, linguistic typology and language acquisition.

OT is often called a connectionist theory of language, because it has its roots in neural netw(o)86(u)11(i)etw(o

growing pool of knowledge the theory changes; and different scientists get different interpretations of what Optimality Theory is.

In Optimality Theory the GENERATOR, or GEN is what generates a list of possible outputs or candidates for some input. The input for phonology is an idealized abstract representation of a lexical word s appearance. The output candidates are then just what their names entail; they are candidates presented to be possible outputs. Freedom of Analysis (Kager)states that these output candidates should be as free as possible. Kager states that "Any amount of structure may be posited."

The main idea of OT is that the observed forms of language arise from the interaction between conflicting constraints. There are three basic components of the theory. GEN generates the list of possible outputs, or candidates, CON provides the criteria, violable constraints, used to decide between candidates, and EVAL chooses the optimal candidate. OT assumes that these components are universal. Differences in grammars reflect different rankings of the universal constraint set, CON. Language acquisition can be described as the process of adjusting the ranking of these constraints.

A theory of phonology is built of three parts: it is a theory of the nature of phonological representations; it is an inventory of levels of representation, and a characterization of each level; and it is a theory of phonological rules, the statements that relate representations on each level.

2. Input and GEN: the candidate set

OT supposes that there are no language-specific restrictions on the input. This is called richness of the base. Every grammar can handle every possible input. For example, a language without complex clusters must be able to deal with an input such as /flask/. Languages without complex clusters differ on how they will resolve this problem; some will epenthesize (e.g. /falasak/, or /falasaka/ if all codas are banned) and some will delete (e.g. /fas/, /fak/, /las/, /lak/). Given any input, GEN generates an infinite number of candidates, or possible realizations of that input. A language's grammar (its ranking of constraints) determines which of the infinite candidates will be assessed as optimal by EVAL.

3. CON: the constraint set

In Optimality Theory CON provides the constraints by which the possible outputs generated in GEN are measured. In Kager CON is specified to be containing “all universal constraints” .These constraints are ranked from most important to least important. The ranking gives the specifics of a language, so for multilingual speakers there would have to be more than one ranking available to the structure.In OT, every constraint is universal. CON is the same in every language. There are two basic types of constraints. Faithfulness constraints require that the observed surface form (the output) match the underlying or lexical form (the input) in some particular way; that is, these constraints require identity between input and output forms. Markedness constraints impose requirements on the structural well-formedness of the

output. Each plays a crucial role in the theory. Faithfulness constraints prevent every input from being realized as some unmarked form ([ba] for example), and markedness constraints motivate change.

The universal nature of CON makes some immediate predictions about language typology. If grammars differ only by having different rankings of CON, then the set of possible human languages is determined by the constraints that exist. OT predicts that there cannot be more grammars than there are permutations of the ranking of CON. The number of possible rankings is equal to the factorial of the total number of constraints, thus giving rise to the term Factorial Typology. However, it may not be possible to distinguish all of these potential grammars, since not every constraint is guaranteed to have an observable effect in every language. Two languages could generate the same range of input-output mappings, but differ in the relative ranking of two very lowly-ranked constraints. The EVALUATOR, or EVAL, is where the candidates generated by GEN are measured using the constraints and their ranking provided by CON. As this is the product of CON and GEN a system that has something equivalent to EVAL would necessarily have something at least structurally similar to either one or both of CON and GEN. Such a system would in all likelihood have many aspects in common with Optimality Theory. Another important part of EVAL is parallelism. The transition from input to output happens in one step without changing the input candidate. All the inputs are

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find the true backbone of OT; it is an input-output correspondence system. The outputs are checked for harmony with the input. This could seem incompatible with many forms of problem-solving tasks as the input and the output could possibly have differing natures. Still, if the input and the output differ, there could be harmony between them. If the input is, say a situation, and the problem is to choose an action, that action would need to be in harmony with the requirements of the situation. Thus the output must be in harmony with the input.

"At the heart of Optimality Theory lies the idea that language, and in fact every grammar, is a system of conflicting forces. These 'forces' are embodied by constraints, each of which makes a requirement about some aspect of grammatical output forms. Constraints are typically conflicting, in the sense that to satisfy one constraint implies the violation of another. Given the fact that no form can satisfy all constraints simultaneously, there must be some mechanism selecting forms that incur 'lesser' constra

set if it is better on the constraint hierarchy than all other candidates. For example, given constraints C1, C2, and C3, where C1 dominates C2, which dominates C3 (C1 >> C2 >> C3), A is optimal if it does better than B on the highest ranking constraint which assigns them a different number of violations. If A and B tie on C1, but A does better than B on C2, A is optimal, even if A has 100 more violations of C3 than B. This comparison is often illustrated with a tableau. The pointing finger marks the optimal candidate, and each cell displays the number of violations for a given candidate and constraint. Once a candidate does worse than another candidate on the highest ranking constraint distinguishing them, it incurs a crucial violation (marked in the tableau by an exclamation mark). Once a candidate incurs a crucial violation, there is no way for it to be optimal, even if it outperforms the other candidates on the rest of CON.

An early example proposed by McCarthy & Prince (1994) is the constraint NoCoda, which prohibits syllables from ending in consonants. In Balangao, NoCoda is not ranked high enough to be always obeyed, as witness roots like taynan (faithfulness to the input prevents deletion of the final /n/). But, in the reduplicated form ma-tayna-taynan 'repeatedly be left behind', the final /n/ is not copied. Under McCarthy & Prince's analysis, this is because faithfulness to the input does not apply to reduplicated material, and NoCoda is thus free to prefer ma-tayna-taynan over hypothetical ma-taynan-taynan (which has an additional violation of NoCoda). Constraints are also violable; the winning candidate need not satisfy all constraints, as long as for any rival candidate that does better than the winner on some constraint, there is a higher ranked constraint on which the winner does better than that rival.

Some Optimality theorists prefer the use of comparative tableaux, as described in Prince (2002). Comparative tableaux display the same information as the classic or "flyspeck" tableaux, but the information is presented in such a way that it highlights the most crucial information. For instance, the tableau above would be rendered in the following way.

For instance, in order to have a consistent ranking some W must dominate all L's. Brasoveanu and Prince (2005) describe a process known as fusion and the various ways of presenting data in a comparative tableau in order to achieve the necessary and sufficient conditions for a given argument.

Dep

Ident

fishiz

No matter how the constraints are re-ordered, the 'is' allomorph will always lose to 'iz.' For example, there is no way to rerank the constraints such that 'dogis' will win. This is called harmonic bounding. The violations incured by the candidate 'dogiz' are a subset of the violations incured by 'dogis'; specifically, if you epenthesize a vowel, changing the voicing of the morpheme is gratuitous violation of constraints. In the 'dog + z' tableau, there is a cad(a)3( )60(c)-3(a)3(d(a

dogz ~ dogs

From the above tableau for dog + z, it can be observed that any ranking of these constraints will produce the observed output dogz. Because there are no loser-preferring comparisons, dogz wins under any ranking of these constraints; this means that no ranking can be established on the basis of this input.

cat + z > cats

cat + z

*SS

Agree

Max

Dep

Ident

cats ~ catiz

cats ~ catis

cats ~ catz

cats ~ cat

The tableau for cat + z contains rows with a single W and a single L. This shows that Agree, Max, and Dep must all dominate Ident; however, no ranking can be established between those constraints on the basis of this input. Based on this tableau, the following ranking has been established: Agree, Max,Ident.

constraints (see Prince 2007). Input-output disparity is normally the result of markedness constraints being ranked over faithfulness constraints (M >> F).

Another objection to OT is the claim that it is not technically a theory, in that it does not make falsifiable predictions. The source of this issue is terminology: the term 'theory' is used differently here than in physics, chemistry, and other sciences. Specific instantiations of OT may make falsifiable predictions, in the same way that specific proposals within other linguistic frameworks can. What predictions are made, and whether they are testable, depends on the specifics of individual proposals (most commonly, this is a matter of the definitions of the constraints used in an analysis). Thus, OT as a framework is best described as a scientific paradigm.

More serious objections to OT are claims that it cannot account for phonological opacity (see Idsardi 2000, e.g.). There have been a number of proposals designed to account for opacity within OT; however, most of these proposals significantly alter OT's basic architecture, and therefore tend to be highly controversial. Frequently, such alterations add new types of constraints (which aren't Universal Faithfulness or Markedness constraints), or change the properties of GEN or EVAL. Some well-known examples of these include John J. McCarthy's Sympathy Theory and Candidate Chains theory, and there are many others.

OT is also criticized as being an impossible model of speech production/perception: computing and comparing an infinite number of possible candidates would take an infinitely long time to process. The most common rebuttal to this argument is that OT is purely representational. In

input-output correspondence system. The outputs are checked for harmony with the input. This could seem incompatible with many forms of problem-solving tasks as the input and the output could possibly have differing natures. Still, if the input and the output differ, there could be harmony between them. If the input is, say a situation, and the problem is to choose an action, that action would need to be in harmony with the realities of the situation. Thus the output must be in harmony with the input.

"At the heart of Optimality Theory lies the idea that language, and in fact every grammar, is a system of conflicting forces. These 'forces' are embodied by constraints, each of which makes a requirement about some aspect of grammatical output forms. Constraints are typically conflicting, in the sense that to satisfy one constraint implies the violation of another. Given the fact that no form can satisfy all constraints simultaneously, there must be some mechanism selecting forms that incur 'lesser' constraint violations from others that incur 'more serious' ones. This selectional mechanism involves hierarchical ranking of constraints, such that higher-ranked constraints have priority over lower-ranked ones. While constraints are universal, the rankings are not: differences in ranking are the source of cross-linguistic variation" (René Kager, Optimality Theory. Cambridge University Press, 1999).

Daniel Mattew Albro, in University of California published studies in Computational Optimality Theory where he pointed out the advantages and disadvantages of Optimality Theory.

Advantage: Optimality Theory allows the analyst to concentrate on characterizing generalizations that are true or mostly true of the surface form actually pronounced. The surface form is an appropriate form to concentrate on, as it is the level of phonological representation for which we have the most evidence. Further, within Optimality Theory there are many phonological phenomena that receive a comprehensive analysis for the first time, such as under-application and overapplication of reduplication, and "emergence of the unmarked" effects.

Disadvantage: In most phonological analyses of the sort where Occam's razor is respected, the underlying form of an utterance and its surface form tend to be quite similar, differing primarily to the extent that morphological juxtaposition of otherwise surface-possible forms creates violations of surface well-formedness conditions. In a rule-based analysis the reason for this is quite clear and built into the system itself—if no rule changes some aspect of the underlying form, then that aspect remains unchanged on the surface. This means that rule-based analysis consists essentially of noticing sound changes induced by the presence of a form in differing environments due to morphology and sentential context, and proposing a phonological rule for each type of change that takes place in a particular environment. Since this analytical process is reasonably straightforward and its correctness is fairly easy to check—rule-based generation can easily be simulated by hand—it was possible for phonologists to create complex systems of phonological rules that covered all or most of the sound changes present in the vocabulary of a human language. In Optimality Theory, on the other hand, the

analyst must propose constraints and orderings to account not only for the ways in which surface forms differ from their underlying counterparts, but also for the ways in which they do not differ from them[1]. Furthermore, once an analysis is complete, its correctness is usually still far from obvious. To justify a particular constraint ranking, the analyst must show that the ranking proposed is best satisfied by the surface forms naturally found, and that none of the infinite set of potential outputs would better satisfy it. This could be done by simulating generation on the data set to be checked, but Optimality Theoretic generation is too complex to be performed by hand. As it is, justification of a constraint ranking requires the analyst to characterize a potentially infinite set of candidates and argue that all parts of the set are less well-formed according to the constraint ranking than the actual output.

Optimality-Theoretic Syntax and Chomsky's Minimalist Program

The emergence of OT syntax seems to fit into the general tendency in syntax to blame the ungrammaticality of a sentence on the existence of a better alternative. This view on grammaticality is also found in [Noam] Chomsky's Minimalist Program (Chomsky 1995), although Chomsky takes optimization to play a much more modest role than OT syntactitians do. Whereas Chomsky's only criterion for evaluation is derivational cost, the inventory of violable constraints assumed in OT syntax is richer. As a result, the OT constraints interact and conflict with each other. This interaction is exploited by the assumption that constraints are ranked, and that parametrizat

parametrizing effect. In the Minimalist Program, the locus of the parametrization is the lexicon." (Introduction to Optimality Theory: Phonology, Syntax, and Acquisition, ed. by Joost Dekkers, Frank van der Leeuw, and Jeroen van de Weijer.

Language and Logic

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Introduction

One of the greatest challenges facing any philosophical system is the construction of a language that can reliably analyze reality according to logical criteria. If philosophy is to teach us any truth, it must speak in a language that we can understand, or it will remain a meaningless string of symbols. The practical need to express logical arguments in human language, however, exposes us to the danger of conflating grammatical and logical relationships. Even individual terms may distort our analysis, since many of our words were coined from casual intuition, without concern for logical or philosophical rigor. If we are to use language for logical argument, we cannot accept it as is, but must bring it into conformity with clearly intelligible logical principles.

This endeavor faces two potential modes of failure: (1) it might be impossible to bring human language fully into conformity with known logical principles, and (2) there might be fundamental aspects of logical analysis to which existing human language is blind. These linguistic problems, if intractable, could foil any attempt to construct a philosophical system

could be seen as a linguistic domain pertaining to philosophical analysis. Thus, it is unsurprising that the Greeks should find linguistic objects to be the locus of truth and falsehood. They did not regard dialectical language as a barrier to reality, but rather as the very image of reality. As naïve as this may seem, it would be self-stultifying to tend to the other e

read and write even simple phrases is a cumbersome, laborious process for older children and even adults. Thus it woulome

The relationship of language to logic concerns us because we wish to know whether and how language can relate truth, which is properly the domain of logic. Logical propositions can i and how

Notwithstanding this subtle distinction, it would be rash to divorce truth and falsity altogether from linguistic objects. The facts of common experience clearly demonstrate our practical ability to relate truths and generate knowledge through language, so our sentences must correspond to logical objects in some way, and, provided the appropriate context (such as who is speaking, how the speaker uses words, an

to convey signals representing concrete objects or actions need not entail ideation of an essence.

Modern experimental scientists often have a poor philosophical conception of human intelligence, reducing this to things they can analyze, such as signal processing or behavior outcomes. These empirical data do not give us ideas or essences, but their neural or behavioral correlates. If we are concerned primarily with logic and its relationship to language, we need

Logic

We use the word **logic** and terms derived from that same Greek word λόγος in a variety of ways. You've probably said that someone was "being illogical" because they were too emotional or didn't agree with you. You might have thought of logic as a way of proving things or reasoning better. I plan to dig a little deeper and talk about logic as one basic way to approach our use of language. For starters, that means I'd like to distinguish between logic as a way of talking about thinking, including arguments, fallacies & truth, and logic as a way of talking about language and what goes into using language, into formulating thoughts. I don't mean to propose this division as a hard and exceptionless rule, but however you plan to use logic, as long as you're communicating with other humans, your basic starting point will be logic as a way to analyze language. Since the systems we use to communicate analysis are themselves languages, it follows that we consider logic as a language. This will introduce logic as a language. More specifically, I will present logic as a **formal language**, not because it's more polite, but because it focuses on form instead of meaning.

I threw the terms "logic" and "language" at you. I know those are abstract terms, but think about learning a new language, perhaps one spoken in some foreign country. If you reflect for a moment on the components of that language, you'll have to take on new sounds (phonology), new parts of words (morphology), the specific words used in that language (lexis), the meaning of those words (semantics), and rules for constructing phrases & sentences (syntax).

Constants & Variables

One way to simplify all this is by trying to find some core concept. We might imagine that speakers use language to convey things to listeners. For example, when I tell you about a 'house', you might picture an image of a house. So

These meaning-filled constants can relate to one another in a variety of ways. Two broad and basic relationships

Linguists might say that there's some sort of “neural” logic driving human language, but not necessarily a “cut and dried” logic, as in a formal symbolic logic. It seems to be a fuzzy type logic. It necessarily exists, and yet it somehow must be relatively constrained as well. Otherwise, the astronomically large superset of all possible schemata would make extremely slim odds for any successful attempt at linguistic systematicity. The odds would be practically insurmountable.

This notion of a highly constrained system has caused Noam Chomsky to comment that if “Martians” ever came to earth, they would probably perceive everyone to be speaking the same language! Linguists and brain scientists are researching the problem as we speak. Among their ranks are those who work either from a formalist or a functionalist perspective (sometimes from both), as well as with rationalist and empiricist methods, including the interfaces of linguistics with neuroscience, psychology, anthropology, evolutionary biology, and bilingual edfo

The ability to easily translate. Too bad most languages are emotional-based.One can translate, to some degree, using Logic. For instance, “park transport human”. Because a park transporting humans is not a thing, the idea of “transport” would have to expand beyond “moving one object from one place to another”. By analyzing what transportation is, one can think “move” or “travel”. When pairing “move”, once again, it doesn't make [much] sense for someone to be moved by a park, nor someone to move a park. Whereas, “travel” can be used as “human travel to park” (but not “park travel to human”). (Taking into account the various priorities different cultures have in word placement, the reversals of word order can be attempted.) Now, we have “park travel human” or, better refined, “human travel[s] [to] park”. Within the English language, no one uses “human” in such a sense, and the closest match to the sentence structure and word synonym would be “person”. Given cultural perspective and priorities, a “person” can mean “self or I”. Thus, you have “I travel park”, or better translated to “there is a thought where i am at the park”. Because there's a timing ambiguity in “travel”, one cannot conclude to any degree as to when or if the person will be at the park, therefore, logically, the two can only be related (“there is a thought”), as opposed to defined.

*In text, the process is slow, but in the mind, it's much faster.

Chocolate and Brain

Dika Gogua

Nia Kemularia

Theona Chincharashvili

Nana Sheklashvili

What comes to your mind when you hear the word, chocolate?…Typically the word that comes to mind is, “where?” The world loves chocolate.

promote this type of positive feelings through the release of multiple gut and brain peptides. The intake of sweet foods, and namely dark chocolate, has been related to the release of endorphins through what is inside of chocolate. A study found that tryptophan, which promotes the release of serotonin, the antioxidant resveratrol, and phenethylamine which is linked to having an anti-depressant effect can all be found in the properties of dark chocolate.

2. Dark Chocolate Improves Blood Flow to the Brain

It's rare that something so downright delicious is also good for you, but dark chocolate is an exception to the rule.

You'll find dark chocolate at the top of any brain foods list.

Compounds in dark chocolate boost memory, attention span, reaction time, and problem-solving skills by increasing blood flow to the brain.

A Harvard Medical School study found that drinking two cups of hot chocolate increased blood flow to the brain for 2-3 hours.

This blood flow boost improved scores on a working memory speed test by 30%.

Increased cerebral flow may help prevent mental decline in seniors.

Dark Chocolate Improves Learning, Memory, and Focus

Chocolate also contains a little dosage of caffeine. Not enough to send your adrenaline pumping and keep you up through the night, but enough to help enhance your concentration, memory and most importantly, elevate your mood and give you that euphoric feeling you need to enjoy study time.

Numerous studies have suggested that high-potency cacao has sig

There have been many exciting findings surrounding chocolate's use in treating brain-related medical conditions like strokes and dementia. The powerful antioxidants found in dark chocolate reduce the risk of dementia.

According to one study, the more chocolate seniors ate, the less likely they were to develop dementia.

Chocolate consumption makes you smarter in the long run, as continuous enhancement of

Weight gain chocolate can have a high calorie count due to its sugar and fat content. Anyone who is trying to slim down or maintain their weight should limit their chocolate consumption and check the label of their favorite product.

Sugar content: The high sugar content of most chocolate can also be a cause of tooth decay.

Bone health: There is some evidence that chocolate might cause poor bone structure and osteoporosis. The results of one study, found that older women who consumed chocolate every day had lower bone density and strength.

Researches has shown that there are, immediate cognitive benefits from eating chocolate. So, if you're a fan of dark chocolate, science again suggests you may carry on.

age to the Land of Ooo times, where the characters; Patience St Pim; Flame Princess; Princess Bubblegum; and Slime Princess, are the actual incarnations of the ancient elementals.

The Alchemy Index

The Alchemy Index is Thrice's fifth studio recording, a four-disc concept album that was split between two releases, the first in October 2007 and the second in April 2008. The band originally planned to release four discs at once, each disc with six tracks representing one of the four classical elements: *Fire*, *Water*, *Earth*, and *Air*.

Recorded in guitarist Teppei Teranishi's house in Orange, "Alchemy" is full of experimentation. Inspired by Radiohead, Botch, Pelican and

nd758anhn( )-5(a)3(n)-3(d)] TJETQ EMC /Span

chord progression as each other, although they are in different keys. The Artwork for the Album was designed by Dustin Kensrue.

Angels & Demons

In Dan Brown's thriller novel *Angels & Demons*, the antagonist kidnaps four cardinals on the night of conclave and brands them with the ambigrammatic words "Earth," "Air," "Fire," and "Water." He then kills each cardinal using a method based on their respective elements; Cardinal Ebner, who was branded with the word "Earth," suffocates by having dirt shoved down his throat. Cardinal Lamasse (Air) dies from having both of his lungs punctured. Cardinal Guidera (Fire) is burned alive, and Cardinal Baggia (Water) drowns in the Fountain of the Four Rivers. Then, the Camerlengo Carlo Ventresca is branded with the Illuminati Diamond—a diamond shape made of the words for the aforementioned elements (also ambigrammatic). It is later revealed that he had done this to himself.

These brandings and murders also appear in the film adaptation of *Angels & Demons*, except Cardinal Baggia does not die; he is instead rescued from drowning and in the end becomes the new Pope. Also, the fifth brand in the film is not the elemental Illuminati Diamond, but rather the papal symbol of two crossed keys.

Avatar: The Last Airbender and *The Legend of Korra*

In the animated series *Avatar: The Last Airbender* and its sequel series, there are only four mystical martial arts, which allows certain people called "benders" to freely have control and manipulation of the four elements through real-life martial arts tradition: Waterbending, Firebending, Earthbending, and Airbending. These are more based on the elemental structure of the Western and/or the Japanese elements, without a style based around Aether/Void. However, there is some overlap of elements as Blood, Lightning, Plants, and Metal are all uniquely special sub-abilities of the other four main elements.

Airbending is a martial arts-based ability that controls and manipulates the element of Air. It is primarily based around the real martial arts of Bagua Zhang. Airbending focuses on evading and avoiding attacks.

Earthbending is a martial arts-based ability that controls and manipulates the element of Earth. It is primarily based around the real martial arts of Hung Ga, however there are exceptions like Toph who uses the Southern Praying Mantis Kung Fu. However, it is likely different due to the fact Toph has learned her Earthbending from the Badger-moles (Natural animal benders, and mentioned in the show as the first earthbenders). Unlike Airbending, Earthbending is based around withstanding attacks and holding one's ground. At least one character, Toph, can use earthbending to easily control and manipulate metal by focusing on its earthen impurities.

Firebending is a martial arts-based ability that controls and manipulates fire, flame and heat. It is primarily based on Northern Shaolin, here primarily the Northern Shaolin Style. A specialized form of Firebending can be used to control and manipulate lightning. This is done by dividing the yin from the yang of the electricity, like splitting positive and negative charges. The charge tries to merge again, much like a lightning bolt moves from one charged object to another (Like a positively charged cloud to the negatively charged ground or vice versa).

Waterbending is a martial arts-based ability that controls and manipulates the element of water. It is primarily based on T'ai chi. Firebending opposes Waterbending, as the former prefers to attack first and hard until a weakness is found while the latter waits for the opponent to attack first and then redirects their strike. Whereas the other styles appear incapable of controlling and manipulating the various forms and phase of their native element, waterbenders can alter the phase of water, controlling and manipulating water in its solid (ice, snow, hail), liquid (pure water) and gaseous forms (mist, steam, clouds, fog,and water vapor), or even take liquid water from the air, plants, animals, or even humans. Some are even capable of controlling and manipulating others (by way of the rare and sinister ability of bloodbending) under the light of a full moon, when waterbenders are at their strongest and full potential. This is done by controlling the bodily fluids inside another's living body and thus controlling them to do the waterbender's bidding like a puppet.

(referring to mental abilities). The Toa's counterparts – the villager-like Matoran and their Turaga elders –

communicate telepathically with his teammates. Whereas the other Planeteers give Captain Planet his powers, Ma-Ti's ring creates his persona.

Castle Crashers

Castle Crashers is a video game on the Xbox 360, PlayStation 3, and PC (Microsoft Windows and OS X) about knights and princesses. The four main characters each represent and use different elements.

The Red Knight represents Lightning. The Blue Knight represents Ice. The Green Knight represents Poison. The Orange Knight represents Fire.

Challengers of the Unknown

In the comic book series *Challengers of the Unknown*, each of the four original members of the team represent one of the Greek elements. Ace Morgan is a pilot (air), redheaded Red Ryan is a daredevil (fire), Prof Haley is a deep-sea explorer (water), and Rocky Davis is wrestler (earth). While the symbolic relationship between the individuals and elements can be seen, it never really played a strong role in the development of the characters' personalities, which took many twists and turns unrelated to any archetypes.

Digimon

The eponymous creatures in *Digimon* often have attacks and characteristics that relate to an element. This theme was perhaps most emphasized in the fourth season, when the Ten Legendary Warriors were based on elements of fire, light, ice, wind, thunder, earth, water, steel, wood and darkness.

The second and third seasons introduced the Digimon Sovereigns, which are based on the Wu Xing animals. For unknown reasons, Qinglongmon's element was water and Xuanwumon's was wood, whereas in Wu Xing tradition, the reverse is true.

Dungeons & Dragons

In the *Dungeons & Dragons* family of role-playing games, the

elemental planes; they express either the abundance or intensification of the element's nature, or its destruction or absence. The positive Quasielemental expressions of Earth, Water, Air and Fire are Minerals, Steam, Lightning and Radiance, respectively; their negative counterparts are Dust, Salt, Vacuum and Ash.

Encantadia

The **Brilyantes** are fictional gemstones in the Filipino fantasy television series *Encantadia* as well as its 2016 sequel. They are the elemental gems that holds the balance in Encantadia. Each gem manifests the classical elements: aether, fire, air, water, and earth. The tranquility and future of Encantadia rests on these gemstones. In both series, each Brilyante are being carefully kept by each kingdom in Encantadia. The kingdom of fairies, Lireo, in the east of Encantadia, is the keeper of *Brilyante ng Hangin* (Gemstone of Air). Adamya, the kingdom of elves in the south is the keeper of *Brilyante ng Tubig* (Gemstone of Water). Sapiro, the northern kingdom

evoke the unseen forces of wind and air. This is especially true in Neil Gaiman's *Marvel 1602*, where the Invisible Woman is both permanently invisible and weightless.

It should also be mentioned the two obvious elemental personalities (the Human Torch and the Thing) tend to have personality traits people tend to associate with their own elements. Johnny the human Torch is extremely hot-headed and impulsive, with a brash personality, contrast this to Ben the Thing who is more sullen, dependable and strong.

Perhaps the closest character to emTm0I6.1 512 reW* ET*tG n9(Wer 60(wi)912 0 64 Tm3.9(per)4n K1Qq0.

Kingdom Hearts

In Season 2, a fifth, Metal elementor is added and is the strongest and smartest of the group. It has magnetic powers similar to Magneto and can liquify/solidify itself

Naruto

In the manga and anime series *Naruto*, ninjas use the ability of Chakra (mixing of mental energy and physical energy to create a supernatural force of pure life energy, manna, chakra, chi, Quintessence, Aether) to perform jutsu (ninja techniques that allow the use of superpowers or martial arts). As depicted in the series, Chakra has elemental aspects, with the five elements' comparative strengths and abilities resembling the creative/destructive cycle of the Chinese elements. The cycle goes from Air to Lightning to Earth, and Water to Fire before returning to Air/Wind again, each element much, much stronger than the one after it.

In the world of Naruto, there are certain people who can mix elemental aspect into new elemental jutsu. So far, expressions of this shown are ice, wood, lava, storm, boil, dust, heat, explosion and magnetism. The ice mixes water and wind, wood mixes water and earth, lava mixes earth and fire, storm mixes water and lightni EMC /Spaw boiues

over the smaller villages, each of which is based on the five elements above. Each holds a leader ninja who is the only one to take the name of shadow (Kage).

Ninjago

In the Lego Ninjago theme the land of Ninjago was created by four elemental weapons, The Scythe of Quakes, the Nunchucks of Lightning, the Shurikens of Ice and the Sword of Fire. The main series focuses on four ninjas, each with one of the four elements in them. (and personalities mirroring them). Cole (Black ninja of Earth) has super-strength, terrakinesis and invulnerability, is portrayed as Team leader and the muscle of the group and has no fear, Kai (Red ninja of Fire) has flight and pyrokinesis and is somewhat hotheaded, violent and impulsive, but cares fiercely for his friends, Jay (Blue ninja of Lightning) has flight, teleportation, electrokinesis and is the chatty, fast-talking jokester of the group and Zane (White ninja of Ice) has cryokinesis and is intelligent, serious and calm. During the first season of the show, the main character Lloyd Garmadon joins the team (eventually becoming the new leader) as the Green Ninja (Master of all four elements and Energy) and gains the powers of the other four ninjas, along with the ability to fire green energy blasts from his hands and in season 2, he acquires Golden Power, giving him nigh omnipotence. However, in the series' third season, he is stripped of his golden power by the season's antagonist the Overlord (who represents all the evil in Ninjago) and divides what remains of it among the original four ninja to restore their own powers while Lloyd is left with his element of energy. In season four, it is revealed that the ninja are not the only ones with elemental powers and that there are other

elements: metal, gravity, nature (referencing to plants), smoke, sound, form, poison/toxicity, light, shadow, speed, mind, water and amber (the ability to absorb or replicate other elemental powers), along with the element of wind being introduced in season five. Also in season 5, it is revealed that Kai's sister Nya (the sole female member of the team) is the master of Water. Coincidentally, Nya's relationships with the original four ninjas corresponds to how water reacts with their particular elements: she is able to quench Kai's hot temper, she is Jay's girlfriend, she can erode Cole's hard exterior to reveal his soft side, and she shares interests with Zane. Later on in the seventh season, the element of Time is introduced and serves as a primary focus.

Ronin Warriors

In the anime series *Ronin Warriors*, all of the heroes and villains are representative of different concepts of virtue as well as the classical elements (in the case of the series' heroes) or seasons (in the case of the villains).

Sailor Moon

Most of the Sailor Senshi characters in the *Sailor Moon* anime metaseries have elemental powers, some being inspired by Chinese elements (the Wu Xing) and some by Roman mythology. These are derived from the Japanese names given to their planets; even in civilian form, each superheroine has a surname that reflects her planet and her tremendously powerful Sailor powers.

Saturn's element is given as earth, which corresponds to mythological harvest symbolism and to her vastly dark powers over death and destruction, and rebirth. The main character, Sailor Moon, along with the younger Sailor Chibi Moon, use elemental powers of pure moonlight.

Slugterra

In the 2012 television series Slugterra, there are creatures described as slugs, which originated from 5 elemental slugs, representing the elements of Earth, Fire, Air, Water and Energy. The various species of slugs are classified into these elements, or even subcategories of them. Earth is categorised into Earth, Metal and Plant; Air is categorised into Air and Toxic; Water is categorised into Water and Ice and Energy is categorised into Light, Psychic and Electricity. Fire is the only element without sub-categories. Additionally, when slugs are corrupted into "ghouls" (slugs that have been mutated by the life-sucking "dark water", they are categorised into "Shadow". If any of the original elemental slugs are corrupted, it will spread to all the slugs its element originated. The only cure is to reform the ghouled elementals and fire them simultaneously.

Star Trek: The Next Generation

In the *Star Trek: The Next Generation* episode "Thine Own Self", Data is stranded on a pre-industrial planet where the inhabitants are still taught that the elements consist of sky, fire, rock, water, and lightning.

Super Sentai Power Rangers

Several teams of *Super Sentai* and *Power Rangers* have used the classical elements thematically, with each Ranger having powers related to one element.

Normally, the Red Ranger represents fire, and the Blue Ranger water. For example, the Red Turbo Ranger and the Red Lightspeed Ranger have had Zords based on fire trucks, while the Blue Aquitian Ranger had a water-based attack. *Gosei Sentai Dairanger* drew heavily from Chinese mythology, and five of the Mythical Qi Beasts correspond to the Wu Xing. In *Seijuu Sentai Gingaman* and *Power Rangers Lost Galaxy*, the five Rangers represented fire (Red), water (Blue), wind (Green), lightning (Yellow) and flora (Pink), with earth (the Black Knight/the Magna Defender) added later.

The elements in *Ninpuu Sentai Hurricanger* are air (Red), earth (Yellow), water (Blue), with Kuwaga and Kabuto both wielding the power of lightning. The last two became the Thunder Rangers in *Power Rangers Ninja Storm*, sharing the element thunder, with the Green Samurai Ranger being a non-elemental (his power was dubbed "Green Samurai Power"). The elemental theme was here used more extensively than in previous series, and the Rangers' attacks and fighting styles often reflect it. In *Mahou Sentai Magiranger* and *Power Rangers Mystic Force*, MagiRed (the Red Ranger) and Wolzard (the Wolf Warrior) share the element fire. The other Rangers have powers based on thunder (Yellow), water (Blue), air (Pink), earth (Green), ice (White), and light/the sun (MagiShine/the Solaris Knight). In Power Rangers: Samurai and its

follow up season Super Samurai, the five rangers each represent the classical elements, albeit with forest in place of aether: fire (red), water (blue), sky (pink), earth (yellow) and forest (green). The Red Ranger has also shown use of lightning. Later on when the gold ranger is added, he harnesses the element of light.

The use of elements is not restricted to the protagonists. In *Kyuukyuu Sentai GoGo-V*, the demons Zylpheeza, Drop, Cobolda and Venus (Diabolico, Impus, Loki and Vypra in *Power Rangers Lightspeed Rescue*) each represent one of the four elements. In both versions, all monsters are affiliated with one of them, and relate to the same element.

SwordQuest

Main article: Swordquest

Atari's 1982–1983 *SwordQuest* video game series were four video games with each title representing one of the four classical elements. They were released in order from least-to-most important, in life's necessities, concerning the classical elements. The fourth and final game was never released.

- *SwordQuest: EarthWorld*
- *SwordQuest: FireWorld*
- *SwordQuest: WaterWorld*
- *SwordQuest: AirWorld*

Teenage Mutant Ninja Turtles (2003–series)

In the 2003 series of *Teenage Mutant Ninja Turtles*, The Shredder has control over five mystical beings referred to as the Mystic Ninja. Each of the Mystic ninjas represent and have control over one of the basic elements: Earth, Fire, Water, Wind and Metal. The Mystic Ninja serve as guards to the Shredders throne room. They are held under the Shredders control with a mystic amulet known as the Heart of Tengu. The Mystics are later set free when they manage to have the amulet destroyed, and it is revealed that they are, in truth, heralds of and ancient Tengu demon known as the Original Shredder. The heralds are later destroyed by the Turtles and their allies.

Tenkai Knights

In episode 27 of *Tenkai Knights*, the heroes known as Bravenwolf, Tributon, Valorn and Lydendor received new forms and powers based on the elements of fire, ice, earth and lightning.

Xiaolin Showdown

In the KidsWB series, *Xiaolin Showdown*, the four main characters were monk children of the four elements: Omi (water), Raimundo (wind), Kimiko (fire), Clay (earth). In the first season, the call out their element and their fighting skill is increased dramactically. In the second season, they're able to bring their element into a physical form performing a fighting stance. For example, Omi's Tsunami Strike where he spins his entire body to allow water to fly everywhere. In the third season, the monks are promoted to Wudai Warriors. The promotion apparently unlocked their ability to bring the elements into physical form, but they can control them without any limitations.

The base of the show revolves around collecting mystical items called Shen Gong Wu on which some of them are able to conjure elements.

W.I.T.C.H

The Italian comic book series and its later cartoon series *W.I.T.C.H.* is centered on five girls who receive magical powers to fight evil in fantasy worlds parallel to their own, and each power is based on an element, with the corresponding "guardian" being able to produce said element from nothing, control and manipulate it or mentally communicate with it. The fifth element, in this story, is the Heart of Candracar, an immensely strong and powerful magical mystical crystal amulet that grants the girls their powers and greatly increases them to much greater power-levels, which is worn by Will, the leader of the group. In the second season it

is revealed that the fifth element is actually Quintessence, which is described as *"the very lifeblood substance or essence of life itself"* and is Will's own elemental ability. As such Quintessence manifests as whitish-blue lightning that contains pure life energy within to literally *"make things come alive."*

Wizard101

Wizard101 is an RPG for PC. All attacks and defenses are based on some traditional elements as well as other additional elements. The practitioner of each element has a different general play style. Fire Wizards (Pyromancers) focus on spells that deal damage over time; Storm Wizards (Diviners) have spells that have high damage, but low accuracy, while also having low health; Ice Wizards (Thaumaturges) focus on damage absorption and defense, having the highest health; Life Wizards (Theurgists) are healers, with their spells having the highest unchanged accuracy; Myth Wizards (Conjurers) mainly summon other beings to help them in battle; Death Wizards (Necromancers) have spells that not only damage enemies, but also heal themselves; Balance Wizards (Sorcerers) are unspecialized, focusing on buffing themselves or others.

Western Classical Element Theory as a Metaphor

How to Understand Western Classical Element Theory as a Metaphor

Western Classical Element Theory can be seen as a metaphor the human condition where fire is will and action, air is reason, water is the passions and spirit, and earth is the physical.[1]

TIP: Some of this theory is worked out on our page on our "Separation of Powers Metaphor" and it is related to "The Spheres of Human Understanding". See those pages as well. At some point i'll attempt to combine all this, for now, the theory spans several pages.

Understanding the Theory

These classical elements are related to a few other basic concepts including one that represents the most fundamental duality **Yin and Yang** (**or Female and Male**), where **Female (Yin)** is the passive and receptive (including Water and Earth), and **Male (Yang)** is will-or-reason-in-action (including Air and Fire).

These four elements and two related dualities can be used to describe all aspects of the human condition without exception. For example here is a theory of government encoded onto the elements (see also a theory of governmentand forms of government):

- **Power (Fire)**: The Natural law. Burke, Hobbes, Machiavelli. Force-in-action holds together the social structure, be it a strong leader of a Republic, a despot, an army, or a benevolent prince. See Realism.
- **Economy (Earth)**: The Civil law. Marx, Engles, and Smith. The idea that economy (capital, labor, means of production) forms the social structure.

- **Reason and Ethics (Air)**: The Ethical law. Aristotle, Hume, and Rousseau. The idea that law and reason can be used to understand the natural laws and then can be used to organize society around a social structure that adheres to the other elemental forces.
- **Spirituality and Morality (Water)**: The Eternal law. Aquinas and Filmer. The idea that the enteral law forms the social structure, and that a

thus, you have an easy to understand metaphor for 1/4 of the foundation of the human condition.

Polarity	Element	Symbol	Keywords	Signs (in order from beginning, Sustaining, and ending)
Yang (Male)	Fire		Enthusiasm; drive to express self; action	

The Male and Female

club, this manifestation in fire of pure energy and aggression is the outward male energy. We can relate fire to gods like Apollo and Ares. IV – The Emperor or XVI – The Tower.

Air is our reason and the intellect in action (it is pure intellect, not wisdom or will). It is

Earth represents the physical realm, that which can be sensed. It is symbolized by the **coin**. It is all actual manifestations that can be known from the passions. So, everything that we can know for sure, everything we can touch and hold (including other people) is earth. In social contract theory, the earth is everything tangible, so economy, trade, housing, food, and even the body politic and state itself. Earth is the symbol of the natural pleasures and money, thus the female goddess Venus. III – The Empress, VI – The Lovers, XV –

war and its planet is Mars and the Sun. Likewise, we can equate it to Apollo the sun god and to the Roman god of war Mars and so it will go for each element.

Similarly, middle or sustaining fire is symbolized by Leo and could be symbolized by a stage actor burning with charisma. In the Tarot the female energy tames the pure male fire energy of Leo, and in this, like the actor on the stage, the fire can sustain and not burn out. This is why the Tarot card VIII (the one with Leo on it) is called Strength (Rider-Waite) or Lust (Thoth).

Meanwhile, ending fire is symbolized by Sagittarius, the quick moving bow-wielding centaur Chiron, who mentored Achilles in archery (Achilles was a Greek hero of the Trojan War and the greatest warrior of Homer's Iliad; thus Achilles is "the Fool").

TIP: The other elements work just like this, you can look it up using the links below or using Google. Learning the whole syste1 0 612 7-38056000.7 419.11 Tm02 -9(el)-4(ow)-10(or)-8(usi)-4(4;-3( )-9(th

Yin (Female)	Earth	▽	Practicality; caution; material world	Taurus; Virgo; Capricorn
	Water	▽	Emotion; empathy; sensitivity; spirit	Cancer; Scorpio; Pisces

Now, Finally I want to introduce a few more concepts related to the Elements, Astrology, Tarot, and Kabbalah:

Putting together all the above, the “Fools Journey” is the story the Major Arcana Tarot cards tell when understood one at a time. Each card is related to an astrological sign and element and thus the fools journey is, at its core, understood using the classical elements. Here again, we get a clearly laid out metaphor for the human condition.

Astrology is also a metaphor for the human condition, and it tells the same story as the Tarot (see why astrology seems to work; its that and cold reading). Each card also relates back to the Kabbalah.

Tarot Suit	Element	Kabbalistic World
Pentacles	Earth	Assiah (Manifest World)
Swords	Air	Yetsirah (Formative World)
Cups	Water	Briah (Creative World)
Wands	Fire	Atziluth (Archetypal World)

Now that I have introduced you to the above concepts, you can use this guidepost to learn about the elements and their older brothers mythology, astrology, and tarot. By meditating and studying the symbols, you'l

Ken Ward's Astrology Pages

The Triplicities as Metaphors

A triplicity is a group of three signs, each based on the same element. For instance, the fire quadruplicity is the three signs: Aries, Leo and Sagittarius.

Fire 

Fire tends to go upwards, and can **raise** things into the clouds and beyond. The sun and the stars are fire – high in the sky! Fire cannot truly be confined, although it can be controlled. Even so, it eventually escapes into the sky. Not surprisingly, fire is associated with spirit, high ideals. Fire ideas can be very distant from the ideas of this Earth. While fire consumes, it also creates new life (forest fires remove the old and enable the new - some plants even wait for the fire to release their seeds!). Of all the elements, fire captures our attention the most. Archetypal fire goes high above the earth, is consuming, clinging and captivating and creates the new and removes the old.

Fire is raw energy.

The fire signs (triplicity) are Aries, Leo and Sagittarius.

Fiery people have ***high spirits***, great self-confidence, ***enthusiasm***, and direct ***honesty*** and ***openness***. They project a radiant, vitalising ***energy*** that glows warmly. They need a good deal of ***freedom*** to express themselves so they can insist on their own point of view. They are consumed - even entranced - by whatever they do. They are motivated by excitement, insight and intuition. That is, they get an idea which captivates them. They do not consider rational or logical thinking or practical feasibility, because the idea comes to them fully formed and full of power. While the idea may grow over a period of time, it does not grow logically but grows intuitively. For this reason, sometimes fiery people do not know **why they must do what they must do**!

Fire appears as if from nowhere, it grabs everyone's attention, and forces its way through almost everything, consuming the air, evaporating the water and chars the earth. Even the rocks are scorched or even melted (larva).

Not surprisingly, fire people are ***assertive***, ***individualistic***, ***active***, ***self-expressive*** and ***freedom*** loving. Fire sign energies can stimulate others, but they can also overpower and exhaust them. Good natured and fun-loving, they may have many friends.

then do it yourself". However, they belong to a group that is the most daring and capable inspiring natural leaders. They lead from the front. In war or business, they are out in the front leading the way. They are independent and individualistic leaders, rarely consulting others before they act. In fact, they may not even think things through to themselves, because their mode of thought is intuitive – the decision comes fully formed, so they may not know why it arose. They are always "on stage" and need to be recognised and admired for their attainment and accomplishments. They consider being appreciated more important than being rich. Nothing hurts them more than being ignored. The fire sign sense of honesty is straightforward and often child-like. They believe everyone is like themselves an open book. This may lead them to be gullible and naïve, or to others exploiting their openness.

Earth 

The earth triplicity is Taurus, Virgo and Capricorn.

Of all the elements, the earth element is the most easy to confine and capture, to hold in the hand. It is rigid, fixed and stable. Anything that is ***attainable*** is "down to earth" and not "airy fairy", or "high in the sky". Archetypal earth is real, heavy, and the basis of all achievement. It is the foundation of all that is. Like the real earth, it is fixed, stable, organised and (sometimes) predictable. It is *limited* and *disciplined*.

Of all the elements, it is the earth that can be ***possessed*** and ***owned***. (No one claims to own the sea, the air or fire!) It provides a solid basis for our existence (***dependable*** and***stable***), yet it can rise only so far. And the higher it rises (a bolder on a mountain), the farther it has to fall, making it unstable and less reliable, so earth people are cautious about extending too far. Unlike the other elements, it cannot easily rise and almost never disappears. Fire goes out, water trickles away, and air just disappears. If earth turns to dust, however, it can rise as high as fire, even travelling to other planets. But to do so, if must forgo its limitations (having a visible shape and organisation) and let go of its fixed nature.

Earthy people are, therefore, ***cautious***, ***premeditative***, ***conventional***, ***possessive,*** ***practical*** and ***dependable***. They live by a practical, common-sense code and seek physical wellbeing rather than spiritual enlightenment, or ed

of them). They think about what is, rather than what might be. In a way, they lack imagination. They can be too fixed to rules, regulations and procedures.

Air

While air is light, it pervades everything on earth. For a long way into the sky. Even in deep caves there is air. It is everywhere!

The air triplicity is Gemini, Libra and Aquarius.

Air rises, but not as much as fire. Like fire, air is difficult to control or to capture. It is (nearly) always ***free***. Yet it links everything to everything else. Air is associated with words and language. Language and words are essentially verbal, and speech requires air. It has a serial quality. You can blow air from one position to another. For example, you can direct

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of matter: solid like the earth; liquid - its normal state - and as vapour – like air. So water can mimic other elements as a solid (earth) and a vapour or gas (air).

Water people are very **sensitive** to their own feelings and to the feelings of others. They perceive life through their emotions. They are concerned with what feels right, with their hunches or impressions, rather than with what is practical or rational. They use the emotions, not the intellect, to understand and to value. Water can raise people to the heights of bliss, but can bring them down to the depths of despair.

Water rises into the air and falls as rain, nurturing the land. The earth absorbs it to become fertile. We can go for weeks without food, but only days without water. Living things need water to ***nurture*** them. With it they grow and mature. Without it they die.

Water people need close emotional relationships, and rarely have superficial affairs. They can be volatile. They are romantic, sentimental and affectionate. They can be very nurturing and very possessive with their family and spouse. They have fixed opinions. They communicate in non-verbal ways; emotionally, psychically, or through forms as art, dance, music, poetry and photography. Their beliefs are based on feelings rather than on reason, passion or practicality.

Ether

The four Elements

blaze - in the spiritual plane: LIGHT. The physical fire transforms by burning material stuff, changing the material stuff into gas by raising its vibrations (=producing heat) and leaving the minerals as ashes. The spiritual LIGHT transforms by raising the vibrations of energy, thus turning dark (=light-less) and heavy energy into shining LIGHT again.

The spiritual Principle FIRE is symbolized by the lion. The Principle of the Element FIRE is: LIGHT, Energy, male principle, LIFE, intuition, clearing, transformation, dynamic purposeful action, purposeful power (destructing - clearing - fertilizing). It is also symbolized by a sword (as held by MICHAEL), as a sign of renewal by revolution, by forceful change, by transformation (see also her