Anumana
**Study Notes on Structure of Anumana**

*Anumana* is a Sanskrit derived word which has the literal meaning *inference* i.e an opinion or conclusion that is formed because of a known fact or evidence. It is a combination of two words namely *anu* (meaning *after*) and *mana* (meaning *knowledge*) i.e after knowledge. In the Hindu school of logic (which is known as *Nyaya Shastra*), inference is known to occupy a central and irreplaceable position, hereby governing all the other positions. *Anumana* or inference is made up from the five pillars or steps of the Indian system of deductive reasoning. They are -

1. *Pratigna* (the proposition)
2. *Hetu* (the reason)
3. *Udharana* (an example)
4. *Upanaya* (an application)
5. *Nigamana* (the conclusion)

This is the typical way of any *anumana* or inference. Now let's understand what do these five steps actually mean. The first step includes the logical assertion or proposition which has to be proven in general in order to move to the next step. The second step is the reason for the proof of the assertion. The third is *udharana* which means an example. The fourth step of the deductive reasoning is *upanaya* or an application of the proposed action. The fifth step is, as mentioned, *nigamana* which amounts to the outcome or the conclusion.

*Types of Anumana –*

Anumana can be classified in a total of five ways -

1. *Svarthanumana* (inference for oneself) - In this type of *anumana*, one does not require any sort of formal procedure or at most may require the last three steps of the five.
2. **Parathanumana** (inference for others) - In this type of *anumana*, one requires to follow all the steps of the five in the methodical order.

3. **Purvavat** - This type of inference is used for an unobserved effect caused due to an observed effect of an action [inference based on previous experience of universal fact between two things].

4. **Sheshavat** - This type of inference is used for an observed effect caused due to an unobserved effect of an action [inference based on elimination].

5. **Samanyatodta** - This is a special type of inference which is not based on any causation. It is based on the continuity of synchronization or rather simply; it is based on continuous co-existence [inference by means of analogy].

Three terms are usually associated with inference - *sadhya*, *hetu* and *paksa*. *Sadhya* means the character or the major term, *hetu* means the middle term and the *paksa* means the minor term.

**Structure of Anumana**

The word anumana means Knowledge that trails other knowledge. Knowledge that cannot be acquired through sense organs becomes the object of inference. We infer knowledge of what we don't see from what we can see. This is considered to be the source of valid mediated knowledge.

Consider an example- the presence of fire by the perception of smoke. When one sees smoke on somewhere, one remembers the universal concomitance (Vyapti) between smoke and fire and concludes that there is fire on that place.
The character which is inferred i.e. fire is called sadhya; the mark on the strength of which the character is inferred. I.e. smoke is the hetu ; the subject where the character is inferred.i.e. Hill is paksa . The following is a typical nyaya syllogism.

1. This hill has fire (**pratijna**),

2. Because it has smoke (**hetu**),

3. Whatever has smoke has fire e.g. an oven (**udaharana**),

4. This hill as smoke which is invariably associated with fire (**upanaya**),

5. Therefore this hill has fire (**nigamana**).

The first, the **pratijna**, is the logical statement which is to be proved. The second is **hetu** (reason which states the reason for the establishment of the proposition). The third is **udaharana** which is the universal concomitance together with example. The fourth is **upanaya** which is the application of the universal concomitance to the present case. The fifth is **nigamana** or conclusion drawn from the preceding propositions. These five members of Indian syllogism are called **Avayavas**.

The Nyaya syllogism has five terms. Among them, middle term works as a bridge between the major and the minor terms. Therefore, the middle term has main responsibility to prove a syllogism valid or invalid. How a middle term is related to major term is **linga paramarsha**.

**There are five characteristics of a middle term**-

1. It must be present in the minor term (paksadhartama); e.g., smoke must be present in the hill.

2. It must be present in all positive instances in which the major terms is present; e.g., smoke must be present in the kitchen where fire exists.(sapaksasattva).
3. It must be absent in all negative instances in which the major terms is absent; e.g., smoke must be absent in the lake in which fire does not exist.(vipaksasattva).

4. It must be non-incompatible with the minor term; e.g., it must not prove the coolness of fire (abadhita).

5. It must be qualified by the absence of counteracting reasons which lead to a contradictory conclusion; e.g., ‘the fact of being caused' should not be used to prove the ‘eternity’ of sound (aviruddha).

**Vyapti**

*Vyapti* is also a Sanskrit derived word which, in Hindu philosophy, means *the state of pervasion or the correlation between two facts*. A fact is said to be pervaded by another fact when it is accompanied by the other. It is the logical ground or basis of inference. *Vyapti* is the mandatory condition for any inference. It affirms the veracity of the withdrawn conclusion. *Vyapti* is the universal assertion that tells us about the constant and non-conditioned relation between the major term (*sadhya*) and the middle term (*hetu*); where the terms are also popularly known as *vyapya (the pervaded)* and *vyapaka (the pervader)*.

In Hindu philosophy, the Charvaka school does not consider or rather disregards inference as it believes perception to be the only means to knowledge. Here *vyapti* can ever be known as it does not exist whereas in Jain philosophy, the Nyaya school considers the knowledge of *vyapti* to be one of the means to knowledge, But here internal, perception does not hold true for a path of knowledge.
Types of Vyapti –

Vyapti can be commonly classified on the basis of terms of extensions as –

1. **Samavyapti** - A vyapti between terms of equal extensions is called as a samavyapti. It is made up of two words namely sama meaning limited and vyapti. For example - The three lines form a triangle and again a triangle is formed by three lines.

2. **Asamavyapti** - A vyapti between terms of unequal extensions is called as an asamavyapti. It too is made up of two words - asama meaning unlimited and vyapti. For example - The Earth is round but it cannot be the vice-versa as anything that is round is not the Earth.

**Anavya Vyapti** - Here the concomitance of two tings is established. ‘where there is fire, there is smoke’ is an example of Anavaya Vyapti.

**Vyatireka Vyapti** - Here, Vyapti is shown in the absence .Where there is no fire, there is smoke’ is an example of Vyatireka Vyapti.

The invariable relation between the hetu and the sadya is called Vyapti. The word “Vyapti” means state of pervasion. It implies a correlation between two facts, of one is pervaded and the other pervades. A fact is said to pervade another when it always accompanies the other.
Classification of Anumana

Anumana can be classified into **svarthanumana** and **pararthanumana**.

**Svarthanumana inference** is for one’s own conviction. It is not expressed in the form of a syllogistic argument. A person who perceives a patch of smoke remembers that there is universal relation between smoke and fire and conclude that there is fire in the hill.

**Pararthanumana inference** is for the conviction of others. It is a syllogism which helps to direct the mind of the listener to think in the required manner. Pararthanumana inference is drawn in five sentences- These sentences are called the propositions (avayava) of inference, e.g.

(a) Pratijna-The hill is fiery,

(b) Hetu-because of smoke,

(c) Drstanta- Wherever there is smoke there is fire.

(e) Upanaya- The smoke, which does not exist without fire is in the hill,

(f) Nigamana-Therefore the hill is fiery.

**Hetvabhasa**

In Indian logic a fallacy is called hetvahasa. It means that middle term appears to be a reason but is not a valid reason. All fallacies are material fallacies. We have mentioned the five characteristic of a valid middle term. When this are violated, we have fallacies.

*Hetvabhasa* is a fallacy in logic or it can also be said that it is logic with an insufficient reason. In actuality, it means that the middle term *hetu (reason)* only appears to be a reason, but is not exactly a valid reason. There are five
basic fundamentals which define the validity of the middle term *hetu*. These are different from the terms that define *anumana* or inference. They are -

- **Pakadharmata** - It means that the middle term should be present in the minor term.
- **Sapakasattava** - It means that the middle term must be represented in the major term only positively.
- **Vipakasattava** - It is analogous to the above term but with only a small difference. It means that the middle term must be negative in all instances where the major term is absent.
- **Abadhita** - This means that the middle term should always be in accordance to the major term.
- **Aviruddha** - It should be valid in absence of antagonistic reasons which lead towards an opposite inference.

**Types of Hetvabhasa –**

The breach of any of the above mentioned basic fundamentals give rise to the following *hetvubhasa* or fallacies -

1. **Savyabhichara**
2. **Viruddha (meaning against)**
3. **Satpratipaka**
4. **Asiddha (meaning unproven)**
5. **Badhita (meaning hindrance)**

**Savyabhicara**

Savyabhicara is the fallacy of irregular middle. The middle term will be regularly related to the major term. When middle is not uniformly correlated with the major term give rise to a savyabhicara.
For example,

All birds are rational
Crow is a bird.
Therefore, crows are rational.

Here the middle term is “birds”, But it is not uniformly related to the major term “rational”. The middle term in this example is related to both rational and non-rational creatures. Therefore, it is a defective hetu.

2. Viruddha

Viruddha is the contradictory middle. Here, hetu which primarily establishes the existence of sadya, establishes the non-existence of the sadya. For example, sound is eternal because it is produced. In this case, the middle term ‘produced’ doesn’t prove the eternality of the sound. But it proves the non-eternality. Here middle term refute the original proposition and prove its contradictory.

3. Satpratipaksa

Satpratipaksa is fallacy in which the middle term is contradicted by another middle term. It arises when a hetu which is set to establish a particular sadhya in an inference is validly contradicted by another hetu which confirm the non-existence of sadya of the first inference. In this scenario, the first hetu is called satpratipaksa hetu.

For example, ‘sound is eternal, because it is audible’ is validly contradicted by another inference ‘sound is non-eternal, because it is produced like a pot’. Here, the middle term of the first inference, ‘audible’ is contradicted by the middle term of the second reference ‘produced’.

4. Assiddha

Assiddha is the fallacy of unproved middle. Here hetu has to be proved just like sadya. This means assiddha is an unproved assumption.
For example, “sky lotus is fragrant, because it has lotuness in it like a natural lotus”. Here, middle term or hetu is yet to be proved, because we yet to establish the existence of sky lotus.

5. **Badhita**

Badhita is fallacy of the non-inferentially contradicted middle. The middle term of the inference may be contradicted by some other ‘stronger means of knowing’ such as perception, testimony, etc. it cannot be prove that the major term which is disproved by another source of valid knowledge. For example, ‘fire is cold because it is a substance’. Here the middle term ‘substance’ becomes contradicted because its major term ‘coldness’ is directly contradicted by perception.

**Summary** –

- **Anumana** means *inference i.e an opinion or conclusion that is formed because of a known fact or evidence.*
- **An anumana necessarily has three terms which are** -
  (a) Major term - *sadhya*
  (b) Middle term - *hetu*
  (c) Minor term - *paksa*
- **Anumana** or inference is made up from the five pillars or steps of the Indian system of deductive reasoning. They are -
  (a) *Prating* (the proposition)
  (b) *Hetu* (the reason)
  (c) *Udharana* (an example)
  (d) *Upanaya* (an application)
  (e) *Nigamana* (the conclusion)
- **Anumana** is of five types -
  (a) *Svarthanumana*
(b) Parathanumana
(c) Purvavat
(d) Sheshavat
(e) Samanyatodta

- Vyapti means *the state of pervasion or the correlation between two facts.*
- Vyapti is the universal assertion that tells us about the constant and non-conditioned relation between the major term (*sadhyā*) and the middle term (*hetu*).
- Vyapti is of two types -
  (a) Samavyapti
  (b) Asamavyapti
- Hetvabhasa are fallacies in logic. They arise due to failure of fulfillment of the basic fundamentals which define the validity of the middle term *hetu.* The fundamentals are -
  (a) Pakadharmata
  (b) Sapakasattava
  (c) Vipakasattava
  (d) Abadhita
  (e) Aviruddha
- The failure in any of the basic fundamentals give rise to the following *hetvubhasas* or fallacies -
  (a) Savyabhichara
  (b) Viruddha
  (c) Satpratipaka
  (d) Asiddha
  (e) Badhita