There are claims.

Writing a claim is called climing it. Claims could be valid. Claims that are other than valid are called invalid. Climing a claim is claiming it to be valid. These are all to be regarded as semantical rather than logical statments. The significant point is that just because a claim is claimed doesn’t mean that it is valid only that we say it is valid. But in our logic this distinction don’t really exist.

1. Principle of assingment

They could be notated arbitrarily by p,q,r,s,t. Proclaiming that the same letter notate the same statement.

1. principle of recursion

we could put a sequence of claims and relations inside () and that sequence could be treated the same as a claim. The single symbol claim is an atomic claim, while the sequence is a complex claim

There are claims that we take to be self-evidently valid, these we call premises and denote with

As a matter of principle we endevour to make logical system with the minimum possible premises. Major or independent premises we call Axiums.

# The deduction relation

Meaning: a *deductive claim* take two claims. Claiming the deduction is caliming there could be no situation where the left one is valid and the right is invalid.

Any claim on the left side of a deduction is called a premise, any claim on the right is called a conclusion.

**Axium of self validity**

Deduction is reflexive

# The deductive And

Meaning: the *deductive and* takes two claims and lists them as one claim.

1. Principle of listing: sematicaly *and* let us list more than one claim, claiming two claims is the same as claiming the *anding* of them.

In other words if two claims are valid than their *list* is valid as well.

This is here proclaimed in english since the only way to claim two claims in our symbolic language is with *and*. So for instance is intuitively understandable, but actually meaningless.

Listing will be the defining quality of *and*.

Qualities of the *deductive and:*

Because of the arbitrarity in the principle of assignment also

*Anding* is reducable, commutative and one-way associative

This reducability of *and* gives us the most fundemental asymetry of deduction.

**Axium of transfer**

Deduction is transitive

A claim is proven if it shown to algebricaly follow from valid claims. A proven claim is valid.

We use deduction to force a right valid claim from a left valid claim. By using the transitivity of deduction we could esseintialy build a tree of valid claims from previous valid claims.

Reduction doesn’t care about order

# Some basic tools for proof

**Axium of Acumulation**

This is required for any complex proof. Any conclusion we reach can be used to deduce a further conclusion because the axium of transfer, but if we want to use more than one conclusion we have to list them. This axium tell us that we are allowed to do just that.

1. Principle of eternal valids: from any claim we can deduce itself *listed* with a claim that always is valid. (such that it include all the premises it required for itself)

In this way if s is an axium or a proved deduction than:

An *and* conclusion could be seperated

By applying it to iteself

An *and* conclusion could be reduced

# The equivalence relation

Meaning: an equivalance claim take two claims. There could be no situation where one claim is claimed while the other couldn’t be claimed.

Defnition:

We can use this defenition to shorten itself:

In other words: Equivalance is equivalent to deduction of two claims in both directions

Equivalance is one-way commotative.

Equivalance is transitive.

Some of the axiums we received so far could be self-evidetly extended, by the principles of assignment and listing, from one-way deduction to equivalence:

The axium of self truth:

(This is also to say that equivalence is reflexive)

The qualities of *and*

commotativity

and associativity, goes in both ways.

And finaly the commotative quality of equivilance itslef:

Now transferability is naturaly one-sided. There’s also tranferability of deduction and equivalence toghether with the weaker one-side relation inhereting

And equivalence is also transitive alone

To sum up

Deduction is

* Reflecsive
* Transitive

The deductive and is

* Reducible
* Commutative
* Associative

Equivalance is

* Reflecsive
* Transitive
* Symetric