There are claims.

When they are written by themselves they are claimed.

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

# The deduction relation

Meaning: a *deductive claim* take two claims. There could be no situation where the left one is claimed and the right couldn’t be claimed.

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

**Axium of self truth**

Deduction is reflexive

# The deductive And

Meaning: the *deductive and* list claims togheter

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.

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:*

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

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

**Axium of transfer**

Deduction is transitive

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 truths: we can deduce from any premise itself, listed with any axium or deduction that was already proved (such that it include all the premises it required for itself)

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

That’s a problem

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