Ingredients

Possible individuals
A = {  ,  , … }

Possible situations
S = { s25, s37, s219, … }

Relations between them

Lexical entries:

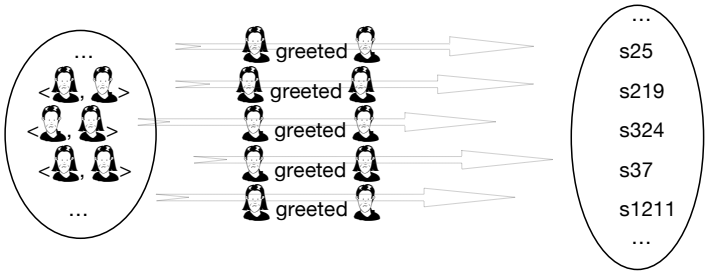
for names:

[[*Judith*]] = 
[[*Michael*]] = 
in general: [[*Name*]] = a member of the set A (possible individuals)

for verbs:

[[*begrüßte*]] = { <  ,  , s25>, <  ,  , s37>, <  ,  , s219>, … }

"draw an arrow from a pair of individuals to a situation, whenever the situation is such that the first member of the pair greeted the second one"



in general: [[*Vi*]] = R, where R is a subset of A x S
[[*Vt*]] = R, where R is a subset of A x A x S

Syntactic structure

Semantic composition rules

- Composition Rule One
- Composition Rule Two

The composition rules tell us how to combine (two) meanings of constituents that we already know to a new meaning, the meaning of the constituent consisting of those constituents.

Composition Rule Two tells us how to combine sets of triples (that are subsets of A x A x S) with individuals. We can use it to combine transitive verb meanings and object meanings (if the object is a proper name) to obtain VP meanings.

Composition Rule One tells us how to combine sets of pairs (that are subsets of A x S) with individuals. We can use it to combine VP meanings with subject meanings (if the subject is a proper name) to obtain sentence meanings.

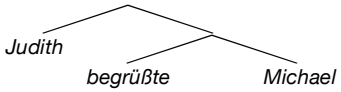
Set theoretic principles

- Comprehension Principle

Sentence meanings

Now we will use those ingredients to try to derive the meaning of sentences, f.i. *Judith begrüßte Michael*. i.e. we want to find out what [[*Judith begrüßte Michael*]] is.

Lets assume that syntax gives us the following structure:



First we look up the meaning of the words in our lexicon:

[[*Judith*]] =  , [[*Michael*]] = , [[*begrüßte*]] = { <a,b,s> | a greeted b in s }

Now we see that the VP tree matches composition rule two, since [[*Michael*]] is a member of A and [[*begrüßte*]] is a subset of A x A x S. Hence we know how to put them together and can derive the VP meaning: [[*begrüßte Michael*]] = { <a,s> | a greeted in s }

Now composition rule one tells us what to do with relations that are subsets of A x S and individuals, so we can put the VP meaning together with the subject meaning: [[*Judith begrüßte Michael*]] = { s | greeted in s }.