1. Geben Sie jeweils ein nicht im Kurs erwähntes Beispiel für die folgenden Begriffe:
   - Hyponym
   - Synonym
   - Antonym
   - Entailment (logische Folgerung)
   - Äquivalenz
2. In vielen Fällen gibt es einen Bezug zwischen Hyponymie von Wörtern und Entailment zwischen Sätzen:
   Nimm an, [... α ...] ist ein Satz,
   und β ist ein Hyponym von α,
   dann ist [... β ...] ein Entailment (ein Satz-Hyponym) des Satzes [... α ...].
   Beispiel: *Schnautzer*ist ein Hyponym von *Hund*;
   daher ist *Manfred hat einen Schnautzer* ein Satz-Hyponym
   von *Manfred hat einen Hund*
   Aufgabe: Finden Sie Beispiele, für die diese Beziehung NICHT gilt!
3. Angenommen, wir haben eine gute Theorie der Bedeutung von Aussagesätzen wie *Es regnet.* Wir können daraus eine Theorie von Entscheidungsfragen wie *Regnet es?* entwickeln. Als Bedeutung einer solchen Frage könnten wir z.B. annehmen: “Der Sprecher will wissen, ob der Aussagesatz *Es regnet* wahr ist oder nicht.”
   Wie kann man in ähnlicher Weise eine Theorie für Ergänzungsfragen und Befehle entwickeln? Diskutieren Sie das mit den Beispielen *Du isst einen Apfel, Was isst du?* und *Iss einen Apfel!*
4. Diskutieren Sie drei im Kurs nicht erwähnte Beispiele von mehrdeutigen Wörtern daraufhin, ob es sich um eine echte Ambiguität oder eher um eine Polysemie handelt.
5. Diskutieren Sie drei im Kurs nicht erwähnte Beispiele von vagen Wörtern, und gib Argmente dafür, dass es sich tatsächlich um Vagheit und nicht um Ambiguität handelt.
6. Beschreiben Sie die Lesarten der folgenden ambigen Sätze:
   a. *Das alles passt nicht in diese Schachtel.*
   b. *Siegfried hörte den Vogel im Wald.*
   c. *Flying planes can be dangerous.*
7. Diskutieren Sie drei Beispiele von strukturell ambigen Sätzen, wenn möglich echte Beispiele. Werbetexte sind oft eine sehr gute Quelle hierfür.
8. Diskutieren Sie drei Beispiele von kontext-sensitiven Ausdrücken, und beschreibe die Art der Kontext-Sensitivität.
9. Das Kompositionalitätsprinzip besagt, dass die Bedeutung eines komplexen Ausdrucks sich ableiten lässt aus der Bedeutung seiner syntaktischen Teile. Warum ist das ein plausibles Prinzip für menschliche Sprachen, vor allem, was ihre Erlernbarkeit betrifft? Gibt es Ausnahmen dazu? Stellen diese ein prinzipielles Problem für die Erlernbarkeit dar?
10. Der folgende Satz enthält zwei Bedeutungskomponenten, nämlich (i) dass Maria gekommen ist, und (ii) dass jemand anderes gekommen ist.
    Maria ist auch gekommen.
    Welche dieser Bedeutungskomponenten ist eine Präsupposition?

Hausaufgabe 2

1. Let A = {1, 2, 3, 4}, B = {4, 5, 6, 7}, U (Universe) = {x| 0 ≤ x ≤ 10}
   a) What is A ∩ B, A   B, A ¾ B, A′, A (B′)?
   b) What is {{a,b,c}, {{a,b},c}, {b,c,d}}?
   c) What is ∩{{a,b,c}, {{a,b},c}, {b,c,d}}?
   Specify these sets by enumeration!

2. Define "∩", using the set-theoretic notions of , and ′.
   That is, give an equation A ∩ B = ..., where "..." does not contain the "∩"-sign.

3. Define " ", using the intersection operation and equality.

4. Prove that ((A   B)′   (A′ ∩ B′)′)′ = Ø, using set-theoretic laws.

5. The set-theoretic laws concerning   and ∩ seem to be related to the laws of arithmetics concerning + (addition) and • (multiplication). For example, + is commutative, as we have a+b = b+a.
   Compare the set-theoretic laws with the basis arithmetic laws and note similarities and differences. (Do this with commutativity, associativity, distributivity and idempotency).

6. How many possible relations are there from a set A to a set B, in terms of #(A) and #(B)? Hint: Recall that every relation from A to B is a subset of the Cartesian product A × B, and that every subset of A × B is a relation from A to B. So the question is, how many subsets are there in A × B.

7. Write out the triple 1, 2, 3 as a set, using the definition of triples in terms of tuples (pairs), and the definition of tuples in terms of sets.

8. Are the following relations functions with domain {1,2,3,4}?
   a. { 1, a , 2, b , 3, c , 4, d }
   b. { 1, a , 2, b , 3, c , 4, c }
   c. { 1, a , 2, b , 3, c , 3, d }
   d. { 1, a , 2, b , 3, c }
   e. Which of the above is a one-to-one correspondence between the set {1,2,3,4} and the set {a,b,c,d}?

1. Reduce the following lambda-terms as far as possible:
   a) λx[the mother of x](Joseph)
   b) λx[the mother of (λy[the father of y](x))](Joseph)
   c) λx[λy[the mother of y](x)](Joseph)
   d) λx[λy[λz[z gave x to y]]]("Ulysses")(John)(Mary)

10. Assume that the meaning of *spouse*, ⟦*spouse*⟧, is a function that maps (married) people to their spouses (which assumes monogamy!), and that the meaning of ⟦*mother*⟧ is a function that maps people to their mother.
    Define the meaning of *mother in law* in terms of the meaning of *spouse* and *mother*, using the lambda notation.

11. Reduce the following lambda terms as far as possible. Notice that hese are lambda terms that take functions as their arguments; I have used "f", "g" etc. as variables over functions.
    a) λf[f(3)](λy[5+y])
    b) λf[f(3)(4)](λxλy[x+y])
    c) λfλgλx[g(5)(f(2)(x))](λxλy[x+y])(λxλy[x-y])(8)
    d) λf[λx[the mother of f(x)](Joseph)](λx[the father of x])

12. Give the characteristic functions χ , $\chi_{\{1,3\}}$, $\chi_{\{3,4\}}$, and $\chi_{\{1,2,3,4\}}$, that is, the characteristic functions of the sets Ø, {1, 3}, {3, 4} and {1, 2, 3, 4}, with respect to the universe {1,2,3,4}. Specify them as sets of pairs, or in a notation using arrows.

13. Specify the following functions as sets of pairs, with respect to the universe {1,2,3,4}.
    a. $\chi_{\{1,3\}} \quad \chi_{\{3,4\}}$
    b. $\chi_{\{1,3\}} \cap \chi_{\{3,4\}}$
    c. $\chi_{\{1,3\}} - \chi_{\{3,4\}}$

14. a. Give the functions λx {a,b,c,d}[x {b,c}] and λx {b,c,d,e}[x {c,d}] as sets of pairs.
    b. Give λx {a,b,c,d}[x {b,c}] λx {b,c,d,e}[x {c,d}] as a set of pairs.
    c. Give λx {a,b,c,d}[x {b,c}] ∩ λx {b,c,d,e}[x {c,d}] as a set of pairs.
    d. Give λx {a,b,c,d}[x {b,c}] — λx {b,c,d,e}[x {c,d}] as a set of pairs.

15. a. What is λx {a,b,c}[x {b,c}] λx {d,e,f}[x {d,e}]?

16. a. What is λx {a,b,c,d}[x {b,c}] λx {a,b,c,d,e}[x {b,c,d}]?
    b. What is λx {a,b,c,d}[x {b,c}] λx {b,c,d,e}[x {b,c,d}]?

17. We can give the meaning of *child* as the following function that takes two arguments x, y and maps them to 1 if y is a child of x: ⟦*child*⟧ = λxλy[y is a child of x].
    We can give the meaning of *grandchild* in the following way:
    ⟦*grandchild*⟧ = λxλy[there is a z with ⟦*child*⟧(z)(y) and ⟦*child*⟧(x)(z)],
    that is, y is a grandchild of x iff there is a z such that y is a child of z, and z is a child of x.
    Define, in a similar way:
    a. ⟦*uncle*⟧, with the help of ⟦*parent*⟧ and ⟦*brother*⟧;
    b. ⟦*niece*⟧, with the help of ⟦*sibling*⟧ and ⟦*daughter*⟧;
    c. ⟦*cousin*⟧, with the help of ⟦*parent*⟧ and ⟦*sibling*⟧.

Hausaufgabe 3

1. Geben Sie syntaktische Analysen der folgenden Sätze von Toy-English, indem Sie Phrasenstrukturbäume zeichnen; wenn ein Satz strukturell ambig ist, zeichnen Sie bitte einen Strukturbaum für jede mögliche Struktur.
   a. *It-is-not-the-case-that Molly loves Leopold.*
   b. *Molly snores or Leopold sleeps and Stephen snores.*
   c. *It-is-not-the-case-that Molly snores or Leopold sleeps.*

2. Leiten Sie die Bedeutung des folgenden Satzes ab:
   Molly hates Leopold
   Verwenden Sie die Interpretationsregeln für Toy-English, angereichert mit dem transitiven Verb *hate.* Nehmen Sie an, dass Molly Leopold nicht hasst.

3. Leiten Siedie Bedeutung des folgenden Satzes ab, unter der Annahme, dass Molly Leopold nicht liebt.
   It-is-not-the-case that Molly loves Leopold.

4. Leiten Sie die Bedeutung(en) der folgenden Sätze ab, unter der Annahme, dass Leopold schläft und Stephen schnarcht.
   Molly snores or Leopold sleeps and Stephen snores.
   It-is-not-the-case-that Molly snores or Leopold sleeps.

5. Erweitern Sie die Grammatik von Toy-English um das ditransitive Verb *gives* (in Verwendungen wie *Leopold gives Molly 'Moby-Dick'*, wobei der Name *'Moby-Dick'* für den Roman von Melville steht). Das heißt, spezifizieren Sie die syntaktische Regel(n), die für *gives* nötig sind, die korresopondierenden semantischen Regel(n), und die Interpretation von *give*. Leiten Sie abschließend die Bedeutung des Beispielssatzes *Leopold gives Molly 'Moby-Dick'* her.

6. Tun Sie nun dasselbe in einer Version von Toy-English, in welcher wir eine globale Regel für kompositionale Interpretation annehmen (die Funktionsapplikation). Argumentieren Sie mit dem Beispiel *Leopold gives Molly 'Moby-Dick'*, weshalb ein modularer Ansatz einem regel-basierten Ansatz vorzuziehen ist.

7. Auf S. 39 haben wir eine alternative Interpretation von Sätzen diskutiert, in der Sätze als Mengen von möglichen Welten interpretiert werden, oder als charakteristische Funktionen von solchen Mengen. Geben Sie eine Interpretation der Bedeutungen von *and*, *or* und *it-is-not-the-case-that* in diesem Interpretationsansatz. Leiten Sie die Bedeutungen des folgenden Satzes ab (wobei Sie die Bedeutungen der einfachen Sätze, *Molly snores* und *Leopold sleeps*, als gegeben annehmen können).
   It-is-not-the-case-that Molly snores or Leopold sleeps.

8. Leiten Sie die Bedeutungen des folgenden Satzes her:
   Molly doesn't snore or Leopold sleeps.
   Vergleichen Sie diese Bedeutungen mit den Bedeutungen von *It is not the case that Molly snores or Leopold sleeps*. Warum gibt es einen Unterschied?

9. Im Unterricht haben wir Koordinationen durch Bäume mit drei Tochterknoten behandelt, nach der Regel S → S Conj S. Nehmen Sie jetzt eine Theorie an, nach der Strukturen mit zwei Tocherknoten entstehen, nach der Regel S → S S′, S′ → Conj S.
   Geben Sie die syntaktische Struktur und die semantische Interpretation des Satzes *Molly sleeps and Leopold snores* unter dieser Analyse an.

10. In der natürlichen Sprache können nicht nur Sätze koordiert werden, sondern auch VPn:
    Leopld sleeps and snores.
    Molly loves Leopold or hates Stephen.
    Aufgabe: Erweitern Sie die Syntax und Semantik von Toy-English, um diese Art von Koordination zu behandeln. Verwenden Sie dafür eine Regel, in der koordinierte Strukturen drei Tochterknoten haben. Zeigen Sie an dem Beispiel *Leopold sleeps and snores*, wie die Ihre Grammatik diesen Fall behandelt.

Hausaufgabe 4

1. There is a formal language for statement logic without parentheses, the so-called “Polish notation”. The connectives are N (negation), A (alternation, i.e. disjunction), K (conjunction), C (conditional) and E (equality, i.e. biconditional). For example, instead of ¬p, we write Np, and instead of [p   q], we write Kpq. The formula [¬p   q] will be written as KNpq, whereas ¬[p   q] will be written as NKpq.
   a) Translate the following SL-formula into Polish notation:
      ¬[[p   q] → [¬p   q]].
   b) What is special about Polish notation that allows it to work without parentheses? Can you give a reason why it didn’t become the standard notation?

2. Compute the truth value of the following formulas for all possible truth values of the atomic statements.
   a) [[p   ¬q] → [¬p ↔ q]]
   b) [[p   [p → q]] → q]

3. Do the same for the following formula: [[[p → q]   [q → r]]   ¬[¬p   r]]

4. Which of the following formulas is a tautology or a contradiction?
   a) [p   q]   [¬q   ¬p]
   b) [p → q]   ¬[¬p   q]
   c) [p ↔ q] → [¬p ↔ ¬q]
   d) [[¬p   [q → p]] → ¬q]

5. There is a two-place connective ‘½ called "Sheffer stroke" with the following truth table:

Φ	Ψ	[Φ½Ψ]
1	1	0
1	0	1
0	1	1
0	0	1

   Task: Define ‘¬’ and ‘ ‘ in terms of ‘½ only. (Notice that if you can define those operators, you could define all other operators of statement logic, as we have seen in class.)

6. a) One famous law of logical inference is the so-called “Modus Ponens”. It says that from the premises [Φ → Ψ] and Φ we can infer that Ψ. Show that Modus Ponens is indeed valid, that is, show that [[Φ → Ψ]   Φ]   Ψ is a valid inference.
   b) Another famous law of logical inference is called “Modus Tollens”. It says that from the premises [Φ → Ψ] and ¬Ψ we can infer that ¬Φ. Show, as above, that Modus Tollens is indeed valid.

7. We have seen that the laws of the set-theoretic operations of union, intersection and complement hold for the connectives of statement logic, like conjunction, disjunction and negation.
   a) Prove that the law of distributivity holds for statement logic.
   b) Prove that de Morgan’s law holds for statement logic.

8. Derive the syntactic structure and the semantic interpretation of the following sentence, using the syntactic and semantic rules developed in chapter 5:
   The fly is in the soup.

Hausaufgabe 5

1. Specify the syntactic structure and derive the meaning of the expression *juicy sweet apple*, in a step-by-step way, following the rules we have developed in class for attributive adjectives.

2. Predicative adjectives can be conjoined by *and* and *or*, as in *The apple is juicy and sweet*. Specify the syntactic structure and derive the meaning of this sentence in a step-by-step way; you don't have to derive the meaning of *the apple* and can assume that ⟦*the apple*⟧ = . You will have to add rules for the coordination (conjunction) of predicative adjectives to our grammar.

3. We can also conjoin attributive adjectives, as in *juicy and sweet apple* (in English, conjunction of attributive adjectives is often not expressed overtly, as in *juicy, sweet apple*). Specify the syntactic structure and derive the meaning of *juicy and sweet apple*. Again, you will have to add rules to our grammar, this time for the coordination of attributive adjectives.

4. We have seen that adjectives like *tall* cannot be interpreted as intersective.
   There is a meaning difference between the following two complex nouns:

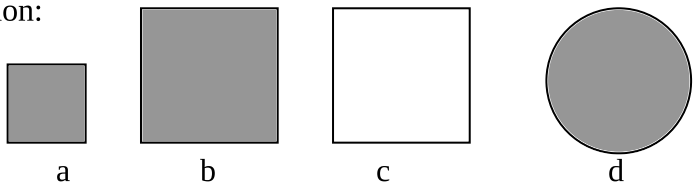
   a. *tall eight-year old boy* 'eight-year old boy that is tall (for an eight-year old boy)
   b. *tall, eight-year old boy* 'boy that is eight years old and tall (for a boy)'

   Show that these meaning differences are captured by our grammar, by deriving the meanings of (a) and (b) in a step-by-step way.

5. Derive the meaning of the sentence *Molly doesn't like the guest*, in a step-by-step way. (Don't forget to specify the presupposition, i.e. the condition under which the meaning of the sentence is undefined).

6. In class we claimed that a sentence like *The dog barked* has the **presupposition** that there is exactly one dog. Show that this is indeed a presupposition, using one of the tests for presuppositions mentioned in the introduction, "Some elementary semantic notions".

7. Consider the following situation:



   a. In this model, what is the meaning of ⟦*square*⟧ ? That is, specify a function that maps an individual to 1 iff it is a square. You should use the arrow notation, and you can refer to the geometrical figures by the letters.
   b. What is the meaning of ⟦*large*⟧ as a predicative (postcopular) adjective?
   c. What is the meaning of ⟦*large square*⟧ ?
   d. What is the meaning of ⟦*large white square*⟧?

8. With respect to the same situation, answer the following questions:
   a. What is the meaning of ⟦*the large white square*⟧ ?
   b. What is the meaning of ⟦*the large square*⟧ ?
   c. What is the meaning of ⟦*the large white circle*⟧ ?

9. With respect to the same situation, what is the meaning of ⟦*the*⟧? Use the arrow notation.

10. With respect to the set {a,b} as the domain of entities, what is the meaning of ⟦*large*⟧ as an attributive (adnominal) adjective? (Recall that this is a function from predicates to predicates). Use the arrow notation.

Hausaufgabe 6

1. Specify the syntax and derive the meaning of *the sister of the father of Molly*, following our analysis of relational nouns.

2. Specify the syntax and derive the meaning of the sentence *Molly has snored*, along the lines we discussed in the section on X-bar theory. You can give an informal account of the meaning of the perfect auxiliary, *has*.

3. Let A be an expression of type e, B of type et, C of type (et)et, and D of type (et)t. Determine whether the following expressions are well-formed, and if yes, give the type of those expressions:

a. A(B)	b. C(B(A))	c. C(B)	d. C(B)(A)
e. D(B)	f. D(B)(A)	g. D(C(B))	h. C(C(B))(A)

4. Give the types of the subexpressions marked by "?", assuming that the examples are well-formed.

a. A(B),	A: (e(et))t,	B: ?	A(B): ?	
b. A(B),	A(B): (et)et,	B: et,	A: ?	
c. A(B)(C),	A: ((et)t)(et)et,	B: ?,	C: ?,	A(B)(C): ?
d. A(B)(C),	A(B)(C): et,	A(B): eet,	B: (et)t,	A:? C:?
e. A(B(C))	A(B(C)): e	B: (et)t	A: ?	C: ?

f. Is it possible to assign types to A, B and C in such a way that both A(B(C)) and A(B)(C) are well-formed expressions?

5. Assume that intransitive verbs are of type et, and transitive verbs are of type eet.
   a) What is the type of *and* as a conjunction of intransitive verbs, as in *John* [*sleeps and snores*]?
   b) What is the type of *and* as a conjunction of transitive verbs, as in *John* [*read and enjoyed*] *"Ulysses"*.
   c) What is the type of an adverb *quickly* in a sentence like *John* [*walked quickly*]?
   d) What is the type of the preposition *with* in the sentence *John* [*walked* [*with* [*Mary*]]]?
   e) What are the types of *faster* and *than* in *John* [*walks* [*faster* [*than Mary*]]]?

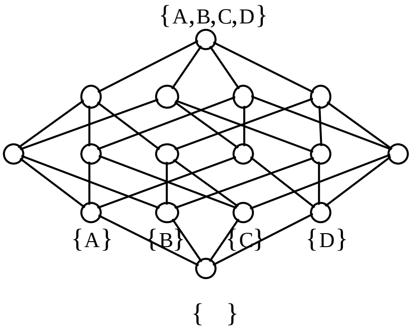
6. We have seen in class that there are different conventions for naming types.
   a. Translate the following three type names to type names using the convention of angled brackets:
      eeet, (et)et, ((et)et)(et)et
   b. Translate the following three type names to type names using the convention of parentheses:
      e,t , e, e,t , e,t , e,t , e, e, e,t , e,t ,t , e,t ,t , e,t

7. Give one natural-language example for each of the following notions (examples we haven't had in class, please):
   a. intersective (cardinal) determiner
   b. proportional determiner
   c. presuppositional determiner
   d. vague determiner

8. a. Show that the determiner *at most three* is extensional.
   b. Define the meaning of an (artificial) determiner that is not extensional.
   c. Show that the determiner *at most three* is conservative.
   d. Define the meaning of an (artificial) determiner that is not conservative.

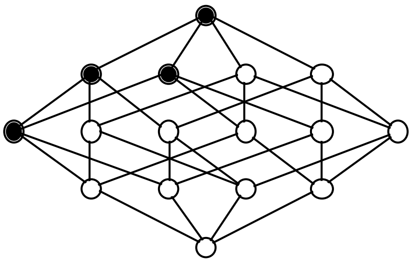
9. e. Show that the determiner *at most three* is intersective.
   f. Show that the determiner *most* is not intersective.
   g. Show that the determiner *at most three* is quantitative.
   h. Show that the determiner *Mary's* is not quantitative.

10. [See next page.]

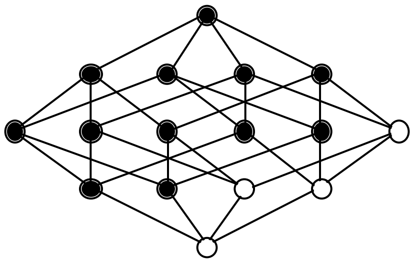


This is the Hasse diagram of the subsets of the universe {A, B, C, D}.
Assume that A and B are the girls, C is a boy, and D is a dog.

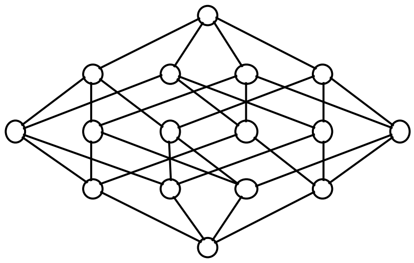
Specify the meanings of the quantifiers, by darkening the sets to which they apply. As an example I already gave the solution for *every girl* and *some girl.*



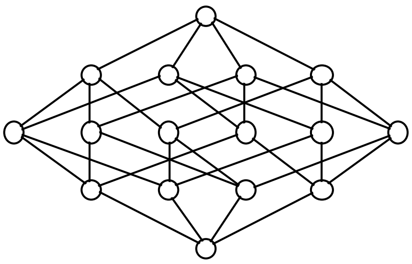
⟦*every girl*⟧



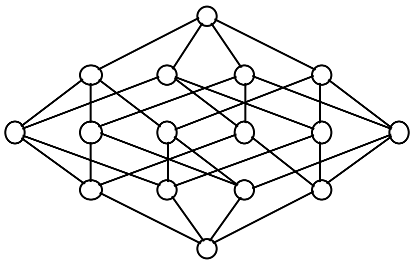
⟦*some girl*⟧



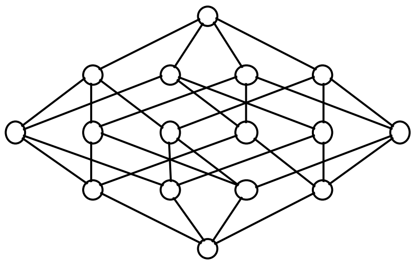
⟦*every child*⟧



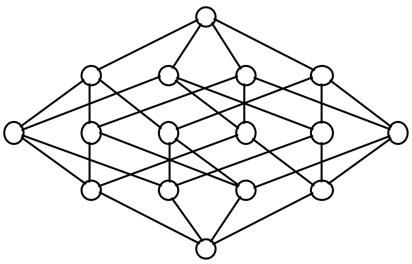
⟦*two children*⟧



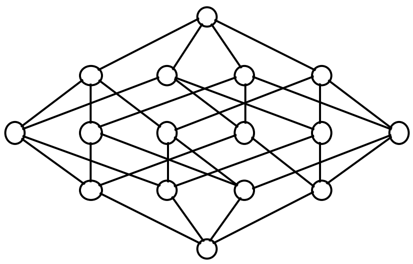
⟦*exactly two children*⟧



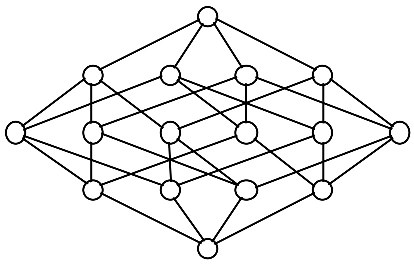
⟦*fewer than two children*⟧



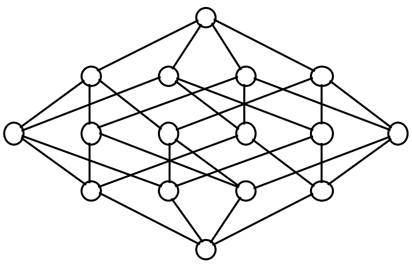
⟦*no girl*⟧



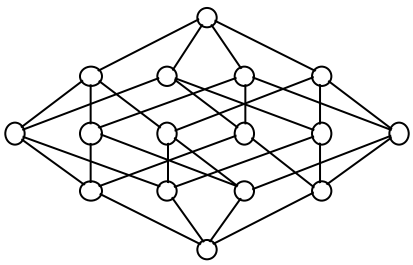
⟦*an even number of children*⟧



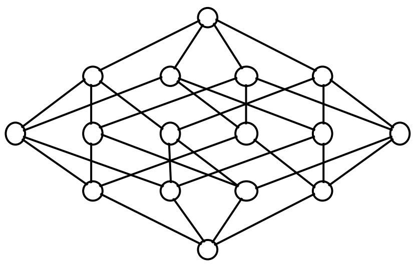
⟦*an odd number of children*⟧



⟦*a boy and a girl*⟧



⟦*the dog*⟧



⟦*the girl*⟧

Hausaufgabe 7

Aufgaben 7 – 10 von Hausaufgabe 6

1. Specify the meaning of the determiner *exactly one* for a universe with two objects {a, b}, as a function that maps pairs of subsets of {a, b} to truth values, that is, in the same way as we specified the meaning of *every* for this universe in class.
2. A determiner D that satisfies the property D(X, Y) ⇔ D(Y, X) is called **symmetric**.
   a. Show that every intersective quantifier is symmetric.
   b. Define an (artificial) determiner that is symmetric, but not intersective.
3. We can conjoin two names by *and* and *or*, as in the following example:

   Molly and Leopold slept.

   Show how the meaning of *and* as a quantifier coordination can deal with this sentence, and derive its meaning.
4. The normal way to verify a universal statement like *Every raven is black* is to inspect each raven and check if it is black. But philosophers have discovered that we can also inspect each non-black thing and check whether if it isn't a raven.
   a. Show (e.g., with the help of a Venn diagram) that the two procedures are indeed equivalent.
   b. Explain why the second procedure strikes us as odd, using notions developed in Generalized Quantifier theory.

Hausaufgabe 8

1. Find 3 examples of negative polarity items in your native language and give the necessary data that show that they are negative polarity items. Provide English glosses for non-English data

2. Find another type of syntactic context not mentioned in class in which a negative polarity item like *ever* can occur. Discuss whether it fits Ladusaw's Generalization that NPIs only occur in downward-entailing positions.

3. We have characterized the sum operation   as idempotent, commutative, and associative. Which of these assumptions is problematic when confronted with natural readings of each of the following examples. (For those of you who are historically challenged: At the battle of Waterloo, Napoleon fought on one side, and Wellington and Blücher on the other).
   a) *Napoleon and Wellington and Blücher fought against each other.*
   b) *John and Mary are eleven and thirteen years old, respectively.*

4. We have seen that certain cases of *and* have to be represented by sum formation   , for example, in the collective reading of sentence (a). In this case, the meaning of *and* is of type eee. There are certain cases in which two predicates are conjoined by *and*, yielding something like a collective reading, as in (b). Clearly, (b) does not mean that the Austrian flag is red, and that the Austrian flag is white. It means that it is part red and part white.
   a) *John and Mary carried the piano upstairs.*
   b) *The Austrian flag is red and white.*
   Task: Specify a meaning of *and* that gives the right reading for (b). You can assume that the part relation ≤ holds for ordinary individuals as well. E.g., if a is the Austrian flag, and x ≤ a, then x is a part of the Austrian flag.

5. The following examples contain a so-called reciprocal anaphor, *each other.*
   (i) *John, Mary and Bill like each other.*
   (ii) *The children like each other.*
   a) What is the meaning of *like each other* that, when applied to a sum individual like the meaning of *John, Mary and Bill*, yields the correct interpretation?
   b) What is the meaning of *each other* that, when applied to a two-place predicate such as *like*, yields the meaning of a one-place predicate *like each other*?

6. a) Draw a Hasse diagram of the universe of a model for plural reference with four atomic individuals m, j, b, s.
   b) Assume that j, b, and s fall under the predicate *student.* Illustrate the meaning of *students*, in the diagram.
   c) Illustrate the meaning of *two students.*
   d) Illustrate the meaning of *three students.*
   e) Illustrate the meaning of *the students.*
   f) Illustrate the meaning of *the three students*, and show that *the two students* and *the four students* are not defined.

Hausaufgabe 9

---

1. So called "classifier languages" lack the singular/plural distinctions with nouns that we find in English. Also, number words cannot be combined with nouns directly, but only with a classifier. The following list shows a few Chinese examples:

shu	'book', 'books'
yi ben shu	'a book'
san ben shu	'three books'

   a) Give phrase structure rules for Chinese nouns like *san ben shu*. There is syntactic evidence that a number word and a classifier form a constituent, e.g. [[*san ben*] *shu*].
   b) Give corresponding meaning rules, give meanings for *shu*, *ben* and *san*, and derive the meaning of *san ben shu* in a step-by-step way. Compare this with how English arrives at the meaning of the synonymous expression *three book -s*.

2. In class we have discussed measure constructions like *three gallons of water*. Observe the following contrast:

sixty gallons of water	**sixty degrees Fahrenheit of water*
twelve ounces of gold	**twelve carats of gold*

   a) What is the property that distinguishes *gallons* and *ounces* from *degree Fahrenheit* and *carats* that may be responsible for this difference?
   b) Give a general semantic characterization of measure constructions in terms of cumulativity and quantization that tells apart the good measure constructions from the bad ones.

3. Mark all coreferences (antecedents and anaphoric elements, including definite NPs) in the following text by coindexing with numbers 1, 2, 3 etc. If the antecedents are complex, underline them. If the same name occurs repeatedly, use the same index.

A Florida man suspected in a nationwide home-repair fraud scheme has been charged with stealing more than $130,000 from an 81-year-old Queens man, the authorities said. The suspect, John Gregg, 22, assured the victim, whom the police did not identify, that he would repair his water-damaged house in May 1998. Investigators said Gregg left the New York area without making those repairs in a fraud scheme that officials suspect he has carried out in other cities across the nation.

The New York Police Department began investigating Gregg after the victim reported him to the city's Department of Consumer Affairs. Detectives began looking into the case, and a number of others in Queens, after Consumer Affairs inspectors went to the victim's home and verified that the waterproofing and repairs that were promised had not been done.

Investigators said Gregg went to the victim's house a number of times in May 1998, suggesting improvements, pretending to make the repairs and then collecting money for the phantom work. Detectives from the Police Department's Special Frauds Squad found Gregg by tracking $137,000 in checks that the elderly man had given him.

Gregg was arrested at a minimum-security federal prison camp at Eglin Air Force Base in Florida, where he was being held on other charges, and he was extradited to New York over the weekend on charges of grand larceny. In the next few days, prosecutors plan to return him to Florida, where he is facing federal charges in similar schemes, said Lt. Robert Both, the commander of the Special Frauds Squad.