3.4Disjunction and Conjunction

3.4.1 DRS construction and interpretation of disjunction

One other construction that has interesting anaphoric properties is disjunction (here we will treat sentence disjunction only). Observe the following data:

(19) a. Pedro owns a donkey$_1$. Pedro loves it$_1$ or Juan loves it$_1$.

b. (*) Pedro owns a donkey$_1$ or Juan owns it$_1$.
[Possible only under specific interpretation: *a particular donkey*]

c. *Pedro owns it$_1$ or Juan owns a donkey$_1$.

d. Pedro loves Chiquita$_1$ or Juan loves her$_1$.

e. *Pedro loves her$_1$ or Juan loves Chiquita$_1$.

(19.a) shows that pronouns in the disjuncts can access previously introduced discourse referents. (b) and (c) show that a pronouns in one disjunct cannot access discourse referents introduced in the other. This is different with names, cf. (d); however, even there cataphora (pronouns preceding their antecedent) is impossible (cf. e).

The accessibility data suggest that disjunction introduces a condition with two disjoint DRSs:

CR.OR:

- Triggering configuration: [$_S$ [$_S\Phi$] or [$_S\Psi$]] as a condition of DRS K.
- Replace triggering configuration by the complex condition $\boxed{[_S\Phi]}$ $\boxed{[_S\Psi]}$
- Apply the DRS construction rules to the left-hand side DRS first.

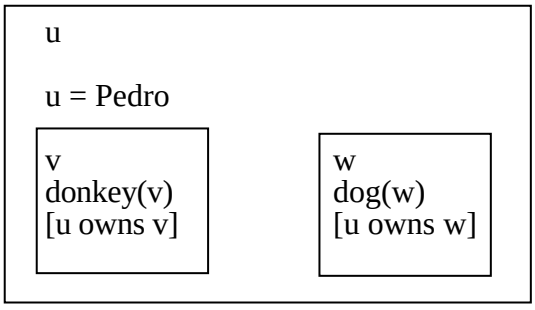
Kamp & Reyle 1993 do not have the third condition; but something like it is necessary to exclude cases like (19.e).

Accessibility: The disjunctive DRSs are not subordinated to each other, but are subordinated to the DRS that contains them.

(20) [$_S$[$_S$Pedro owns a donkey] or [$_S$he owns a dog]]

Using CR.OR, CR.PN, CR.ID and CR.PRO we arrive at the following DRS:

(21)



The interpretation of disjunctive conditions is as expected:

g verifies a condition K_1 K_2 in M iff either g verifies K_1 or g verifies K_2 (or both).

Note that the accessibility relation for disjunctive DRSs can be seen as a direct consequence of its interpretation rule: If the first disjunct is not verified by g, then we have to find out whether the sec-

ond disjunct is. But in order to do that we cannot carry along reference to discourse referents in the first DRS.

(In K&R 1993 you will also find rules for VP disjunction and NP disjunction.)

3.4.2 DRS construction and interpretation of conjunction

The anaphoric possibilities of sentence conjunction are similar to sequences of texts:

(22) a. Pedro has a donkey. He beats it.

b. *Pedro has it_i. He beats a $donkey_i$.

c. Pedro has a donkey and he beats it.

d. *Pedro has it_i and he beats a $donkey_i$.

CR.AND:

- Triggering configuration: $[_S\ [_S\Phi]$ and $[_S\Psi]]$ in a DRS K.
- Replace the triggering configuration by the two conditions $[_S\Phi]$ and $[_S\Psi]$.
- Reduce the condition $[_S\Phi]$ first, then reduce $[_S\Psi]$.

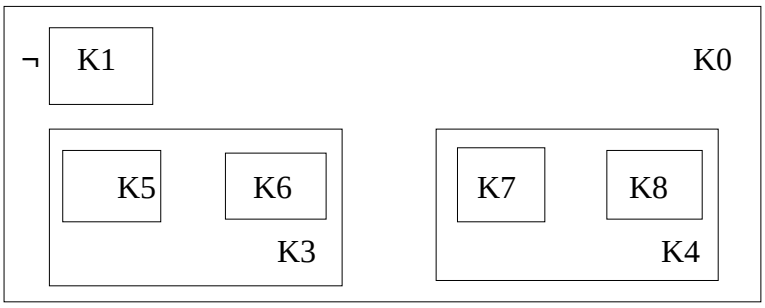
Kamp & Reyle 1993 do not have condition ©, which is special insofar as it invokes the general recursion for DRS construction. Instead, they work with a system of indexing of conditions and a constraint of the general recursion for DRS construction, cf. p. 222 ff.

Exercises:

1. Construct a DRS of the following discourse. That is, assign the proper syntactic structure to the sentences and apply the DRS construction rules. Disregard the words in brackets and disregard tense for simplicity.

   Mary is a student. She borrowed a textbook that belonged to a library. She lost it. She did not find it. Every student who looses a textbook that belongs to a library [*must*] *replace it.* [*Therefore*] *she replaced it.*

2. Take a look at the following complex DRS, given schematically.



   a. Specify all the pairs of DRSs that stand in the accessibility relation.
   b. Give a natural-language discourse that leads to a DRS of the form specified above.

3. Which of the following discourses can be derived in Kamp's theory, with the anaphoric bindings as indicated? If a sentence cannot be derived, then describe, informally, why.

   a) He_1 owns a $donkey_2$. $Pedro_1$ loves it_2.
   b) If he_1 owns a $donkey_2$, $Pedro_1$ loves it_2.
   c) If every $farmer_1$ owns a $donkey_2$, then $Pedro_3$ beats it_2.
   d) If a $farmer_1$ owns a $donkey_2$, then he_1 thrives.
   e) If every $farmer_1$ owns a $donkey_2$, then he_1 thrives.
   f) If $Pedro_1$ doesn't own a $donkey_2$, then he_1 rented it_2.

4. What is remarkable with the following sentence (a so-called "Bach-Peters sentence")? Construct a DRS for it.

   A $farmer_1$ who owned it_2 kicked a $donkey_2$ who hated him_1.

5. Construct a DRS for the following text, following the rules of Kamp and Reyle, and interpret the resulting DRS with respect to the model given below.
   Pedro owns a donkey. He loves it. He does not beat it. Every farmer who owns a donkey does not beat it.
   M = {p, j, d1, d2, d3}, F ,
   F(Pedro) = p, F(farmer) = {p, j}, F(donkey) = {d1, d2, d3},
   F(own) = { p,d1 , p, d2 , j, d3 },
   F(love) = { p, d2 }
   F(beat) = { j, d2 }

6. Construct DRSs for the readings of the following sentence and evaluate them with respect to the model given above, using the rules of Kamp & Reyle.

   Every farmer who owns a donkey does not beat a donkey.

7. Construct a DRS for the following sentence and evaluate it with respect to the specified model.
   Pedro owns a donkey or he does not own a goat.
   M = {p, j, d, g}, F , F(Pedro) = p, F(donkey) = {d}, F(goat) = {g},
   F(own) = { j, d , j, g }

8. Construct the DRS for the following sentence and evaluate it with respect to the model.
   If a farmer owns a donkey or [he owns] a goat, then he is happy.
   M = {p, j, d, g}, F , F(Pedro) = p, F(donkey) = {d}, F(goat) = {g}, F(farmer) = {j, p},
   F(happy) = {p, d, g}, F(own) = { p, g }