

# The Assignment

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Consider the sequence of sentences in (1) and its logical translation (2).

1. Alfred has not done it. There is someone who might have done it. It is Alfred.
2.  $\neg Pa \wedge \exists x \diamond Px \wedge x = a$

Why is 2. incoherent? To show why, we need a couple of concepts. We start with ordered triples  $i = < r, g, w >$  where  $r$  is a referent system,  $g$  a function from the range of  $r$  into some domain of discourse  $D$ , and  $w$  a possible world in  $W$ . These triples are possibilities needed to interpret basic expressions in one's language: constants, variables, predicates. Information states  $s$  are collections of such possibilities. One possibility  $j$  extends another possibility  $i$  iff the range of  $j$  extends the range of  $i$  (in a sense that is intuitively quite clear but would require too much space here to rehearse), the second element (function) of  $j$  is a superset of that of  $i$  and the possible worlds are equal. Similarly, extension is defined for states. A possibility  $j$  in a state  $t$  extending another state  $s$  is a descendant of  $i$  if it extends  $i$ . Moreover, in that case,  $i$  is said to subsist in  $t$  whenever it has at least one descendant in  $t$ , and  $s$  subsists in  $t$  iff all its possibilities subsist in  $t$ . Let us write  $s \triangleleft t$  whenever  $s$  subsists in  $t$ .

What is particularly relevant is the way a state  $s$  is updated with  $\phi$  to derive  $s[\phi]$ . A recursive definition, which I omit here, takes care of that. A state  $s$ , then, supports  $\phi$  iff  $s[\phi]$  exists and  $s$  subsists in  $s[\phi]$ . Finally,  $\phi$  is coherent whenever there is some non-absurd state by which it is supported. There is no need to worry if you are no longer following, 'Coreference and modality' (see below) makes it all nice and clear.

Let  $D = \{d_0, d_1\}$  be a domain of discourse and let state  $s$  collect two possibilities  $i_0$  and  $i_1$  with possible worlds  $w_1$  and  $w_1$  such that  $w_0a = d_0$ ,  $w_0P = \{d_1\}$ ,  $w_1a = d_1$  and  $w_1P = \{d_0\}$ . Define

$$\begin{aligned}s_0 &= s \\s_1 &= s_0[\neg Pa] \\s_2 &= s_1[\exists \diamond Px]s_3 = s_2[x = a]\end{aligned}$$

Then  $s_0 \triangleleft s_3$ , even though it is not true that  $s_2 \triangleleft s_3$ . But why?

Jeroen Groenendijk, Marin [sic] Stokhof and Frank Veltman are the authors of ILLC Research Report LP-95-09 entitled 'Coreference and modality'. About a month after it was published in the preprint series, Jeroen and Martin started teaching a course on 'Intensional and dynamic semantics'. It ran from 10 January to 27 March 1996, convening every Wednesday evening from 6pm to 10pm in de Oude Manhuispoort, Room A.208. The above question is Exercise 1 from a set of assignments for the class of 6 March.

The course began with thorough introduction to intensional propositional and predicate logic, using Gamut's still unsurpassed textbook. Soon the course moved on to more advanced topics, such as rigid designators and the fascinating pronoun *Dthat*. But it was clear from the outset that the ultimate goal of the course was to discuss work in progress in dynamic semantics.

At the time I didn't realise how uncommon the course actually was. I just enjoyed seeing how mathematical and logical reasoning could be applied to linguistic phenomena. I enjoyed the debate in class, I enjoyed the assignments, the homework, the reading. Later I realised how lucky I had been. This hadn't just been a nice class, it had been a unique opportunity for a

second-year undergraduate philosophy student to participate in what was essentially a research seminar.

I realised later how influential Amsterdam dynamic semantics actually was. The day after I arrived in Berkeley to spend a year as a visiting student, I wanted to go to the library. Approaching the entrance, I saw a man unsuccessfully trying to open the door. ‘Closed?’, I asked. He expressed his frustration about the library being closed with only a few days left for the semester to begin, and started a conversation. He asked me where I came from. I answered that I was a philosophy student from Amsterdam. Introducing himself as Stephen Neale, he said ‘Then you must know Stokhof and Groenendijk’.

Of course I do. Without them, to be honest, I wouldn’t be here.

Attempting to answer Exercise 1 and to show that the monologue about Alfred is incoherent was for me my first genuine research experience, however minor. Without this, I would probably have left academia long ago.