How to donkey Dayal's modal *any*.

Kadmon & Landman's (1990) widening analysis of *any* is attractive, but as noted by Dayal (1998), it can't account for a number of things, most importantly, not for *subtrigging*: the fact that whereas *John talked to any woman* is inappropriate (in standard situations), *John talked to any woman who came up to him* is appropriate, and that in such sentences *any* has universal force. Moreover, the last sentence cannot be interpreted as *John talked to a woman who came up to him* with a generic use of the indefinite, because this sentence doesn't have a generic reading. For this reason, Dayal (1998) proposes that *any* denotes a universal quantifier. However, to account for the fact that *Any student in Mary's class is working on NPIs* doesn't really mean the same as *Every student in Mary's class is working on NPIs*, it is claimed to be a special kind of quantifier, because it quantifies over *possible* individuals, and thus receives a kind of generic reading. The intuitions Dayal wants to account for are real, but one wonders whether one could still treat *any* as an existential quantifier (also to enlarge the commonalities between the different uses of *any*). We propose that we can if we analyze *any* as a *counterfactual donkey* (in disguise).

Adopting the limit assumption, Lewis/Stalnaker predicts that counterfactual $\phi > \psi$ is true in w iff $\{v \in [\phi] : \forall u \in [\phi] : v \leq_w u\} \subseteq [\psi]$, where $[\phi]$ denotes the set of possible worlds where ϕ is true. Thus, $\phi > \psi$ is true in w iff ψ is true in all closest ϕ-world to w.

Dynamic semantics (DRT/FCS/DPL) was invented mainly to account for donkey sentences. The meaning of a sentence is thought of as an update of a context represented by a set of world-assignment pairs, where the (partial) assignments are *enriched* if a new variable is introduced by way of an indefinite. As a result, the formula $\exists x[Px] \rightarrow Qx$ is predicted to be equivalent with $\forall x[Px \rightarrow Qx]$, which means that we can account for (standard) donkey sentences in a systematic and compositional way.

But donkey sentences not only show up in indicative mood; we have counterfactual donkeys as well: *If John would own a donkey, he would beat it.* Is it possible to represent our counterfactual donkey abstractly as $\exists x[Px] > Qx$, while still being equivalent with $\forall x[Px > Qx]$? Suppose that we want to interpret this sentence in possibility $\langle w, g\rangle$. The natural context of interpretation of the antecedent is the set $\{\langle v, h\rangle : v \in W \ \& \ h = g\}$.[1] After the interpretation of $\exists xPx$, we end up with a set of world-assignment pairs like $\langle v, h\rangle$ where variable x is in the domain of assignment h, and $h(x)$ is an element of the set denoted by P in world v. Let us denote this set of world-assignment pairs by $/\exists xPx/_g$. To check whether $\exists xPx > Qx$ is true in $\langle w, g\rangle$ we have to select among the possibilities in $/\exists xPx/_g$ those that are closest to $\langle w, g\rangle$, and see whether they also verify Qx. But this means that we need an ordering relation, $\leq^*_{\langle w,g\rangle}$, between world-assignment pairs with respect to possibility $\langle w, g\rangle : \langle u, k\rangle \leq_{\langle w,g\rangle} \langle v, h\rangle$. Fortunately, this ordering can be defined straightforwardly i.t.o. the ordering $\leq_w$ used by Lewis and Stalnaker: $\langle v, h\rangle \leq^*_{\langle w,g\rangle} \langle u, k\rangle$ iff$_{def}$ $h = k \supseteq g$ and $v \leq_w u$. It can be seen easily that now we end up with the happy result that $\exists x[Px] > Qx$ is predicted to be equivalent with $\forall x[Px > Qx]$, and thus that we can account for counterfactual donkeys in a natural and compositional way.[2]

[1] Note: in $\exists x\phi > \psi$, ϕ might contain free variables and that we might restrict W to accessible worlds.

[2] This equivalence holds also for many-ary donkeys, $\exists\vec{x}[\phi(\vec{x})] > \psi(\vec{x})$ is equivalent with $\forall\vec{x}[\phi(\vec{x}) > \psi(\vec{x})]$.

In contrast to Lewis, Stalnaker assumed that indicative conditionals should be treated in the same way as counterfactuals. Interestingly enough, on that view the standard analysis of standard donkey sentences does *not* come out as a special case of our analysis: we predict that for $\exists x[Px] > Qx$ to be true in world w where P has a non-empty extension it is not enough that all individuals in the extension of P also have property Q: it must also be the case for all non-P individuals that they would have property Q, if they had property P. Thus, $\exists x[Px] > Qx$ is *stronger* than $\forall x[Px \rightarrow Qx]$. This last feature suggests that we can think of Dayal's modal *any* as a counterfactual donkey in disguise.[3]

The idea is to translate Dayal's *any* in a (dynamic) Montague-style framework (with connective '>') by '$\lambda P \lambda Q \exists x[Px] > Qx$'.[4] Notice, first, that on such an analysis *Any owl hunts mice* is interpreted as a kind of generic statement, though without exceptions, and that on this analysis *Any farmer who owns a donkey beats it* is treated as a standard (though counterfactual) donkey sentence, without any further problems. Second, on this analysis *Any student in Mary's class is working on NPIs* means something stronger than *Every student in Mary's class is working on NPIs* (it has an extra 'this can't be an accident' meaning), but one doesn't have to quantify over possible individuals. On the other hand, *Anybody is sick* is predicted to mean the same as *Everybody is sick*, but one can account for the inappropriateness of the first by noticing that there is a more standard alternative (the second) with the same meaning. Furthermore, *Yesterday, John talked to any woman* would be an (almost) absurd statement (meaning, for all individuals, if he/she would be a woman, John would have talked to her), while *Yesterday, John talked to any woman he saw (yesterday)* makes sense (for any individual, if (s)he would be a woman seen by John yesterday, John would have talked to her), exactly because the restrictor in the latter example, but not in the first one, is located to the present situation/world. For a similar reason *Any student (who is) in Mary's class happened to vote Republican* is predicted to be inappropriate, because *any* doesn't fit with *happened* in the predicate.

K&L's widening analysis of *any* has also been used for *ever*. But it is unclear how it can account for the latter's use in free relatives as discussed in Dayal (1997) and von Fintel (2000). We suggest to use also here (at least on the indifference reading) a counterfactual donkey analysis. It is quite obvious how we predict the universal reading of 'whatever' in *There's a lot of violence in whatever Parker writes*, while at the same time our analysis immediately accounts for the indifference reading of *Zack simply voted for whoever was at the top of the ballot.* Von Fintel noted that on the indifference reading, the *whatever*-FR does not scope out of an *unless*-clause, but enters the truth conditions at the embedded level: *Unless Zack simply voted for whoever was at the top of the ballot, he must have spend at least 5 minutes in the voting booth.* This is predicted, if *unless* clauses are scope islands.

Selected References:

Dayal, V. (1997) 'Free relatives and 'ever", *SALT 7*. Dayal, V. (1998), '*Any* as inherently modal', *L&P*, **21**: 433-476. Fintel, K. von (2000), 'Whatever', *SALT 10*. Kadmon, N. and F. Landman (1993), 'Any', *L&P*, **16**: 353-422.

[3] Although the term 'counterfacual' is now not completely appropriate anymore.

[4] Perhaps the other non-modal use of *any* (if it exists) should be translated as $\lambda P \lambda Q \exists x[Px \wedge Qx]$.