A Solution to the Proviso Problem: Formal Alternatives, Relevance, and Accommodation

1. The Proviso Problem: Geurts (1996) observes that 'satisfaction theories' of presupposition (eg. Heim 1983) predict that when conditional sentences "if φ, then ψ{X}" (where *X* is the presupposition of ψ) are uttered in contexts that don't admit them, the accommodated proposition should be $\varphi \rightarrow X$ (1a,b,c). But this predicted accommodation is often too weak. Instead, the accommodated proposition is usually just *X* simpliciter. Geurts (1996) calls this 'the proviso problem.' Proponents of the satisfaction theory thus require some *strengthening* mechanism that takes the conditional proposition $\varphi \rightarrow X$ and accommodates the stronger proposition *X*. This paper motivates the need for a formal system governing such strengthening and proposes a particular procedure for accommodating in the desired fashion.

2. An Existing Attempt at a Solution: Beaver (2001) and von Fintel (2006) (hf. BvF) suggest that although the semantics generates $\varphi \rightarrow X$ as what needs to be accommodated, it is common-sense/plausibility reasoning that determines that *X* should be the accommodated proposition. But their proposal raises several questions. First, what determines the set of alternatives for accommodation? Second, what is the metric of plausibility that is being employed? Finally, does the mechanism speak to the observation that *X* is generally the accommodated proposition as opposed to some other strengthening *X'*?

3. The Need for a Formal Theory of Alternatives: When a sentence φ{X} is uttered in a context c not satisfying *X*, the hearer (H) can respond "Hey wait a minute! I didn't know X!" (2a,b). Call this the *Hey wait a minute!* test (hf. HWAMT). Assuming with von Fintel (2004) that the HWAMT probes presuppositions, (3) and (4) show that unrestricted plausibility, as suggested by BvF, cannot be responsible for the accommodation patterns we find. For example, in (3a), it is more plausible that the speaker believes/wants the common ground to contain (3b) than (3c), but the HWAMT (3d,3e) demonstrates that (3c) is the preferred accommodation. (4) argues for the same conclusion, for the target common ground will necessarily contain only worlds where John has a German Shepherd. Note that in each of the examples discussed the accommodated proposition is simply *X*. However, it would not suffice to simply accommodate *X* in all such conditionals, for (5) presupposes the conditional proposition predicted by satisfaction theories. This suggests an hypothesis about alternatives, viz., that H's decision problem is to select between {X, φ →X}. Unfortunately, that doesn't work either, for in (6), a sentence of the form "if φ_1 and φ_2, then ψ{X}," the presupposition is neither *X* nor φ_1 *and* $\varphi_2 \rightarrow X$, but rather $\varphi_1 \rightarrow X$.

4. Syntactically Derived Alternatives and Relevance: Given Heim's (1983) CCP for conditionals "if φ, then ψ" (c\(c + φ\c + φ + ψ)), the interpretation of ψ has ramifications for both the conditional context c + φ *and* the initial context c. +ψ imposes requirements on c + φ (for update to be defined), and since the result of executing +ψ in this context will be fed to the global context c, it is natural to ask: if ψ has presupposition X, should belief in X be limited to the conditional context c + φ, or can it be assumed to hold in c as well? The answer to this question depends on the answer to the following question: is the information in the antecedent *relevant* to belief in *X*? If so, it would seem rational for H to keep belief in *X* within the conditional context (i.e. to accommodate $\varphi \rightarrow X$); otherwise, she may accommodate *X*. Thus, it is the peculiarity of the CCP for conditionals that makes alternative accommodation candidates relevant for interpretation.

Our procedure for generating alternatives uses the syntactic form of the conditional assertion, along with the semantically generated presupposition, to determine a candidate set of propositions for global accommodation. The technical tool that is used to generate the candidate set is a probabilistic measure of *relevance*. If S asserts "if φ_1 and φ_2 and … and φ_k, then ψ{X}," the semantic presupposition is φ_1 *and* φ_2 *and ... and* $\varphi_k \rightarrow X$. The interpreter then asks, for each

antecedent φ_i, whether φ_i is *relevant* to belief in X given the other antecedents and background information k. More formally (Keynes 1921, Carnap 1950), it asks whether $P(X \mid k, \varphi_i) = P(X \mid k)$, i.e. it asks whether φ_i can be eliminated without altering the strength of belief in X. If so, it eliminates φ_i. If $\varphi_1,\ldots,\varphi_r$ are the antecedents that are not eliminated by the above procedure ($0 \leq r \leq k$), then the accommodated proposition is φ_1 *and ... and* $\varphi_r \rightarrow X$ (when r = 0, we simply have global accommodation of *X*).

This takes care of all our examples. In (1), my flying to Toronto has no bearing on whether John has a sister, so we can eliminate it, and thereby accommodate that John has a sister. In (3), the grammar simply has no way of generating (3b). Further, since John's being president is not relevant to whether he has a daughter, we accommodate the proposition that John has a daughter. In (5), John's being a scuba diver *is* relevant to whether or not he has a wetsuit, and so the antecedent can't be eliminated. Thus, the predicted accommodation is the conditional one (*John a scuba diver* → *John has a wetsuit*), as observed. In (6), the first antecedent is relevant, hence not eliminable. The second antecedent is irrelevant, hence eliminable, and we therefore predict the observed presupposition *John a scuba diver* → *John has a wetsuit*.

Note that we make a further prediction. Since our alternatives are determined by the gross syntactic shape of the conditional, we predict that it is possible for two truth-conditionally equivalent sentences differing in syntactic form to give rise to different presuppositions. This is indeed what we find (7a,b,8a,b). The procedure outlined above can generate the conditional *John a truck driver* → *John owns a truck* in (7a), but it is unable to do so in (8a).

5. Final Remarks: The full paper responds to Geurts' (1996) observation that conditional presuppositions generated under factive verbs do not get strengthened, as well as to Beaver's (2001) arguments against structural theories of presupposition, such as the one presented here. Unfortunately, space precludes me from further discussion here.

6. Data

(1a) If I fly to Toronto, John's sister will pick me up from the airport
(1b) X = John has a sister
(1c) If I fly to Toronto, John has a sister
(2a) John's sister loves me
(2b) Hey wait a minute! I didn't know John has a sister!
(3a) If John was president of the USA, then his daughter must have gone to Harvard
(3b) John has a white daughter
(3c) John has a daughter (with no commitment as to her race)
(3d) #Hey wait a minute! I didn't know John has a white daughter!
(3e) Hey wait a minute! I didn't know John has a daughter!
(4) Context: It is common ground that if John has any dog at all, it's a Germen Shepherd (family tradition, say). Thus, having a dog and having a German Shepherd are contextually equivalent.
A: Where's John?
B: If he's not in the back, he's out walking his dog.
A: Hey wait a minute! I didn't know he has a dog!
A: #Hey wait a minute! I didn't know he has a German Shepherd!
(5) If John is a scuba diver, he'll bring his wetsuit
(6) If John is a scuba diver and wants to impress his girlfriend, he'll bring his wetsuit
(7a) If John is a truck driver and he's from Texas, then he parked his truck in the garage.
(7b) Hey wait a minute! I didn't know that John's being a truck driver means he owns a truck!
(8a) If John is a Texan truck driver, then he parked his truck in the garage.
(8b) #Hey wait a minute! I didn't know that John's being a truck driver means he owns a truck!