Free choice and the proper treatment of Q-implicatures

The argument

- According to the Standard Recipe, the derivation of Q-implicatures is driven by alternatives, i.e. sentences the speaker could have used but didn't.
- This works fine for scalar implicatures, but it doesn't generalise very smoothly.
- In particular, it doesn't work at all for free choice inferences.
- Apart from this, the Standard Recipe is not really in the spirit of Grice: it is "too linguistic".
- Instead of an alternative-based approach, we need one that is intention-based.

Preliminary problems

George: What did you have for lunch?
Mildred: I had some of the strawberries.
$\rightsquigarrow$ [1] Mildred didn't eat all the strawberries.
$\rightsquigarrow$ [2] Mildred had some strawberries and nothing else.

In order to account for [2], we would have to assume the following alternatives:

I had some of the strawberries and a pear.
I had some of the strawberries and a banana.
I had some of the strawberries and some porridge.
I had some of the strawberries, a banana, and a biscuit.
I had some of the strawberries, a banana, and two biscuits.
I had some of the strawberries, a banana, and three biscuits.
and so on and on . . .

An intention-based solution

George: What did you have for lunch?
Mildred: I had some of the strawberries.
$\rightsquigarrow$ Mildred had some strawberries and nothing else.

Q: If Mildred believed (knew) that her lunch comprised more than strawberries, would she have said so?

If George's answer to this question is "yes", he will derive a Q-implicature.

Trouble with free choice

Free choice inferences

Permission sentences:

(1) You can have fruit or ice cream.
   $\rightsquigarrow$ You can have fruit.
   $\rightsquigarrow$ You can have ice cream.

Deontic statements:

(2) In this hotel, you can bring your dog or cat.
   $\rightsquigarrow$ In this hotel, you can bring your dog.
   $\rightsquigarrow$ In this hotel, you can bring your cat.

Epistemic modals:

(3) George may be American or Canadian.
   $\rightsquigarrow$ He may be American.
   $\rightsquigarrow$ He may be Canadian.

Free choice inferences

Ability modals:

(4) Betty can balance a fishing rod on her nose or chin.
   $\rightsquigarrow$ She can balance a fishing rod on her nose.
   $\rightsquigarrow$ She can balance a fishing rod on her chin.

Ordinary quantifiers:

(5) Everybody ordered pizza or pasta.
   $\rightsquigarrow$ Some people ordered pizza.
   $\rightsquigarrow$ Some people ordered pasta.

No easy way out

Contrary to what one might think at first, free choice is not simply a matter of interpreting "or" as "and":

(6) You can have fruit or cheese.
$\neq$ You can have fruit and cheese.

(7) George may be American or Canadian.
$\neq$ George may be American and Canadian.

(8) Everybody ordered pizza or pasta.
$\neq$ Everybody ordered pizza and pasta.

Free choice inferences are cancellable

(10) In this hotel, you can bring your dog or cat—I forget which.

$\not\rightsquigarrow$ In this hotel, you can bring your dog.
$\not\rightsquigarrow$ In this hotel, you can bring your cat.

(11) a. You can have fruit or ice cream, but I'm not going to tell you which.
b. George may be American or Canadian, but I'm not allowed to say which it is.
c. Everybody ordered pizza or pasta—I forget which.

Problems for the Standard Recipe

(12) George is American or Canadian.

$\rightsquigarrow$ He may be American.

$\rightsquigarrow$ He may be Canadian.

(13) George may be American or Canadian.

$\rightsquigarrow$ He may be American.

$\rightsquigarrow$ He may be Canadian.

Oddly enough, the Standard Recipe has no problems with (12), but fails rather dramatically with (13).

Preliminary note

In both (14) and (15), the (a) sentences are logically weaker than the (b) and (c) sentences:

(14) George is American or Canadian.

a. He is American.
b. He is Canadian.

(15) George may be American or Canadian.

a. He may be American.
b. He may be Canadian.

Because:
- φ entails "φ or ψ" and
- if φ is possible, anything that is entailed by φ is possible, as well.

The problem

(16) George may be American or Canadian.

1. Rather than saying (16), S could have said:
   (16*) George may be American.
   Why didn't she do so?
2. The most likely explanation is that S doesn't believe that (16*) is true: $\neg \mathrm{Bel}_S(16^*)$.
3. Hence, according to S, George cannot be American.

Ouch!

Intentions first

Scalar implicatures

(17) Many of the nurses were drunk.

1. S has to be in one of the following belief states:
   i_1 : Bel_S(all nurses were drunk)
   i_2 : $\text{Bel}_S\neg$(all nurses were drunk)
   i_3 : neither i_1 nor i_2
2. If i_1 held, S would have said "All the nurses were drunk", but since she didn't, this possibility can be discarded (weak implicature).
3. If the Bivalence Assumption holds, i_3 drops out, as well, and we get a strong implicature.

Simple disjunctions

(18) George is American or Canadian.

S has to be in one of the following belief states:

	A	C	*ruled out because of (e.g.)*
i_1	*yes*	*yes*	"George is American and Canadian"
i_2	*yes*	*no*	"George is American"
i_3	*yes*	?	"George is American (and possibly Canadian, too)"
i_4	*no*	*yes*	"George is Canadian"
i_5	*no*	*no*	(18)
i_6	*no*	?	"George may be Canadian"
i_7	?	*yes*	"George is Canadian (and possibly American, too)"
i_8	?	*no*	"George may be American"
i_9	?	?	—

Epistemic free choice

(19) George may be American or Canadian.

S has to be in one of the following belief states:

	A	C	*ruled out because of (e.g.)*
i_1	*yes*	*yes*	"George is American and Canadian"
i_2	*yes*	*no*	"George is American"
i_3	*yes*	?	"George is American (and possibly Canadian, too)"
i_4	*no*	*yes*	"George is Canadian"
i_5	*no*	*no*	(19)
i_6	*no*	?	"George may be Canadian"
i_7	?	*yes*	"George is Canadian (and possibly American, too)"
i_8	?	*no*	"George may be American"
i_9	?	?	—

Why does this work?

Consider again:

(20) George may be American or Canadian.

One of whose alternatives is:

(21) George may be American.

- In an alternative-based account, the availability of (21) results in the inference that $\neg \text{Bel}_S(21)$.
- In an intention-based account, the availability of (21) causes certain belief states to be rejected, such as $\text{Bel}_S \neg$(George is Canadian).

Free choice inferences with ordinary quantifiers

(22) Everybody ordered pizza or pasta.
$\rightsquigarrow$ Some people ordered pizza.
$\rightsquigarrow$ Some people ordered pasta.

	Sm pizza	Sm pasta	*ruled out because of (e.g.)*
i_1	*yes*	*yes*	—
i_2	*yes*	*no*	"Everybody ordered pizza."
i_3	*yes*	?	"Everybody ordered pizza (and . . .)"
i_4	*no*	*yes*	"Everybody ordered pasta."
i_5	*no*	*no*	(22)
i_6	*no*	?	(22)
i_7	?	*yes*	"Everybody ordered pasta (and . . .)"
i_8	?	*no*	(22)
i_9	?	?	—

Or, assuming Bivalence

(23) Everybody ordered pizza or pasta.
$\rightsquigarrow$ Some people ordered pizza.
$\rightsquigarrow$ Some people ordered pasta.

	Sm pizza	Sm pasta	*ruled out because of (e.g.)*
i_1	*yes*	*yes*	—
i_2	*yes*	*no*	"Everybody ordered pizza."
i_3	*yes*	?	*Bivalence*
i_4	*no*	*yes*	"Everybody ordered pasta."
i_5	*no*	*no*	(23)
i_6	*no*	?	*Bivalence*
i_7	?	*yes*	*Bivalence*
i_8	?	*no*	*Bivalence*
i_9	?	?	*Bivalence*

Concluding remarks

- The Standard Gricean view on Q-implicatures isn't completely off the mark. It has all the right ingredients, but fails to put them together in just the right way.
- In particular, alternatives remain crucial.
- But:
  - you don't always need to know what exactly the alternatives are, and
  - Q-implicatures aren't *driven* by available alternatives.

Concluding remarks

Computing implicatures is a matter of reasoning about the speaker's intentional state: his beliefs, desires, etc.

Which is what Grice said all along.