Interrogatives

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1 Operational Language

1.1 2 Assumptions

(1) Wittgenstein (1918):

1. The world is all that is the case.
1.1. The world is the totality of facts, not of things.
1.11. The world is determined by the facts, and by their being all the facts.

(2) Wittgenstein (1953):

2. That philosophical concept of meaning has its place in a primitive idea of the way language functions. But one can also say that it is the idea of a language more primitive than ours. ...
5. ... A child uses such primitive forms of language when it learns to talk. Here the teaching of language is not explanation, but training.
6. ... (Uttering a word is like striking a note on the keyboard of the imagination.) But in the language of [‘builders’], it is not the purpose of the words to evoke images. (It may, of course, be discovered that that helps to attain the actual purpose.) ...

1.2 Traditional Propositions

(3) $p=\{w_1, ... , w_n\}$[1]

(5) $w=\bigcap\{p_1, ... , p_n\}$

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[1]

(4) a. $< s, \{\}_{mod} >$
b. get_worlds(s):
$\forall$mod[if s $\subseteq$ mod: MOD.append(mod)]; return MOD

1.3 A Computational Model

(6) [2]

a. $<(s\&m), Op:t>$

b. tell(s,mod):
mod=mod ∪ s

c. $<(s\&m), Boolean>$

d. yn(s,mod):
if s ⊆ mod: return True
if s ⊈ mod: return False

e. $<(<x,s>\&m), \{\}_S>$

f. wh([λx.s(x)],mod):
return {s': ∃c[(s'=[λx.s(x)](c)) ∧ (s' ⊆ mod)]}

2 Selection

2.1 s vs. $\{\}_s$

(7) a. Jack believes that Jill ran.

b. tell(believe(e),mod) ∧ tell(pat(e,mod'),mod) ∧ tell('Jill ran',mod')

c. λs . tell(believe(e),mod) ∧ tell(pat(e,mod'),mod) ∧ tell(s,mod')

d. $<s,<(x), Op:t>>$

(8) a. Jack loves that Jill ran.

b. tell(love(e),mod) ∧ tell(pat(e,'Jill ran'),mod)
[∧ tell('Jill ran',mod')]

c. λs . tell(love(e),mod) ∧ tell(pat(e,s),mod)

d. $<s,<(x), Op:t>>$

(9) a. *Jack loves Jill ran.

b. Jack is surprised Jill ran.

(10) a. tell(pat(e,'Jill ran'),mod)=mod∪pat(e,e')

b. e'=ιe[{run(e), ag(e,Jill)} ⊆ mod']

c. return e where {run(e), ag(e,Jill)} ⊆ mod'

[2] Modeled by basically any language with an "interactive environment", i.e. LISP, Prolog, Powerloom, Python, SQL.

d. tell({run(e), ag(e,Jill)},mod)?

(11) a. Jack wonders who ran.

b. tell(wonder(e),mod) ∧ tell(pat(e,wh([λx. x ran],mod')),mod)

c. wh([λx. x ran],mod): return {s: ∃c[(s=[λx. x ran](c)) ∧ (s ⊆ mod)]}

d. λS . tell(wonder(e),mod) ∧ tell(pat(e,S),mod)

e. $< \{\}_s, < (x), Op : t >$

(12) a. Jack wonders whether Jill ran.

b. tell(wonder(e),mod) ∧ tell(pat(e,{'Jill ran', ¬'Jill ran'}),mod)

c. λS . tell(wonder(e),mod) ∧ tell(pat(e,S),mod)

d. $< \{\}_s, < (x), Op : t >>$

e. ⟦ whether ⟧=λs . {s, ¬s}

(13) Adger and Quer (2001), p. 126:
...crucially involves the introduction of a disjunction of propositions, a disjunction that derives from the question that they are built up out of.

(14) Adger and Quer (2001), p. 128:
... the clause is interpreted as a proposition, rather than a set of propositions, ...

2.2 NPI: downward/nonveridical (cf. Giannakidou)

(15) a. I know who ran.

b. *I believe who ran.

c. You won't believe who ran. (negation)

d. Do you believe who ran? (y/n)

e. ?I believe who runs. (habitual/generic)

f. Who believes who ran? (wh)

(16) a. ?Jack fetched either pail.

b. Jack didn't fetch either pail. (negation)

c. Did Jack fetch either pail? (y/n)

d. Jack fetches either pail. (habitual/generic)

e. ?Who fetched either pail. (wh)

f. Jack can fetch either pail. (modal)

(17) a. I didn't eat any cookies.
b. $\neg\exists$c[I ate c]. $\leftrightarrow$ $\forall$c$\neg$[I ate c].
c. I didn't eat some/a cookie(s).
d. $\neg\exists$c[I ate c]. $\leftrightarrow$ $\forall$c$\neg$[I ate c].
e. $\exists$c$\neg$[I ate c]. $\leftrightarrow$ $\neg\forall$c[I ate c].
f. I didn't eat every cookie.
g. $\neg\forall$c[I ate c]. $\leftrightarrow$ $\exists$c$\neg$[I ate c].
h. $\forall$c$\neg$[I ate c]. $\leftrightarrow$ $\neg\exists$c[I ate c].

(18) a. Did you eat any cookies?
b. if $\exists$c[you ate c]: return True.
c. ?Who ate any cookies?
d. ?return {s: $\exists$c'[s=[λx[$\exists$c[x ate c]]](c') $\wedge$ s $\subseteq$ mod]}
e. ?Every boy didn't eat any cookies.
f. ?tell($\forall$b[$\neg\exists$c[b ate c]])
g. ?tell($\neg\forall$b[$\exists$c[b ate c]])
h. ?tell($\neg\exists$c[$\forall$b[b ate c]])
i. Some boy didn't eat any cookies.
j. tell($\exists$b[$\neg\exists$c[b ate c]])

(19) a. Pick any card.
b. Pick any (two) cards.
c. FCI: singular or plural.
d. ?I didn't have any card.
e. I didn't have any cards.
f. NPI: plural

(20) a. Did Jack see anyone?
b. ?Did Jack see any girl?
c. Did Jack see any girls?
d. George would kiss any girl(s).

2.3 if vs. whether (and wh-)?

(21) a. If Jill runs, Jack will know.
b. $A \rightarrow B$
c. ?Whether Jill runs, Jack will know.
d. Whether Jill runs or not, Jack will know.
e. $(A \vee \neg A) \rightarrow B$
f. ?If Jill runs or not, Jack will know.

(22) Adger and Quer (2001), p. 120, ex. 76,77: (their judgments)

a. I admitted whether I had committed the crime.
b. #I admitted if I had committed the crime.[3]

(23) also see Adger and Quer (2001), section 1.

a. ?Jack maintained if/whether Jill ran.
b. ?Jack maintained who ran.
c. ?Jack didn't maintain if/whether Jill ran.
d. ?Jack didn't maintain who ran.

(24) a. ?Jack believed whether/if Jill ran.
b. ?Jack believed who ran.
c. Jack didn't believe whether/if Jill ran.
d. Jack didn't believe who ran.

3 Modals

3.1 NPI

(25) a. ?Jack would eat any cookie(s).
b. Jack can eat any animal(?s).

3.2 EQ

(26) a. ?Jack would believe who ate a cookie.
b. JACK would believe who ate the cookies.
c. ?Jack can believe who eats animal(?s).
d. ?JACK can believe who eats animal(?s).

[3] Is there just a little *irrealis* issue? But (a), for me, also violates the cooperative principle.

4 Conclusions

(27) [4]

	EQ	NPI
negative	✓	✓
y/n	✓	✓
habitual/generic	X	✓
wh	✓	X
modal	?	?

References

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[4] Consider also:

(28) a. Agreement
b. Collectives
c. Stativity+Singular
d. There+Specific
e. Achievement+Duration