1 definitions

- Questions denotations (more or less Hamblin (possible answers rather than true answers):

(1) Polar questions
  a. syntax: $?\phi$
  b. semantics: $\lambda p[p = \phi \vee p = \neg\phi]$ $\{\phi, \neg\phi\}$

(2) Alternative questions
  a. syntax: $?\phi \vee_a \psi$
  b. semantics: $\lambda p[p = \phi \vee p = \psi]$ $\{\phi, \psi\}$

(3) Constituent questions
  a. syntax: $?x\phi$
  b. semantics: $\lambda p[\exists x(p = \phi(x))]$ $\{\phi(d), \phi(d'), ...\}$

- Partitions (exhaustive and partial answers)

(4) Part(Q) $= \{(w, v) \mid \forall\alpha \in Q : w \in \alpha \text{ iff } v \in \alpha\}$

exhaustive answers = cells in Part(Q)

exhaustive true answer in w = cell including w

partial answers (true in w)= unions of cells of Part(Q) (including w)but different from Part(Q)

- Knowledge:

(5) s knows Q wrt C in w iff $(K_w \cap QUD_C)$ entails the exhaustive true answer to Q in w

Or alternatively (prob equivalent)

(6) s knows Q wrt C in w iff for all true partial answer A $(K_w \cap QUD_C)$ entails A in w

(this second formulation would maybe allow us to express partial knowledge, and the following entailment (if we define not know Q = for all partial answers A not know (A)) :

(7) not know (A or B) $\Rightarrow$ not know A and not know B

- Context and updates (this is very crude):

(8) Context = info state (set of world) + question under discussion (set of propositions)

(9) a. $C + P = (s_C \cap P), QUD)$ (assertions)
  b. $C + Q = (s_C, QUD \cup Q)$ (questions)

- Our example. Lets take s_C to be $\{w_B\}$, and $K_w = \{w_B, w_F\}$. Then,

(10) a. Ralph knows whether it is B or J on TV.
  b. true in $C + (?b \vee_A j)$, but false in $C+?(b \vee_A j)+?(b \vee_A f)$

(11) a. Ralph knows whether it is B or F on TV.
  b. false in $C+?(b \vee_A f)$