Chapter 8: Temporal Anaphora without B-Series Resources

8.1 E-Type Temporal Anaphora

Basic Strategy

Temporal anaphora will be treated as (possibly implicit) temporal conjunctions. For example, the sentence “Smith did not turn off the stove” is interpreted as containing an unpronounced when-clause:

\[ \text{Smith did not turn off the stove [when...].} \]

On this account, “when” does not mean “at the same time”; it is instead an unanalyzable primitive.

Philosophical Preliminaries

Singular vs. General Propositions  Singular propositions are propositions about some particular object, e.g., “Bill is tall.” General propositions aren’t about anything in particular, but are rather general claims about the world, e.g., “No one lives forever.”

Reference vs. Denotation  There is a difference between genuine referring expressions and genuine descriptions. The former refer directly to their referents: “Earth,” “Jones.” The latter uniquely determine their referents via description: “the third planet,” “the thief who stole my computer.” Whether temporal phrases like “the 15th of December” or “yesterday” are referring or denoting expressions will be important.

E-Type Anaphors  There is a strong case for the argument that pronouns shouldn’t be interpreted as bound variables or referring expressions, but rather as standing proxy for definite descriptions (Evans 1977, Parsons 1978, Cooper 1979, Davies 1981a, Neale 1990). For example, the sentence (1) has the underlying form (2):

(1) A man came in. He tripped over the chair.
(2) A man came in. [The man who came in] tripped over the chair.

De Re/De Dicto Distinction  A sentence like “The number of planets is necessarily odd” is ambiguous between two readings:

De re: \([\text{the number of planets}], \text{necessarily}[e_i \text{ is odd}]\)

De dicto: necessarily[\(\text{the number of planets is odd}\)]

Received view: this is a result of scope ambiguity between a quantifier and an intensional operator:

De re: \(\text{[DP]}_i, [\text{Operator}[\ldots e_i \ldots]]\)

De dicto: \(\text{Operator}[\text{[DP]}_i[\ldots e_i \ldots]]\)

8.2 Development of the Theory

First, let us make the distinction between absolute and relative tense. The absolute tense morphemes PAST, PRES, and FUT apply to a sentence in isolation; e.g., PRES[S]. The relative tenses involve (possibly implicit) temporal conjunctions like when-clauses; e.g., [S] when [...]
Complex Tenses

Hypotheses and observations  Now let’s make two “working hypotheses” and two “observations”:

(H1) All natural language sentences have (possibly implicit) when-clauses.
(H2) The structure of an implicit when-clause is the same as an explicit when-clause.
(O1) All explicit when-clauses are tensed.
(O2) All explicit when-clauses are coordinated with the tense of the matrix clause.

Basic A-theory tense semantics  Now we introduce the A-theory tense semantics:

Present: PRES[S] when PRES[...]
Past: PAST[S] when PAST[...]
Future: FUT[S] when FUT[...]
Pluperfect: PAST[S] before PAST[...]
Future perfect: FUT[S] before FUT[...]
Future in future: FUT[S] after FUT[...]
Future in past: PAST[S] after PAST[...]

Val(x, PRES) iff x is true
Val(x, PAST) iff x was true
Val(x, FUT) iff x will be true

Val(True, [_{TP} TNS S]) iff, for some x, Val(x, TNS) and x = |S|

Aspect  Supposing as before that aspect is a property of events, and supposing an event-based semantics, we must make sure all event descriptions are within the scope of the tense operators, as in (1), to avoid commitment to past and future events, as in (2):

(1) Val(True, “A man kicked Bill.”) iff for some x, x was true and x = [for some e, e is a kicking, Bill is the patient of e...]
(2) Val(True, “A man kicked Bill.”) iff for some e, e is a kicking, Bill is the patient of e... and past(e)

Temporal Adverbs Again

According to this theory, temporal adverbs are not referring expressions but rather predicates:

Val(x, “yesterday”) iff x was true yesterday
Val(x, “always”) iff x is always true
Val(x, “never”) iff x is never true
Val(x, “July 4, 1995”) iff x is true when standard calendar systems indicate July 4, 1995

...
8.3 More on E-Type Temporal Anaphora

What about bound anaphors in sentences with quantifiers for which we can’t seem to get the truth conditions right?

Jack goes up the hill sometimes and then he comes tumbling down with Jill.

E-type anaphora works quite smoothly here. So does DRT. Whichever one helps us avoid temporal reference better is the one we’ll use.

8.4 Further Issues

Temporal Anaphora in Nominals  Nominals which appear to require temporal reference can be analyzed instead as having implicit relative clauses:

(3) The hostages came to the White House.
(4) The hostages [who were captured in the US Embassy during the Iranian revolution] came to the White House.

Sequence of Tense  Double readings in cases like “Mary said that Biff was ill” can be explained on this theory by differing content of implicit when-clauses:

(5) Mary said [when S1] that Biff was ill [when S2].

If S2=“when she visited him,” we get the unshifted reading; if S2=S1, we get the shifted reading.

8.5 McTaggart Revisited

This theory also prevents McTaggart’s paradox from ever taking hold: “if [future(E), past(E), and present(E)] come complete with when-clauses, then they can’t possibly contradict each other unless those when-clauses have the same content. But they don’t” (p. 134).