Reference to temporal stages of individuals and the equative relation

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1 Introduction

Proper names can be restrictively modified by intersective adjectives (1) and relative clauses (2), apparently yielding other referential expressions:

(1) \{young / old\} Chomsky
(2) the Chomsky \{that wrote Syntactic Structures / that wrote The Minimalist Program\}

Evidence that these constructions don’t denote individuals numerically identical to their modifier-free counterparts:

(3) Asymmetric entailment patterns
   a. Young Chomsky wrote Syntactic Structures.
      → Chomsky wrote Syntactic Structures.
   b. Chomsky wrote The Minimalist Program.
      ↳ Young Chomsky wrote The Minimalist Program.

(4) Non-contradictory comparatives
   a. Old Chomsky is more interesting than young Chomsky.
   b. #Chomsky is more interesting than himself.

(5) No conflict with contradictory predications
   a. Young Chomsky is a believer in transformational rules, and old Chomsky is not.
   b. #Chomsky is a believer in transformational rules, and he is not.

Odd consequences for truth judgments of equative be constructions, suggesting numerical identity isn’t the denoted relation:

(6) Be as non-left-Euclidean
   a. ✓Young Chomsky is Chomsky.
   b. ✓Old Chomsky is Chomsky.
   c. ✗Young Chomsky is old Chomsky.

(7) Be as asymmetric?
   a. ✓Young Chomsky is Chomsky.
   b. ✗Chomsky is young Chomsky.
2 Some machinery for the (tenseless) equative

Hypothesis: Equative be denotes not the relation of numerical identity, =, but of temporal stagehood, ⊑.

(8) Temporal instantiation:
For any individual x and time t, INST(x, t) iff x is instantiated at t (taken as a primitive notion: roughly, x exists at t).\(^{1}\)

(9) Temporal (qualitative) identity (≈):\(^{2}\)
For any individuals x, y: x ≈_t,Φ y (x is temporally identical to y at t relative to set of properties Φ) iff for all properties P ∈ Φ, P(t)(x) ↔ P(t)(y).

(10) Temporal stagehood (⊔):
For any individuals x, y: x ⊑_t,Φ y (x is a temporal stage of y at t relative to set of properties Φ) iff at x ≈_t,Φ y. x ⊑_Φ y (x is a temporal stage simpliciter of y relative to set of properties Φ) iff for all t such that INST(x, t), x ≈_t,Φ y.\(^{3}\)

Represent individuals as lines stretching over the timeline, such that an individual x’s line passes through t on the x-axis just in case INST(x, t), and a coincidence of the lines of individuals x and y at t symbolizes that x ≈_t y. Thus x’s line is entirely subsumed by y’s iff x ⊑ y.

![Fig. 1]

Young Chomsky and old Chomsky are temporal stages of Chomsky, but he is a temporal stage of neither, nor are either temporal stages of each other. We then get the right results with these denotations:\(^{4}\)

\(^{1}\)Note that this is not Carlson’s (1980) realization relation, which relates stages to individuals, but rather a relation between individuals and times. The present approach will differ from Carlson’s in (i) allowing expressions to refer to stages directly, since stages are also individuals, and (ii) allowing stages of an individual to be non-contiguous (cf. §5).

\(^{2}\)Note that there are echoes here of Geach-Gupta (cf. Gupta 1980) relative identity, the present notion differs in requiring coincidence with regard to a massive set of properties, not just with respect to some particular sortal, and there is no independent relative notion here of being ‘the same P,’ for some property P (though one could be employed for other reasons). For convenience I drop Φ in what follows, although it becomes important in other constructions.

\(^{3}\)So the present view has similarities to ‘four-dimensionalism’ (see Sider 1997 for an overview), the view that objects ‘perdure’ in time with distinct temporal parts. More specifically, the concrete proposal here is that proper names denote individuals, and individuals are ‘time-worms,’ which may or may not also be temporal stages of other individuals. I take the proposal to be motivated solely by linguistic, not metaphysical, concerns.

\(^{4}\)Where MAX(x)_[φ] is the temporally maximal individual a that satisfies φ[x → a], viz. that individual a such that φ is satisfied on a variable assignment at most different from the local variable assignment in mapping x to a, and there is no individual b such that a is a proper temporal stage of b (a ⊑ b) and b satisfies φ[x → b].
3 Temporal stage predicates

An easy way to derive predicates that generalize to cases like (2):\footnote{This could be seen as a process in the lexicon or the result of a simple type-shift rule similar to Partee (1986)’s ident., and even glossed the same way, as the ‘property of being that entity,’ \textit{being} here read equatively.}

\begin{enumerate}[label=(\arabic*)]
\item \( [\text{Chomsky} ] = c \)
\item \( [\text{young}_{\text{res.}} ] = \lambda x. \text{MAX}(y) [\text{young}'(y) \land y \sqsubseteq x] \)
\item \( [\text{old}_{\text{res.}} ] = \lambda x. \text{MAX}(y) [\text{old}'(y) \land y \sqsubseteq x] \)
\item \( [\text{young}_{\text{res.}} \text{ Chomsky} ] = \text{MAX}(y) [\text{young}'(y) \land \sqsubseteq c] = yc \)
\end{enumerate}

\begin{enumerate}[label=(\arabic*)]
\item \( \text{be}_{\text{eq.}} ] = \lambda x. \lambda y. y \sqsubseteq x \)
\end{enumerate}

4 Tensed equatives, overlapping individuals

If \textit{be} denotes numerical identity classically construed, tense should be superfluous between proper names, but this isn’t so.

\begin{enumerate}[label=(\arabic*)]
\item A: Which Chomsky is your favorite?
\item B: Minimalist Chomsky / The Chomsky that wrote \textit{Syntactic Structures}
\end{enumerate}

This is already independently needed:

\begin{enumerate}[label=(\arabic*)]
\item This is not the London that I know and love.
\end{enumerate}

\begin{enumerate}[label=(\arabic*)]
\item Puzzle 1: Failures of identity beneath differing tenses in title names
\item CONTEXT: Bruce Wayne has just now handed the mantle of being Batman down to his protégé, Terry McGinnis.
\item a. Terry McGinnis \{\textit{is} / \textit{was}\} Batman.
\item b. Bruce Wayne \{\textit{is} / \textit{was}\} Batman.
\item c. \textit{is}Bruce Wayne was Batman, but he isn’t (anymore).
\end{enumerate}

If equative \textit{be} denotes the relation of numerical identity, (16-c) is a logical impossibility, not true (since on standard assumptions, = is a time-insensitive relation):

\begin{enumerate}[label=(\arabic*)]
\item \([\text{(16-c)}]\) = \exists t'[t' < t \land bw = bm] \land \neg [bw = bm]
\end{enumerate}

But the current machinery handles this easily, preserving the simple semantics for the names involved, if tensed equatives denote the time-relative stagehood relation.

\begin{enumerate}[label=(\arabic*)]
\item \([\text{be}_{\text{eq.}}]\) = \lambda x. \lambda y. x \sqsubseteq t, y
\end{enumerate}
Note that at no time do Bruce Wayne and Terry McGinnis overlap; no stage of one is a stage of the other, so *Bruce Wayne is Terry McGinnis* is always false. But some stages of Bruce Wayne and some of Terry McGinnis are stages of Batman.

5 Non-contiguous stages

Sometimes non-contiguous stages can be referred to as well:

(20) Mary likes angry Chomsky better than calm Chomsky.

Some puzzles with proper names and temporal operators that benefit from analyzing names as referring to these stages:

(21) **Puzzle 2: Temporal adjuncts and felicity conditions on proper names**

- a. In 1955, Mary went to {? St. Petersburg / Leningrad}.
- b. In 2000, Mary went to {St. Petersburg / ? Leningrad}.

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6cf. Rami (2014). Note that this puzzling effect can’t be accounted for on the bases of synchronic facts about name-bearing (e.g. that the city doesn’t bear the name ‘Leningrad’ anymore, and so reference to it by that name is not possible), since the example demonstrates that under certain temporal operators, the name not only refers but is preferred, and so is still in the lexicon with the city as its bearer. Further, a pragmatic account to the effect that using a name beneath a temporal operator may falsely implicate that the individual bore the name at the time, and so be infelicitous, is wrong: it is not in general true that temporal operators yield any such implicature: *In 1492, Columbus sailed to North America.*
Puzzle 3: Substitution failures of purportedly coextensive proper names in extensional contexts\(^7\)

- Lois Lane loves Superman.  
  \(? \rightarrow\) Lois Lane loves Clark Kent.

Truth value / entailment intuitions vary depending on whether we take the name to refer to a temporal stage of the city / man, or the entire city / man.

Indeterminacy of reference (in the spirit of Quine 1960): There is no fact of the matter about whether these names refer to the entire individual or some temporal stage thereof, because speaker behavior is entirely consistent with either. Intuitions are indeterminate because the denotation of the name is indeterminate.

Puzzle 4: Calendrical names’ double lives

- Tuesday is great.
- Mary will go for a run on Tuesday.
- Mary goes for a run on Tuesday.

Tuesday sometimes seems to refer to an abstract calendrical entity (23-a), sometimes to a specific day (23-b), sometimes to recurring days with a certain calendrical property in common (23-c). But this is all accommodated if Tuesday is a single individual with non-contiguous temporal stages.

![Image of temporal stages]

The machinery then generalizes automatically to uses of Tuesday as a predicate (cf. §3):

- Which Tuesday was Black Tuesday?
- Every Tuesday is a disaster.

\(^7\)If one is worried about the verb love, Saul (1997) introduced such examples with no necessary recourse to psychological verbs. Alternate approaches include an adoption of some sophisticated guise-like theory to seemingly extensional contexts (e.g. Aloni 2001’s conceptual covers), the psychological error theory of Saul (2007), to explain away the intuitions, a radical complication of the semantics of proper names and certain verbs to involve perspective-shifting and a complication of the ontology of individuals (Asudeh & Giorgolo 2016), or some sort of extension of the pragmatic accounts along the lines of Soames (2002). I find all of these approaches deeply unsatisfying, and hope the present approach has some appeal by comparison.
References


