If-clauses as postsemantic context-shifters

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Abstract

A mainstay assumption in natural-language semantics is that *if*-clauses bind indexical argument-places in *then*-clauses. Unfortunately, recent work (compare Santorio 2012) suggests that *if*-clauses can somehow act to 'shift the context'. On the framework of Kaplan's 'Demonstratives' (Kaplan 1977), that would be 'monstrous' and somehow impossible 'in English'. The superseding framework of Lewis's 'Index, context, and content' (Lewis 1980) instead maintains that an indexical argument-place is just one that is bindable (compare Stalnaker 2014, ch. 1), but maintains that these are rare—whereas the lesson of recent work is that they are pervasive.

This brief technical note observes that it is possible to 'hack' the Lewis framework to make use of a resource that is doing little work: the 'postsemantic' stage, whereby nonpropositional semantic values are transformed into propositional contents. I provide a semantics for *if*-clauses on which they *restrict* the domain of definedness of their operanda to those in which the antecedent is correct, and then *test* for the correctness of the consequent: postsemantically, then, we 'seek out' the closest context in which the antecedent is correct; if it is one in which the consequent is correct, the conditional is correct in our context. The result has the structure of a Stalnaker-conditional, but over contexts rather than worlds.

The 'hack' has the radical consequence that this the mainstay assumption in natural-language semantics is wrong: if *if*-clauses act postsemantically rather than in the course of semantic composition, then nothing about their behavior can teach us anything about the distribution of indexical argument-places.

1 An 'Index, context, and content'-esque framework in theory of meaning

1.1 Propositions, points, and correctness

1. A *proposition* p is, or determines, the set containing a *point of evaluation* e just if p is *correct at* e ($e \Vdash p$) and the set containing e just if p is *anticorrect at* e ($e \dashv\vdash p$)
   (a) *Truth-logic*: correctness is *truth*, anticorrectness *falsity*; points are worlds, propositions are sets of worlds (Kripke 1963): then $e \Vdash p$ just if $e \in p$ and $e \dashv\vdash p$ just if $e \notin p$
   (b) *Endorsement-logic*: correctness is *endorsement*, anticorrectness *rejection*
      i. Perhaps points are propositions are sui generis elements of a BA of appropriate grain (Humberstone 1981, Holliday 2014): then $e \Vdash p$ just if $e \leq p$ and $e \dashv\vdash p$ just if $e \leq -p$
      ii. Perhaps points are partial answers to the ultimate question and propositions are ideals of such answers (Hellie): then $e \Vdash p$ just if $e \in p$ and $e \dashv\vdash p$ just if $e \in -p$
         - $-p :=$ the largest ideal intersecting p only at the absurd answer

2. Either way, propositions are isomorphic to sets of worlds, and will be from time to time spoken of 'as' sets of worlds (by '$w \in p$' I mean that, of that point e^w 'corresponding to' w, $e^w \Vdash p$)

1.2 Sentential semantic values as ICC-functions

3. $||\mathsf{rains}||(e, t, \ell, c) = \{w : \text{in } w, \text{at } t, \text{it rains in } \ell\}$

(a) This maps an '(index, context)-pair' to a propositional 'content': it is thus an *ICC-function*

(b) Indexical argument-places: e, an argument-place for a point of evaluation; t, an argument-place for a moment of time; ℓ, an argument-place for a location

(c) The indexical argument-places are bindable by operators (as to follow); the context argument-place is reserved for aspects of content underdetermined by conventional meaning but also unbindable by operators

4. $||\neg||(V, V', e, t, \ell, c) = -V(e, t, \ell, c)$ (and so forth)

5. (a) $||\mathsf{everywhere}||(V, e, t, \ell, c) = \{w : (\forall \ell' \in L_c)(w \in V(e, t, \ell', c))\}$ (and so forth)

   (b) $||\mathsf{here}||(V, e, t, \ell, c) = V(e, t, \ell_c, c)$

6. (a) $||\mathsf{always}||(V, e, t, \ell, c) = \{w : (\forall t' \in L_c)(w \in V(e, t', \ell, c))\}$ (and so forth)

   (b) $||\mathsf{now}||(V, e, t, \ell, c) = V(e, t_c, \ell, c)$

7. (a) $||\Box||(V, e, t, \ell, c) = [(\forall e' \in E_c)(e' \Vdash V(e', t, \ell, c))]$ (and so forth)

   - $[\Phi]$ is the 'extremal proposition whether Φ'—namely, $\top$ just if it is the case that Φ and $\bot$ just if it is not the case that Φ

   (b) $||\mathsf{R}||(V, e, t, \ell, c) = [e_c \Vdash V(e_c, t, \ell, c)]$

   - For friends of points-as-worlds, R is A, the *actuality* operator (Kaplan 1977); for friends of points-as-mental, R is $\triangledown$, an *endorsement* operator (Hellie 2014, 2016)

1.3 Postsemantic determination of contextual content

8. *Contextual reduction* of a sentential semantic value: $\mathfrak{R}(V) := \lambda c.V(e_c, t_c, \ell_c, c)$

9. *Contextual saturation* of a reduct: $\mathfrak{S}(R, c) := R(c)$

10. *Reduction–saturation postsemantics*

   - $[\![\varphi]\!]^c = \mathfrak{S}(\mathfrak{R}(||\varphi||), c)$

1.4 Clients for postsemantics

1.4.1 Speech act theory

11. Let α be an assertion of $\varphi(\alpha)$ occurring in $c(\alpha)$, with content $[\![\alpha]\!]$: then $[\![\alpha]\!] = [\![\varphi(\alpha)]\!]^{c(\alpha)}$

1.4.2 Logic

12. *Correctness*

   (a) $c \Vdash p := e_c \Vdash p$

   (b) $c \Vdash \varphi := c \Vdash [\![\varphi]\!]^c$

   (c) $\backslash\varphi\backslash := \{c : c \Vdash \varphi\}$

   (d) $\backslash\Psi\backslash := \bigcap_{\psi \in \Psi} \backslash\psi\backslash$

13. *Entailment*: $\Psi \vdash \varphi$ just if $\backslash\Psi\backslash \subseteq \backslash\varphi\backslash$

2 New work for postsemantics

2.1 Partially-defined semantic values

14. (a) $||\mathsf{if}||(U, V, e, t, \ell, c)$ is defined only if $e_c \Vdash U(e_c, t, \ell, c)$

   (b) When defined, $||\mathsf{if}||(U, V, e, t, \ell, c) = [e_c \Vdash V(e_c, t, \ell, c)]$

2.2 Postsemantic determination of contextual content

15. *Partial contextual reduction* of a partially-defined semantic value

   (a) $\mathfrak{R}^*(V)$ is defined at c just if $V(e_c, t_c, \ell_c, c)$ is defined

   (b) When defined, $\mathfrak{R}^*(V) := \lambda c.V(e_c, t_c, \ell_c, c)$

16. *Displaced contextual saturation* of a partially-defined reduct: $\mathfrak{S}^*(R, c) := R(\delta(c, \Delta(R)))$

   (a) *Displacement*: $\delta(c, C) :=$ the member of C 'most similar' to c

   (b) *Definedness* for a partially-defined reduct: $\Delta(R) = \{c : (\exists p)(R(c) = p)\}$

17. *Partial reduction–displaced saturation postsemantics*

    - $[\![\varphi]\!]^c = \mathfrak{S}^*(\mathfrak{R}^*(||\varphi||), c)$

2.3 A context-shifting Stalnaker conditional

18. $\mathfrak{R}^*(||\mathsf{if}(\psi, \varphi)||)$ is defined at c just if $||\mathsf{if}(\varphi, \psi)||(e_c, t_c, \ell_c, c)$ is defined

    That is so just if $||\mathsf{if}||(||\psi||, ||\varphi||, e_c, t_c, \ell_c, c)$ is defined

    Assuming totally-defined $||\psi||$ and $||\varphi||$, that is so just if $e_c \Vdash ||\psi||(e_c, t_c, \ell_c, c) = [\![\psi]\!]^c$—so just if $c \Vdash \psi$

    Accordingly (for totally-defined $||\psi||$ and $||\varphi||$), $\Delta(\mathfrak{R}^*(||\mathsf{if}(\psi, \varphi)||)) = \backslash\psi\backslash$

19. Assume totally-defined $||\psi||$ and $||\varphi||$. Then,

    $[\![\mathsf{if}(\psi, \varphi)]\!]^{c^\dagger} = \mathfrak{S}^*(\mathfrak{R}^*(||\mathsf{if}(\psi, \varphi)||), c^\dagger) = \mathfrak{R}^*(||\mathsf{if}(\psi, \varphi)||)(\delta(c^\dagger, \Delta(\mathfrak{R}^*(||\mathsf{if}(\psi, \varphi)||))))$
    $= \mathfrak{R}^*(||\mathsf{if}(\psi, \varphi)||)(\delta(c^\dagger, \backslash\psi\backslash)) = \lambda c.||\mathsf{if}(\psi, \varphi)||(e_c, t_c, \ell_c, c)\delta(c^\dagger, \backslash\psi\backslash)$
    $= \lambda c.[e_c \Vdash ||\varphi||(e_c, t_c, \ell_c, c)]\delta(c^\dagger, \backslash\psi\backslash)$
    $= [\delta(c^\dagger, \backslash\psi\backslash) \Vdash [\![\varphi]\!]^{\delta(c^\dagger, \backslash\psi\backslash)}]$
    $= [\delta(c^\dagger, \backslash\psi\backslash) \in \backslash\varphi\backslash]$

20. Accordingly, for totally-defined $||\psi||$ and $||\varphi||$:

    - $\backslash\mathsf{if}(\psi, \varphi)\backslash = \{c : \delta(c, \backslash\psi\backslash) \in \backslash\varphi\backslash\}$

    Or, getting rid of the symbols:

    - $\mathsf{if}(\psi, \varphi)$ is *correct* in a *context* just if the closest ψ-*context* is a φ-*context*

    The affinity to Stalnaker 1968 should be obvious.

21. Adjusting the *displaced-saturation* rule (16) to accommodate nonuniqueness in closeness, making for something more like a Lewis-conditional, is straightforward

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