Propositionalisms

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1. Intensionality
<div align="right">Frege (1892)</div>

- An environment in which substitution of co-referential / materially equivalent expressions *salva veritate* / *salva denotatione* is always possible, is *extensional*; all other environments are *intensional* (ignoring variable-binding).
- A construction is intensional if it creates an intensional environment.
- Intensional environments involve reference to content (which may also be extensional).

(13) <u>Mary</u> talked and John <u>wept</u>   individual/<u>divided</u> reference
(14) The boss talked and John had wet eyes
(15) It was raining and John had wet eyes
(16) Someone said that <u>Mary wept</u>   <u>intensional environment</u>
(17) Someone said that the boss had wet eyes
(18) Someone said it was raining
(19) Smith is looking for a warm sweater
(20) Smith is looking for a woolen sweater
(21) Smith is looking for an [intentional] warm sweater   Meinong: [non-existing object]
(22) Smith is trying <u>for himself to find a warm sweater</u>   Quine: <u>clausal embedding</u>

2. Propositionalisms
<div align="right">Forbes (2000; 2006)</div>

- *General propositionalism*   ☛ Grzankowski & Montague (2018)
  All content is propositional.

  content ≈ informational content (attitudinal, perceptual, linguistic, pictorial, …)
  propositional ≈ truth-evaluable ≈ expressible by clause/sentence

- *Attitudinal propositionalism*   ☛ Montague (2007)
  The content of mental attitudes is always propositional.   fearing Superman and liking chocolate

- *Pictorial propositionalism*   Zimmermann (2016); Bücking (2018)
  All pictorial content is propositional.   pictures of water vs. pictures of water molecules

- *Linguistic propositionalism*
  All linguistic content is propositional.

(23) <u>Hesperus</u> is a planet   Frege (1892): <u>mode of presentation</u>
(24) <u>Phosphorus</u> is a planet   Russell (1905): <u>no (proper) content</u>
                   (proper) content ≠ (reified) compositional contribution to (proper) content

- *Denotational propositionalism*
  All (linguistic) reference to content reduces to reference to propositional content.
≈   All intensionality reduces to reference to propositional content.

  Quine (1956): reduction by paraphrase in 'bad English' always possible
  Montague (1969): reduction by logical analysis sometimes possible (⊭ not always: model-theoretic fallacy)
  den Dikken *et al.* (1996): reduction by syntactic analysis, at least sometimes, or maybe:

- *Sententialism*   [conjectured by] Larson (2002)
  All intensionality reduces to clausal embedding.

3. Propositionality without propositions

a. Epistemic propositions

(25) Smith is trying <u>to find a sweater</u>　　　　subjectless clause, denoting property (Montague 1970)

　　　　　　connection with Lewis (1979) on attitude content: Chierchia (1989)

b. Two-dimensional propositions

(26) Ann knows whether Bill is sick　　　　Groenendijk & Stokhof (1982), Lewis (1982)

(27) $know'_w\,(a, [\lambda w'.\lambda w''.[sick'_{w'}(b) \leftrightarrow sick'_{w''}(b)]](w))$

(28) Ann wonders whether Bill is sick

(29) $wonder'_w\,(a, [\lambda w'.\lambda w''.[sick'_{w'}(b) \leftrightarrow sick'_{w''}(b)]])$　　　　Blumberg (2018)

(30) Bill wishes$_w$ [$\lambda w'.\lambda w''.$ the person-who-robbed-Bill in w' never-robbed-anyone in w'']

(31) $[\![wish]\!]^w = \lambda \pi^{s(st)}.\lambda x^e.(\forall w')[w\,D_x w' \Rightarrow Sim_{w'}(\pi(w')) >_{x,w} Sim_w(\neg\pi(w'))]$

4. Denotational Propositionalism as Russellian Analysis

- *Frege-Church types*　　　　Church (1951); Montague (1970); Kaplan(1975)

  t and *e* are Fregean types;

  if σ and τ are Fregean types, then so are (σ,τ) and (s,τ).

- *Russellian types*　　　　Cresswell (1973) etc.

  (s,t) and *e* are Russellian types;

  if σ and τ are Russellian types, then so is (σ,τ).

	The	walrus	snored
Frege-Church	s((et)e)	s(et)	s(et)
	se		
	st		
Russell	(e(st))((e(st))(st))	e(st)	e(st)
[≠ Russelled]	(e(st))(st)		
	st		

(13) *Potential counterexamples: intensional analyses*　　　　Montague (1969; 1970; 1973)

　　a. Jones worships a goddess.

　　b. $worship'_w(Jones', \lambda w'.\lambda P^{et}.(\exists x^e)[goddess_{w'}(x) \wedge P(x)])$　　　　type **s((et)t)**

　　c. A unicorn seems to approach.

　　d. $seem'_w(\lambda w'.\lambda P^{et}.(\exists x^e)[unicorn_{w'}(x) \wedge P(x)], approach')$　　types **s((et)t)** and **s(et)**

　　e. The temperature rises.

　　f. $(\exists f^{se})[[(\forall g)[temperature'_{w,t}(g) \leftrightarrow g = f] \wedge rise'_{w,t}(f)]$　　　　type **se**

- *How to Russell a Frege-Church*　　　　Kaplan (1975); Muskens (1989); Liefke (2015)

  'Concepts of entities of type (s,τ) can be represented by functions from (possible) entities of type τ to propositions. […] The result of applying this reduction to entities of successively higher intensional types is that we can ultimately represent all of the entities of [the Frege-Church hierarchy] within the sub-ontology whose types are just *e*, *t*, *st*, and (σ,τ) for any types σ and τ which are already included. In this development, the only basic intensional entities that remain are the propositions.'

　　　　　　Kaplan (1975: 728f.; notation adapted)

- *Refined denotational propositionalism*

  All intensional environments are definable in terms of propositional embedding.

- *CHALLENGE*

  Find a family *R* of restricted types (that includes all extensional types) and type-shifters *S* such that either: (a) the Frege-Church hierarchy does not collapse into *R* by *S* and show that *R* does not suffice for semantic analysis; or (b) some analyses in terms of *R* are needlessly complex (due to the intensional environments that are necessarily the *S*-images of non-*R* operators).

5. Attitudinal propositionalism beyond type distinctions

- *Anti-Propositionalism*   Grzankowski (2013)
  Some attitudes are irreducibly attitudes towards properties.   [ignoring perspective]

- *Perspectivism*   Lewis (1979)
  Some attitudes are irreducibly attitudes towards properties.   [ignoring Hintikka reduction]

- *Question*
  What distinguishes anti-propositionalism from perspectivism?

- *Conceivable Answers*
  A1. The role of the property: *[open] proposition* vs. *[saturated] object*   obscure
  A2. The role of the attitude holder: *having* a property vs. *being exposed to* it   accidental
  A3. The co-domain of the [!] attitude: *objects of any type* vs. *properties*   accidental
  A4. The role of the property: being true *at* a context vs. truth *of* an object

                                                                                  pace Szabó (2019)

- *Sketchy comments*
  A1: obscure …
  A2: accidental – object control (as in *ask Mary to leave the room*) seems to require
         centered propositions.
  A3: presumably accidental – why wouldn't there be objectual attitudes towards
         propositions and only propositions?
  A4: doesn't help*:*
  - An attitude *A* towards (suitable) properties *P* may reduce to an attitude *A** toward
    corresponding propositions: *x* bears *A** to the corresponding proposition *P** that is
    true <u>at</u> those objects <u>of</u> which *P* is true.

        x likes chocolate iff *x* likes* the (centered) proposition *x* expresses by *I am chocolate*

(!) Which proposition a given property corresponds to depends on the parameterization of the (extension-determining) indices and thus the roles played by the components.

6. Dynamic content

- *Propositions and Relations*
  - Any proposition *p* may be represented by a property *p** (of suitable objects):
    p holds at *i, j, …* iff *i* has *P* at *j, …*   *i, j, …*: index/context parameters
  - Any proposition *p* may be represented by a binary relation *R*:
    p_S holds at *i, j,k, …* iff *i* is *R*-related to *j* at *k, …*
    … etc. – and so:

(!) Any proposition may be represented by an *n*-ary relation, where *n* ≤ the number of parameters extensions depend on.

(14) If a farmer owns a donkey, he usually sells it.   Lewis (1975)
⤳ $usually'(\lambda x.\lambda y.[farmer'_w(x) \wedge donkey'_w(y) \wedge own'_w(x,y)], sell'_w)$
(15) If a boy meets a girl with a teddy, he always steals it from her.
⤳ $always'(\lambda x.\lambda y.\lambda z.[boy'_w(x) \wedge girl'_w(y) \wedge teddy'_w(z) \wedge with'_w(z,y) \wedge see'_w(x,y)], steal'_w)$
(16) A farmer owns a donkey.
⤳ $\lambda w.\lambda x.\lambda y. farmer'_w(x) \wedge donkey'_w(y) \wedge own'_w(x,y)$
(17) A boy meets a girl with a teddy.
⤳ $\lambda w.\lambda x.\lambda y.\lambda z. boy'_w(x) \wedge girl'_w(y) \wedge teddy'_w(z) \wedge with'_w(z,y) \wedge see'_w(x,y)$

Tentative Conclusions on Propositionalisms
⇒ The contents of declarative sentences are relations of arbitrarily many places.
⇒ In view of (!), the contents of declarative sentences are unlikely to be propositional.

… and so may be the contents of mental attitudes,	Spohn (2009)
… pictures,	Abusch (2012)
… and fictional stories	Stokke (2020)

(32) If a farmer owns a donkey, he may sell it.

⤳ $may'(\lambda w.\lambda x.\lambda y.\,[farmer'_w(x) \wedge donkey'_w(y) \wedge own'_w(x,y)], sell')$ Heim (1982)

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