

Reconciling substantialism and structuralism

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1. Substantialism and structuralism in the last 150 years

1.1. Substantialism before 1915

- explanation of sound change via climate factors
- explanation of sound change via phonetics
- explanation of analogical changes in psychological terms
- *Wörter und Sachen*

1.2. Structuralism 1915–1985

- language is seen as a synchronic system (*où tout se tient*)
- linguistics is an autonomous discipline
- describing language synchronically is a challenge in itself (descriptive linguistics)
- semantic substance and phonetic substance are “amorphous” (formless)
- linguistic categories are defined relatively to each other, not absolutely
- every language should be described “in its own terms” (Boas 1911)
- different languages have different categories:
different phonemes, different morphosyntactic classes, different meanings
- linguistic relativity: “the way we form substance for the purpose of linguistic formulation may have an impact on the conceptual substance itself” (Whorf)
- phonological change can be explained by system equilibrium (Martinet 1955)
- phonological and semantic categories should be formulated in binary terms
(Jakobson)
- oppositions have a marked and an unmarked member (Jakobson, Trubetzkoy; but see Haspelmath 2006)

- a language can be regarded as a system of explicit rules that generate all correct sentences (Chomsky 1957)
- language systems are made up of discrete, non-quantitative categories (“grammars don’t count”)
- syntactic classes can be highly abstract (e.g. head/dependent, wh-movement), even hyper-abstract (e.g. move alpha, X-bar theory)

1.3. Substantialism 1985–2015

- morphological paradigms are explained by autonomy of mental representation (ultimately based on exemplar storage, Bybee 1985, 2010)
- morphosyntactic change is explained by frequency-triggered phonetic change (Bybee 2001) and by inference-triggered semantic change (Bybee 1988), leading to grammaticization (Bybee et al. 1994)
- semantic and encyclopedic knowledge cannot be separated (Haiman 1980)
- cross-linguistic syntactic patterns are explained by processing preferences (Hawkins 1994, 2014)
- synchronic sound patterns are explained by diachronic evolutionary trends (Blevins 2004)
- some practitioners of optimality theory include thoroughly substantialist constraints such as LAZY in their tableaux (Kirchner 2000; cf. Hale & Reiss 2000)
- languages are described via checklists (Comrie & Smith 1977, and the grammars published in its wake)
- statistical study of language use replaces study of the discrete language system (e.g. Bresnan & Ford 2010)
- minute differences in pronunciation are found to be systematic (*time* and *thyme* don’t rime: Gahl 2008)
- explanation of sound change via climate factors (C. Everett et al. 2015)

(1.4. A digression on generative nativism, 1957–2015)

- much of the practice of generative grammar is thoroughly structuralist
- but generative linguists assume (without argument) the universality of features and categories, based on the idea of innate universal grammar
- this leads to some confusing overlap with substantialism
(e.g. OT constraints, the view of linguistics not as autonomous but as part of psychology, interest in language acquisition, rejection of linguistic relativity)
- generative nativism cannot be classified as either substantialist or structuralist

2. Comparative linguistics between substantialism and structuralism

2.1. Historical-comparative linguistics

- comparison via structure? (as long as language structure is isomorphic, e.g. case labels in Indo-European like Genitive)
- most frequently: comparison via substance (sound and meaning), e.g. ASJP (Automated Similarity Judgement Program, Søren Wichmann et al.)

2.2. Typologically oriented descriptive linguistics

- checklist-based descriptions (based on Comrie & Smith 1977)
- but checklist-based description does not really work
(maybe OK for short grammatical overviews; but deeper investigation often reveals counter-substance generalizations and substance-neutral generalizations)
- description involves the creation of abstract categories
(e.g. we do not want to describe the German Present tense as having the meaning “progressive + habitual”)

2.3. General comparative linguistics (typology)

- comparison via **substance** (Croft 1990, Haspelmath 2007)
- checklists / “etic grids”: e.g. Berlin & Kay (1969): Munsell colour chips
- “uses” instead of general meanings: Ferguson (1970)
- semantic maps with contiguity requirements: Anderson (1977), Haspelmath (2003), Croft (2001)
- phonological segments are compared via IPA symbols (Maddieson 1984, Michaelis et al. 2013, Moran et al. 2014: PHOIBLE)

2.4. Comparativists are sometimes berated for ignoring the insights of descriptivists

Matthews (1997: 199):

"One cannot just look casually at English and French and say that, because, for example, *je l'aime* translates *I love him*, or *à moi* translates *to me*, both languages 'have' a distinction between subjective and objective. For a careful study of either system might establish that these elements do not stand in a bilateral opposition."

Matthews presupposes that "the basis for comparison lies in the initial structural analysis of each particular system"

Newmeyer (1998: 338):

"Assigning category membership is often no easy task... Is Inflection the head of the category Sentence, thus transforming the latter into a[n] Inflection Phrase (IP)? ... Is every Noun Phrase dominated by a Determiner Phrase (DP)? ... There are no settled answers to these questions. Given the fact that we are unsure precisely what the inventory of categories for any language is, it is clearly premature to make sweeping claims..."

An anonymous reviewer for *Language*:

"I expect it to be the very job of typologists and theorists to make generalizations about the very things that show up as language-specific categories of finite verbs, relative clauses, etc., in different languages."

But they actually HAVE TO ignore these insights, because comparison is based on substance, not on structure – structure is language-specific.

The *APiCS* questionnaire (Michaelis et al. 2013) was understood by many of the language experts as referring to language-specific categories.

3. Reconciliation

- substance matters, and substance can and should be studied by linguists (phonetics, conceptual structure, actual language use)
- speakers' mental patterns are influenced by experience (Bybee 2010), but speakers also make highly abstract generalizations – they internalize **language systems**
- language systems are to a large extent made up of discrete categories, but apparently **language systems also involve probabilistic quantitative categories**
- comparison of languages must be based on **substance**, because structures are specific to individual systems (the building blocks of these systems are evidently not innate)
- but structures are not vastly different, so substance-based and structure-based comparison will continue to be difficult to keep apart

- in fact, some of the most interesting universals of language are best formulated in terms of **structure-like comparative concepts**, such as *transitivity* or *serial verb construction*

4. Transitivity prominence (Haspelmath 2015a)

– We know that **languages differ** in the extent to which they make use of transitive encoding, cf. e.g. Hawkins (1986) on English/German contrasts: in German, verbs like ‘help’ and ‘follow’ are not encoded transitively, but they are in English:

- (i) a. English *He_{NOM} helped her_{ACC}.*
 b. German *Er_{NOM} half ihr_{DAT}.*
- (ii) a. English *They_{NOM} followed them_{ACC}.*
 b. German *Sie_{NOM} folgten ihnen_{DAT}.*

– I define the comparative concepts in a rigorous way, but we do not make an attempt to justify them, being content with some intuition-based decisions. As argued by Lazard (2005), intuition-based decisions are unavoidable in typology and do not detract from the methodological rigour of the enterprise.

– My definition of transitivity follows Lazard (2002) and Haspelmath (2011): I start out from the typical transitive verb ‘break’ and define “transitive encoding” as the encoding that is used by this verb.

A verb is considered **transitive** if it contains an A and a P argument, and A and P are defined as the arguments that are coded like the ‘breaker’ and the ‘broken thing’ micro-roles of the ‘break’ verb.

e.g. Hoocak (Siouan; Hartmann 2013)

BREAK		<i>gišiš</i>	< 1 2 und[2].act[1].V>	
	breaker	1	act.V	= A
	broken thing	2	und.V	= P
LOOK AT		<i>boroğoc</i>	< 1 2 und[2].act[1].V>	
	looker	1	act.V	= A
	looked at entity	2	und.V	= P

e.g. Even (Tungusic; Malchukov 2013)

BREAK		<i>čelgel-</i>	<1-nom 2-acc 3-instr V.subj[1]>	
	breaker	1	1-nom & V.subj	= A
	broken thing	2	2-acc	= P
	breaking instrument	3	3-instr	
HELP		<i>bele-</i>	<1-nom 2-dat V.subj>	
	helper	1	1-nom & V.subj	(not A)
	helpee	2	2-dat	(not P)

– Thus, A and P are not equivalent to “macro-agent” or “macro-patient” or anything of that sort (Dowty 1991; Bickel 2011) – they are not semantic macro- (or hyper-, or proto-) roles. A and P are **argument types**, defined with reference to the coding (flagging and indexing) of the ‘breaker’ and ‘broken thing’ micro-role.

– This sounds less “substantialist”, but in fact it is no less substantialist, just more abstract (Croft 1990: “derived structural definition”)

Ranking of languages by transitivity prominence (percentage of transitive verbs):

Chintang	.75	Mandinka	.62
Emai	.70	Hooçak	.61
N ng	.70	Japanese (standard)	.61
Ojibwe	.69	Jaminjung	.61
Yorùbá	.68	Modern Standard Arabic	.60
Xârâcùù	.66	Evenki	.59
Bora	.66	Mitsukaido Japanese	.58
Balinese	.66	English	.58
Zenzontepec Chatino	.65	Hokkaido Japanese	.58
Mandarin Chinese	.65	Korean	.58
Yucatec Maya	.65	German	.56
Jakarta Indonesian	.64	Nen	.54
Sliammon	.64	Eastern Armenian	.54
Ainu	.64	Russian	.50
Yaqui	.64	Icelandic	.47
Mapudungun	.64	Ket	.46
Even	.63	Sri Lanka Malay	.45
Italian	.62	Bezhta	.40

Ranking of verbs meanings by transitivity prominence (percentage of transitive verbs):

BREAK	1.00	SEE	.93	TALK	.40
TEAR	1.00	SEND	.93	SING	.38
SHOW	1.00	BUILD	.93	FEEL PAIN	.12
BEAT	1.00	EAT	.93	BLINK	.11
CUT	1.00	DRESS	.92	PLAY	.10
TAKE	1.00	HUG	.90	RUN	.05
KILL	1.00	SEARCH FOR	.88	SIT	.05
HIT	1.00	KNOW	.88	GO	.05
FRIGHTEN	.98	TOUCH	.84	LIVE	.05
GIVE	.98	NAME	.80	SIT DOWN	.03
THROW	.98	HELP	.78	LAUGH	.03
TIE	.98	SMELL	.78	SCREAM	.03
PUT	.98	LIKE	.78	SINK (intr.)	.03
FILL	.98	TELL	.78	COUGH	0
HIDE	.97	FOLLOW	.74	JUMP	0
LOAD	.96	LOOK AT	.73	FEEL COLD	0
PEEL	.96	MEET	.70	DIE	0
ASK FOR	.95	FEAR	.53	BE SAD	0
CARRY	.95	THINK	.52	BE HUNGRY	0
COVER	.95	CLIMB	.49	ROLL (intr.)	0
POUR	.95	SHOUT AT	.45	BURN (intr.)	0
WASH	.94	LEAVE	.42	BE DRY	0
SHAVE	.93	SAY	.41	RAIN	0

(cf. the less “structural” approach to language comparison of Hartmann, Haspelmath & Cysouw 2014)

5. Serial verb construction (Haspelmath 2015b)

- (1) Saramaccan (English-lexified; Muysken & Veenstra 2006: 245)

A kándi dí wáta túe a dí fája.
 3SG tilt DET water throw LOC DET fire
 ‘He poured the water onto the fire.’

- (2) Tariana (Arawakan; Aikhenvald 2006: 5)

nbuta nu-thaketa-ka di-ka-pidana
 1SG.take 1SG-cross.CAUS-SUBORD 3SG-see-REM.PST
 ‘He saw that I took it across.’

- (3) Cantonese (Matthews 2006: 75)

keoi⁵ haam³-sap¹-zo go zam²tau⁴
 she cry-wet-PFV CLF pillow
 ‘She made her pillow wet by crying.’

- (4) Serial verb construction: a definition

A serial verb construction is a monoclausal construction consisting of multiple independent verbs with no element linking them and with no predicate-argument relation between the verbs.

- (5) key components of the definition

- a. construction
- b. monoclausal
- c. independent verbs
- d. no linking element
- e. no predicate-argument relation between the verbs

failing the “monoclausal” criterion:

- (6) Watam (Lower Sepik-Ramu; Foley 2010: 102)

a. *namot i yor i angi-r pika-r ba-irik-tap*
 man a egg a get-R throw-R NEG-go.down-NEG
 ‘A man didn’t get an egg and throw it down.’

b. *namot i yor i angi-r ba-pika-r ba-irik-tap*
 man a egg a get-R NEG-throw-R NEG-go.down-NEG
 ‘A man got an egg but didn’t throw it down.’

failing the “independent verb” criterion:

- (7) a. Cantonese (Francis & Matthews 2004: 753)

Ngo tung-gwo keoidei kinggai.
 I accompany/with-ASP them chat
 ‘I’ve chatted with them.’

- b. Yoruba (Stahlke 1970: 61)

Mo bá ọ mú ìwé wá.
 I benefit/for you take book come
 ‘I bought a book for you.’

- (8) a. Cantonese (Francis & Matthews 2004: 761)

**Ngo jigaa tung go di jan.*
 I now accompany those CLF people
 ‘I am accompanying those people now / I am with those people now.’

- b. Yoruba

**Mo bá ọ.*
 I benefit you
 ‘I benefitted you / I did something for you.’

failing the “no linking element” criterion:

- (9) Yimas (Lower Sepik-Ramu; Foley 2010: 80)

Arm-n kay i-ka-ak-mpi-wul.
 water-OBL canoe(G8.SG) G8.SG.OBJ-1SG.AG-push-SEQ-put.in
 ‘I pushed the canoe down into the water.’

failing the “no predicate-argument relation” criterion:

- (10) a. Samoan (Mosel 2004: 272)

'ou te lee iloa 'a'au
 I TAM not know swim
 ‘I don’t know how to swim.’

- b. Eastern Kayah Li (Tibeto-Burman; Solnit 2006: 153)

vē kba ʔíɛ dɯ á
 1SG promise work own.accord NEW.SITUATION
 ‘I promise to work myself.’

- c. Lao (Enfield 2008: 161)

man² hêt¹ kèw⁴ tèt⁵
 3SG make glass break
 ‘He broke the glass.’

Some universals:

In all SVCs, the verbs have the same tense value.

In all SVCs, the verbs have the same mood value.

The verbs in a SVC do not have separate temporal or event-locational modifiers.

All SVCs are pronounced with a single intonation contour, like single-verb clauses.

If there is just a single person, tense, mood or negation marker, it occurs in a peripheral position, i.e. preceding the first verb or following the last verb.

In all SVCs, all the verbs share at least one argument.

All languages with SVCs have same-subject serial verb constructions, possibly along with other types.

In different-subject SVCs, the second verb is always intransitive.

A SVC cannot have two different agents, i.e. when a non-agent is shared, then the agent must be shared as well.

6. System pressure vs. coding economy (Haspelmath 2014)

Coding economy (form-frequency correspondences) explains widespread coding asymmetries:

Table 1. Frequency-based grammatical zero-overt contrasts

DOMAIN	CONTRASTING CATEGORIES	EXAMPLES (zero/short form – overt/long form)
number:	singular/plural (Table 3)	English <i>book-∅ – book-s</i>
tense:	present/future	Spanish <i>cant-∅-a</i> 'sings' – <i>cant-ar-á</i> 'will sing'
subject person:	third/second (Table 4-5)	Polish <i>ma-∅</i> 'he has' – <i>ma-sz</i> 'you have'
argument role:	subject (nominative)/object (accusative) (Table 6)	Hungarian <i>János-∅</i> (nominative) – <i>János-t</i> (accusative)
possession:	inalienable/alienable (§4)	Lango <i>wi ∅ rwòt</i> [head king] – <i>gwòkk à lócə</i> [dog of man]
anaphora:	disjoint/reflexive (Haspelmath 2008c)	<i>Pat saw her-∅ – Pat saw her-self.</i>
purpose clauses:	motion verbs/nonmotion verbs (Schmidtke-Bode 2009)	French <i>je rentre ∅ travailler</i> 'I get back in order to work' – <i>je travaille pour gagner de l'argent</i> 'I work in order to earn money'

Table 2. Frequency reversals in special cases

number:	singular/plural	Welsh <i>plu-en</i> 'feather' – <i>plu-∅</i> 'feathers'
subject person:	third/second	Hungarian imperative: <i>él-j-en</i> 'let him live' – <i>él-j-∅</i> 'live! (2SG.IMPV)'
argument role:	subject (ergative)/object (absolutive)	Mangarrayi <i>na-landi</i> (ergative) 'tree' – <i>landi</i> (absolutive) (only inanimates)
anaphora:	disjoint/reflexive	<i>Pat saw her – Pat washed ∅.</i>

Table 3: English (British National Corpus of English)

	SG		PL	PERCENTAGE OF SG FORMS
<i>person</i>	24671	<i>persons</i>	4034	86%
<i>house</i>	49295	<i>houses</i>	9840	83%
<i>bare</i>	488	<i>bares</i>	136	78%
<i>bear</i>	1182	<i>bears</i>	611	65%
<i>feather</i>	487	<i>feathers</i>	810	38%
(all SG)	3,234,943	(all PL)	1,526,202	68%

Table 4: Russian (National Corpus of Russian)

3SG		1SG		VERB GLOSS	PERCENTAGE OF 3SG FORMS
<i>rabotaet</i>	11,698	<i>rabotaju</i>	2,375	'work'	83%
<i>spit</i>	5,165	<i>spju</i>	1,444	'sleep'	78%
<i>p'et</i>	3,231	<i>p'ju</i>	1,681	'drink'	66%
<i>xočet</i>	24,081	<i>xoču</i>	31,811	'want'	43%
<i>čuvstvuet</i>	5,270	<i>čuvstvuju</i>	7,108	'feel'	43%
<i>nadeetsja</i>	1,566	<i>nadejus'</i>	7,858	'hope'	17%
all 3SG	3,909,539	all 1SG	1,315,469		75%

usage frequency → predictability → short form

a predicted, but unattested system:

Table 10. Plural-marking and singular-marking in a hypothetical language

ENGLISH	SG	PL	PERCENTAGE OF SINGULAR	HYPOTHETICAL LANGUAGE
<i>house</i>	49295	9840	83%	<i>house-∅</i> <i>house-ssss</i>
<i>bare</i>	488	136	78%	<i>bare-∅</i> <i>bare-sss</i>
<i>bear</i>	1182	611	66%	<i>bear-∅</i> <i>bear-ss</i>
<i>window</i>	9936	8506	54%	<i>window-∅</i> <i>window-s</i>
<i>feather</i>	487	810	38%	<i>feather-one</i> <i>feather-∅</i>
<i>parent</i>	3706	15956	19%	<i>parent-oneone</i> <i>parent-∅</i>

Continuous frequency (and thus predictability) differences are not reflected in continuous length differences – languages tend to operate in terms of discrete classes.

7. Conclusion

- If we leave the confusing generative nativist view out of the picture, then the contrast between substantialist and structuralist approaches is perhaps the most important conceptual dichotomy in the study of language patterns.
- Both approaches have given rise to major insights, and we should concentrate our efforts on getting the best out of both, rather than showing that either is “the” right one.

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