

Shannon T. Bischoff, Carmen Jany (Eds.)
Functional Approaches to Language

Trends in Linguistics Studies and Monographs

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Functional Approaches to Language

Edited by
Shannon T. Bischoff, Carmen Jany

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Introduction

1 Introduction

Functional approaches to language are mainly concerned with examining the question of why language structure is the way it is and with finding explanations in language use. Functionalism views language as a dynamic, adaptive, and emergent system representing crystallizations of recurrent patterns and frequent use and outcomes of internal and external competing motivations. This point of view has implications for three levels of linguistic inquiry: description, explanation, and methodology. At a descriptive level, functionalism is concerned with spontaneous, naturally-occurring language use in real time in different social situations, as most notably reflected in topics such as preferred argument structure (Du Bois 1987), conversation analysis (Schegloff 2007), and common ground management (Krifka 2008), in addition to, as Haspelmath (2008: 92–93) notes, “describing languages in an ecumenical, widely understood descriptive framework”. Unlike in generative linguistics, functionalist descriptions do not serve the purpose of being restrictive and therefore explanatory. Rather, they deal with cross-linguistic differences and linguistic idiosyncracies, alongside regular patterns. Description, then is separated from explanation in functionalism (Haspelmath 2008: 93). At the explanatory level, functionalism aims at finding explanations for linguistic structures on the basis of language use and the evolutionary and adaptive processes leading to current language usage. Functional explanations rest upon cognitive and communicative aspects of human behaviour, the changing nature of language (i.e. diachrony) and the origins of structural patterns (i.e. grammaticalization), regularities and patterns arising from frequent language use (i.e. ritualization, automatization, and exemplar-based models), and generalizations based on a wide range of languages (i.e. functional-typological approach). Grammar is not viewed as an autonomous system, because explanation can be sought in system-internal interaction (i.e. semantics explains syntax or phonology explains pragmatics, etc). Functionalism, then is data-driven and more empirically oriented than formal approaches to language, and it depends on studying real language use rather than abstract representations of language. As a result, functional approaches to language demand specific methodological choices. At the methodological level, functionalism has been linked to a wide variety of methods ranging from corpus-based linguistics (Gries 2011), psychological experimentation as in cognitive linguistics and language acquisition (Bates and MacWhinney 1982), conversation analysis (Fox et al. 2012), descriptive

grammar writing (Dryer 2006), to computer-generated exemplars (Wedel 2006), among others.

Given this broad range of phenomena related to the notion of functionalism, functional approaches have penetrated various linguistic subfields over the past four decades. Since the 1970s, inspired by the work of those such as Jespersen, Bolinger, Givón, Dik, Halliday, and Chafe, functionalism has been attached to a variety of movements and models making major contributions to linguistic theory and its subfields, such as syntax, discourse, language acquisition, cognitive linguistics, neurolinguistics, typology, and documentary linguistics. Further, functional approaches have had a major impact outside linguistics in fields such as psychology and education, both in terms of theory and application. The main goal of functionalist approaches is to clarify the dynamic relationship between form and function (Thompson 2003: 53). While in so-called formal approaches performance does not motivate competence, explanations generalizing in nature are sought on the basis of abstract linguistic representations, and crosslinguistic generalizations are due to the innate Universal Grammar, functionalists find explanation in the ways performance affects competence assuming that “language structure can be influenced by regularities of language use through language change” (Haspelmath 2008: 75).

Functional research into grammar offers new explanations for linguistic structure whereby grammar is “conceived in terms of the discourse functions from which it can be said to have emerged” (Thompson 2003: 54). This somewhat narrow view of functionalism has led to important work on discourse and grammar by Sandra A. Thompson, Paul Hopper, T. Givón, Joan Bybee, and others. Another major contribution of the functional perspective is found in linguistic typology. Building on the insights of Greenberg, Comrie’s seminal work on language universals (Comrie 1981) and his linking of typology and functional accounts of linguistic phenomena has had a profound impact on the field with the *World Atlas of Language Structures* (Dryer and Haspelmath 2011) as an exceptional resource for linguists across subfields, including researchers in documentary linguistics. Documentary linguistics, informed by and contributing to linguistic typology, has defined itself as a new subfield within linguistics, and data from previously unstudied languages are constantly re-shaping current linguistic theory. Work in language documentation is based on how actual language use is reflected in linguistic structure, a key issue in functionalism.

In the last decade there has been a sea change in linguistic inquiry as a direct result of technological advancement that has allowed for increased experimentation, corpus building and analysis, and greater communication among linguists. Moreover, during this same decade there has been a shift in the previously dominant Transformation Generative approach which has many ‘formal’ linguists

looking for answers and direction in functionalism, which in previous years was looked at as a *competing* approach, but today even to ‘formalists’ looks to hold promising alternatives to investigating language.

This volume thus reflects the widespread and in-depth impact of functionalism on the present-day linguistic scene. We now have a substantial body of literature from various perspectives on functionalism, making a positive impact on the field of linguistics in general and the various subfields, and pointing researchers in new and interesting directions. In an effort to bring leading scholars in this area together and to provide recognition to the impact of functionalist approaches on current linguistic theory, this volume highlights the nature of functionalism as an important force within linguistics defining its current and future directions. Due to the eclectic nature of functionalism, the seven papers in this volume deal with a broad range of topics from a historical overview of functionalist thinking to the examination of explanatory and methodological issues.

2 The Volume Papers

The papers in this volume remind us that language, and thus linguistics, cannot be reduced to one subfield or another. Additionally, these papers illustrate that language and linguistic inquiry can not be reduced to structure alone if we wish to understand language in its totality. Throughout this volume authors argue that the study of structure and function play crucial roles in expanding our understanding of language, but that functional approaches offer the most compelling explanation for linguistic phenomena.

In the first of seven papers in this volume **T. Givón** provides an overview of the history of functionalism in linguistic, intellectual thought and inquiry since antiquity. Starting with Platonic rationalism and Aristotelian empiricism and touching briefly upon Medieval logicians, Givón traces the direct antecedence of late-20th Century functionalism through von Humboldt, Paul and Jespersen, and subsequent work by Bolinger and Halliday. The impact of the two giants of structuralism – Saussure, Bloomfield – and of Chomsky is viewed by Givón as an important catalyst, which he traces from the late-1960s advent of functionalist thinking to the Generative Semantics rebellion of Ross, Lakoff, and others. Following what he refers to as a “despair of Chomskian structuralism”, Givón asserts that one may interpret the expanding agenda of the 1970s “as an attempt to integrate the multiple strands of the adaptive correlates of language structure: discourse/ communication, cognition, language diversity and universals, diachrony, acquisition, and evolution”.

Unlike others (e.g. Allen 2007) who make similar claims regarding the historical antecedents of functionalism in linguistics, Givón uses parallel historical antecedents in biology to make the claim that an approach to linguistic inquiry modelled on biology is preferable to that of physics which has dominated the Transformation Generative approach of Chomsky. Givón concludes with a call to look outside linguistics to allied fields such as evolutionary psychology and ethology for insights into linguistic phenomena and explanation. This call is echoed by a number of the contributing authors in this volume, a reflection of the often inter- and intra-disciplinary nature of contemporary functionalist approaches in linguistics.

In a similar vein, looking to other sciences and functionalism, **Esa Itkonen** examines the notion of function as it applies in the human sciences and the uses of functional explanation in linguistics. He argues that the methods actually used by linguists ought to be the focus of concentration in regards to explanation rather than model disciplines such as physics or biology, a seemingly opposing view to Givón's position. His argument is grounded in a set of examples (e.g. zero morphology, number systems) that are meant to illustrate the methods actually employed by linguists, in this case typologists. Itkonen concludes that typological-functional explanation, when analyzed more narrowly, is ultimately based on the notion of empathy, which according to him is by definition functional in nature, and on pattern explanation. Accordingly, Itkonen argues that this approach renders deterministic explanation unnecessary, statistical explanation valuable, but not capable of explanations in and of themselves, and Darwinist explanation simply not applicable. This final claim, regarding Darwinist explanation, is also taken up by both Givón and Harder in this volume who arrive at somewhat contrary perspectives to Itkonen – demonstrating that as with formal approaches, within functionalism there is still room for debate regarding the role and nature of evolutionary approaches to linguistic explanation.

Before moving to evolutionary arguments, **Peter Harder** claims that the division between formalist and functionalist approaches depends in part on a difference of focal research interests. Formalists, Harder explains, are interested in language structure and believe one has to start out with structure in order to understand how language functions, while functionalists believe that structure can only be understood as embedded in function – and therefore the two groups focus on different sets of problems. This seems to echo the sentiments of Chafe, who also addresses this issue from the perspective of function and structure but takes the discussion in a different direction. Harder notes that although this difference is not likely to go away, the familiar polarization is not the only possible form of the argument, and in fact there have been developments towards discussions targeted at finding common ground.

Harder then turns to recent developments in evolutionary theory, specifically in recent claims regarding niche construction and cultural evolution. Following Harder, from this position, both groups are right in their main claim: functions of units in human language as we know it presuppose structure, just as structural units presuppose function. Harder argues that from a panchronic perspective, this form of circularity can be reanalysed as reflecting a co-evolutionary spiral which reflects a series of niche-constructive bootstrapping relations between structure and function. To capture this, it is necessary for linguists to see the structure of a specific language as constituting a socioculturally entrenched system in the speakers' environment, to which learners have to adapt – until they crack the structural code, they are functionally incapacitated.

The position Harder defends belongs on the functionalist side of the divide: it sees structural categories as reflecting a partial order imposed on communicative resources, ultimately sustained by functional relations (analogous to functional relations that shape the biological evolution of organs). However, Harder argues that this view differs from some functionalist claims in seeing structural properties as distinct from the properties of online usage events. Among the issues considered in the light of this hypothesis are variability, grammaticalization, and recursion.

Wallace Chafe, like Harder, addresses the division between formalism and functionalism. Chafe begins with the question of how one goes about interpreting how something functions. Chafe argues that there are two ways to interpret how something functions. Using the notion of the automobile to illustrate, Chafe says you can study how the automobile is used to go from place to place or how it is constructed for such use. He focuses on the second approach and argues that language functions by “associating thoughts with sounds” and by “organizing thoughts in ways that make the association possible”. Chafe proceeds to explore the concept of “thought” and two contrasting perspectives of “language design”: syntax-dominated (formal) versus thought-based (functional). The remainder of the paper is dedicated to explaining and exemplifying his proposed thought-based language design tackling the relationship between thoughts and semantics, semantics and syntax, syntax and phonology, and more generally between language and thoughts. Chafe concludes that syntax is the greatest source of diversity (rather than universality) and states that language universals “may be maximally present in thoughts, a bit less in semantics, and much less in syntax”.

Finally, Chafe argues that linguists need to develop a better understanding of thought, and that this understanding can and should be reached, in part, by looking to other disciplines. This call to look outside of linguistics for answers to linguistic questions emerges elsewhere in the volume. Similarly Menn, Duff-

field, and Narasimhan argue that questions of linguistic structure can be further addressed by looking beyond functional explanation. This openness to other disciplines and subfields within linguistics is perhaps a hallmark of functionalism.

Chafe suggests that what unites functionalists is an agreement that language, and thus linguistic inquiry, cannot be simply reduced to formal syntax. This argument is made throughout this volume in nearly every chapter whether directly or indirectly and demonstrates what Chafe refers to as the comprehensiveness of functionalism. For Chafe this comprehensiveness reveals a different kind of unity in functionalism among scholars, as compared to formal approaches, “one that embraces cognitive linguistics, ethnolinguistics, sociolinguistics, psycholinguistics, pragmatics, discourse studies, corpus linguistics, language documentation, and more”.

Perhaps another hallmark of functionalism is the belief that, in general, language learning or acquisition involves the same set of cognitive mechanisms responsible for other types of learning, as opposed to views that see language learning or acquisition as unique and thus necessitating some type of language specific organ. This is the view pursued by **Michael P. Kaschak and Morton Ann Gernsbacher**. Kaschak and Gernsbacher explore linguistic change over short spans of time, i.e. minutes, days, and weeks. They look to a series of empirical studies of syntactic and phonological learning and adaptation effects from psycholinguistics to argue that the language system is quite malleable over short stretches of time, which reflects procedural learning common in other types of learning. For example, they find the following similarities between syntactic adaptation and perceptual learning: adaptations a) occur quickly, b) are long-lasting, c) are somewhat context-specific, and d) seem to follow general principles of learning and memory. Kaschak and Gernsbacher argue that this type of implicit learning, found in syntactic adaptation, follows the same general principles of implicit and procedural learning found in other domains of knowledge.

The next paper returns to issues of structure, specifically discourse structure. **Bernd Heine, Gunther Kaltenböck, Tania Kuteva, and Haiping Long** argue that attempts to reduce discourse structure to canonical principles of sentence grammar have not been successful. They further argue that most frameworks of linguistic analysis highlight phenomena of language use and/or language knowledge such as sentence and word structure, while backgrounding or ignoring other phenomena that are interpreted as being of more marginal interest for the linguist. In particular, they identify certain forms of discourse structures, such as formulae of social exchange, vocatives, interjections, and what are traditionally known as parenthetical constructions, which have turned out to pose problems to grammatical analysis. The authors argue that such units do not conform to canonical principles of sentence grammar, and rather than being located at the

periphery of language use, they play an important role in discourse organization. Heine et al. find a place for such elements in structure by appealing to Sentence Grammar (SG) which concerns itself primarily with propositional content and clauses and Thetical Grammar (TG) which in contrast subsumes elements that are seen outside SG: parenthetical constructions. They argue that SG and TG are the major components of Discourse Grammar which they outline in the paper by elaborating on the role of TG, its relationship to SG, and its role in accounting for parentheticals in grammatical structure. Heine et al. conclude, like many of the papers in the volume, by offering suggestions on how to further research in linguistic inquiry by appealing to allied fields and subfields.

Lise Menn, Cecily Jill Duffield, and Bhuvana Narasimhan further the call to look to other fields and methodologies to pursue linguistic inquiry by highlighting the benefits of combining functional approaches with greater experimental research. The authors discuss experimental methods which test functionalist explanations for formal choices, such as information flow and word order. First, they outline three problem areas for functional explanations: competing factors, constraints imposed by how the brain works, and circularity of purely text-based functional explanations. Then, they discuss how these can be addressed by experimental methods focusing on the motivations of speakers in their formal choices (rather than on the listeners). They argue that such choices are influenced by “automatic consequences of the way the brain works”, such as lexical and structural priming. Thus, the consequence is that functional explanations do not account for all instances in which particular structures are preferred over others as they may result from processing demands of the brain. However, Menn et al. argue that functional ideas can help tease apart interactions of cognitive factors that influence a particular choice. They conclude that experimental methods to test functionalist explanations are possible and necessary, but need to go through various stages of re-design as they turn out to be very tricky due to too many unanticipated variables.

Overall, the seven papers in this volume demonstrate that as a theory functionalism is answering age-old questions and raising exciting new ones. The authors remind us that there is much work to be done and that linguists may not always agree, but they do agree more than we might expect.

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T. Givón

On the Intellectual Roots of Functionalism in Linguistics

1 Antiquity

In Biology, the mother of all functionalist disciplines, one can trace two traditional lines of adaptive-functional thought. The first, global or macro functionalism, is the Darwinian discussion of **adaptive selection**, whereby organisms or populations adapt to their external environmental (Darwin 1859), or to their self-created niche (Waddington 1942, 1953; Odling-Smee *et al.* 2003). In this sense, one may consider language an adaptation selected for a particular niche in which communication enhanced sociality and conferred various adaptive-reproductive advantages (Darwin 1871; Washburn and Lancaster 1968; Lieberman 1984 Greenfield 1991; Dunbar 1992, 1998; Knight 1998; Számadó and Sathmáry 2006; Tomasello *et al.* 2005; Bickerton 2005, Givón 2009; *inter alia*).

The second line, concerning the **functional motivation** for the structure of individual bodily organs, harkens back to Aristotle, the founder of empirical biology. Two structuralist schools dominated Greek biological thought prior to Aristotle, both seeking to understand bio-organisms like inorganic matter. Empedocles proposed to explain organisms by their **component elements**, while Democritus opted for understanding them through their **component parts** – their structure.

In *De Partibus Animalium*, Aristotle first argued against Empedocles' elemental approach, pointing out the relevance of histological and anatomical macro-structure:

(1) "...But if men and animals are natural phenomena, then natural philosophers must take into consideration not merely the ultimate substances of which they are made, but also flesh, bone, blood and all the other homogeneous parts; not only these but also the heterogeneous parts, such as face, hand, foot..." (McKeon ed. 1941, p. 647)

Aristotle next noted the inadequacy of Democritus' structuralism:

(2) "...Does, then, configuration and color constitute the essence of the various animals and their several parts?... No hand of bronze or wood or stone constituted in any but the appropriate way can possibly be a hand in more than a name. For like a physician in a painting, or like a flute in a sculpture, it will be unable to do the *office* [= function] which that name implies..." (*ibid.*, p. 647; italics & bracketed translations added)

Next, Aristotle offered his functionalist touchstone – the teleological interpretation of living organisms, using the analogy of usable artifacts:

(3) “...What, however, I would ask, are the forces by which the hand or the body was fashioned into its shape? The woodcarver will perhaps say, by the axe and auger; the physiologist, by air and earth. Of these two answers, the artificer’s is the better, but it is nevertheless insufficient. For it is not enough for him to say that by the stroke of his tool this part was formed into a concavity, that into a flat surface; but he must state the *reasons* why he struck his blow in such a way as to affect this, and what his final *object* [= purpose] was...” (*ibid.*, pp. 647–648; italics added)

Finally, Aristotle outlined the governing principle of functionalism, the isomorphic mapping between form and function:

(4) “...if a piece of wood is to be split with an axe, the axe must of necessity be hard; and, if hard, it must of necessity be made of bronze or iron. Now exactly in the same way the body, which like the axe is an *instrument* – for both the body as a whole and its several parts individually have definite operations for which they are made; just in the same way, I say, the body if it is to do its *work* [= function], must of necessity be of such and such character...” (*ibid.*, p. 650; italics and brackets added)

Ever since Aristotle, **structuralism** – the idea that structure is autonomous, arbitrary and requires no ‘external’ explanation; or worse, that structure somehow explains itself – has been a dead issue in biology, a discipline where common-sense functionalism is taken for granted like mother’s milk. Thus, from a contemporary introductory anatomy text:

(5) “...anatomy is the science that deals with the structure of the body... physiology is defined as the science of function. Anatomy and physiology have more meaning when studied together...” (Crouch 1978, pp. 9–10)

Paradoxically, Aristotle, following Epicure, is also the father of structuralism in linguistics, as may be seen in the opening paragraph of *De Interpretatione*:

(6) “Now spoken sounds [=words] are symbols of affections of the soul [=thoughts], and written marks are symbols of spoken sounds. And just as written marks are not the same for all men [=are language specific], neither are spoken sounds. But what these are in the first place signs of – affections of the soul – are the same for all [=are universal]; and what are these affections are likenesses of – actual things – are also the same for all men...” (J.L. Ackrill ed. 1963; bracketed translation added)

From Aristotle’s **empiricist** perspective, thoughts (‘affections of the soul’) reflect external reality (‘actual things’) faithfully, iconically (‘are likenesses of’). What

is more, this reflecting relation is universal ('the same for all men'). In contrast, linguistic expressions ('words') bear an arbitrary relation to ('are symbols of') thoughts. And this relation is not universal ('not the same for all men').

Paradoxically again, Aristotle wound up hedging his bets about language. In his treatment of grammar in *The Categoriae*, and in various other works on logic (*Prior Analytic*, *Posterior Analytic*), an **isomorphism** – functionally motivated relation – is postulated between grammatical categories and sentences, on the one hand, and logical meaning.

A similar hedging of bets is found in Plato's *Cratylus* dialog (Hamilton and Cairns eds 1961), where Cratylus argues for the Aristotle/Epicure arbitrariness position (*nomos*), while Socrates argues for a motivated, natural, isomorphic relation (*physis*); and further, that language is an *organ* dedicated to the expression of meaning.

Socrates' (i.e. Plato's) naturalness position was extended to grammatical analysis in the works of the Alexandrine philosopher Marcus Terentius Varro (116–26 BC) and the Roman philosopher Apollonius Dyscolus (80–160 AD). This extension merged Plato's 'naturalness' position concerning the compositionality of lexical words with Aristotle's functionalist analysis of grammatical categories (Itkonen 2010).

2 Middle Ages to the 19th Century

Most later Platonists opted for Socrates' naturalism and universality. And indeed, from early on there tended to be a less-than-perfect clustering of approaches to language along the philosophical dichotomy of Aristotelian **empiricism** vs. Platonic **rationalism**.

(7) domain	functionalism	structuralism
epistemology:	rationalism	empiricism
motivation:	naturalness	arbitrariness
universals:	universality	diversity
mind:	mentalism	externalism
ontology:	innateness	input-dependence
diachrony:	emergence	???
evolution:	evolution	???

That the clustering in (7) was imperfect was obvious from two glaring exceptions. The first goes back to Aristotle: Medieval Latin grammarians/logicians, the

Modistae, subscribed to St. Thomas Aquinas' Aristotelian empiricism, but also to the logical functionalism and universalism of *The Categories* (e.g. St. Anselm's *De Grammatico*; also Boethius of Dacia, Sigerus de Cortraco; William Ockham; see discussion in Itkonen 2010).

Subsequently, the *Port Royal* French grammarians (Arnauld 1662; Lancelot & Arnauld 1660) reverted, via Descartes, to Platonic rationalism, thus conforming better to the clustering in (7). The second exception is Chomsky (see below).

3 The 19th Century

In philosophy, there was a subtle sea change at the end of the 18th Century, with Kant and the emergence of the **pragmatic middle-ground** between the two extreme schools of epistemology. Its impact was not immediate, and the birth of linguistics proper in the early 19th Century took place in a context of a continuing Platonic/rationalist perspective and an implicit functionalism. However, the 19th Century contributed three important ingredients to the mix in (7). The first came with linguistics itself – **diachrony**. The other two emerged through contact with other disciplines: First, the expansion of Platonic mentalism from logic and meaning to a broader concept of **cognition** under the impact of nascent psychology. And second, the addition of **evolution** under the impact of Darwinian biology. The most conspicuous exponents of this enriched mix were Franz Boop (1816), W. von Humboldt (1836), and Hermann Paul (1890). Their perspective carried over into the 20th Century with illustrious exponents such as Otto Jespersen (1921, 1924) and Edward Sapir (1921), as well as the oft-forgotten functionalism of George Zipf (1935), who seems to have retained a great reservoir of common sense about language:

(8) "...language is primarily a representation of experience. It may represent [it] as a report of direct perceptual experience... Or it may represent tendencies to act...[thus] potential activity, such as oration to persuade others to modify their behavior in accord with the wishes of the speaker... A function of the linguistic representation is to restore equilibrium. The equilibrium may be of two types: (a) inter-personal and (b) intra-personal..." (Zipf 1935, pp. 294–295)

4 Structuralism

The rise of structuralism in the social sciences in the early 20th Century is sometimes seen as a reaction to so-called naive functionalism of the late 19th Century Romantics. The real impetus, however, was again external, coming from a radical

brand of empiricism – **Logical Positivism** in philosophy. To the infant disciplines of psychology, anthropology and linguistics, two towering exponents of Logical Positivism, Bertrand Russell (Russell 1956) and Rudolph Carnap (Carnap 1963), offered the deceptive analogy of physics, inadvertently reaching back to pre-Aristotelian biology.

In tracing the roots of 20th Century structuralism to Positivist philosophy, one must recall that the descent of Positivism in the philosophy of science goes back to Aristotle's objectivist epistemology. This is fairly transparent in, e.g., Rudolph Carnap's later reflection upon the physicalism of the Vienna Circle:

(9) "...The thesis of physicalism, as originally accepted in the Vienna Circle, says roughly: Every concept of the language of science can be explicitly defined in terms of observables; therefore every sentence of the language of science is translatable into a sentence concerning observable properties..." (Carnap 1963, p. 59)

Bertrand Russell's objectivism, couched in somewhat forbidding terms, is evident in his discussion of the relation between particular entities and the universal concept to which they give rise:

(10) "...We may then define a *particular* in our fourth sense as an entity that cannot be in or belong to more than one place at any particular time, and a *universal* as an entity that either cannot be in or belong to any place, or can be in or belong to many places at once... Owing to the admission of universals in our fourth sense, we can make an absolute division between percepts and concepts. The universal whiteness is a *concept*, whereas a particular white patch is a *percept*...Such *general qualities* as whiteness never exist in time, whereas the things that do exist in time are all particular [percepts]..." (*Relations of universals & particulars*; in Russell 1956, p. 122)

The core notions of functionalism, *purpose* or *function*, are invisible teleological constructs that defy translation into Carnap's 'language of science'; as are psychological concepts such as *meaning*, *intent*, *mind*, *knowledge* or *belief*. The critical element that makes something a biological code, or in C.S. Peirce's (1934, 1940) words "something by knowing of which one knows something more", is the signal's association with some purpose or function. This is where the world of living organisms stands in stark contrast to the pre-biological universe of physics and chemistry, where teleological notions are senseless, except perhaps in reference to the Divine. To quote the physicist I. Rabi:

(11) "...My view of physics is that you make discoveries but, in a certain sense, you never really understand them. You learn how to manipulate them, but you never really understand them. "Understanding" would mean relating them to something else – to something more profound..." (Rabi 1975, p. 96)

Aristotle's doctrine of the arbitrariness of the linguistic sign – thus the arbitrariness of cross-language diversity – pertained explicitly only to the semiotic relation between concepts and sounds or letters, i.e. the lexicon. But latter-day structuralists unreflectively extended the doctrine to grammar. In the intellectual climate fostered by Logical Positivism, F. de Saussure (1915) elaborated the three central dogmas of structuralism:

- **arbitrariness:** The detachment of the visible signal from invisible mental – purposive – correlates,
- **idealization:** The reification of the underlying system – *langue* – as against the manifest behavior – *parole*,¹
- **segregation:** The detachment of synchrony (product) from diachrony (process).

Leonard Bloomfield, the father of American structuralism, owed his conception of meaning to the empiricism of behaviorist psychology:²

(12) “...We must study people's habits of language – the way they talk – without bothering about mental processes that we may conceive to underlie or accompany habits. We must dodge the issue by a fundamental assumption, leaving it to a separate investigation, in which our results will figure as data along the results of other social sciences...” (Bloomfield 1922, p. 142)

(13) “...In order to give a scientifically accurate definition of meaning for every form of the language, one should have to have a scientifically accurate knowledge of everything in the speaker's world... In practice, we define the meaning of a linguistic form, whenever we can, in terms of some other science...” (Bloomfield 1933, pp. 139–140)

In the same vein, Bloomfield's rejection of universals and theory harkens back to Aristotle's and Saussure's arbitrariness:

(14) “...North of Mexico alone there are dozens of totally unrelated groups of languages, presenting the most varied types of structures. In the stress of recording utterly strange forms of speech, one soon learns that philosophical presuppositions were only a hindrance... The only useful generalizations about language are inductive generalizations...” (1933, pp. 19–20).

¹ Saussure's idealized *langue* harkens back to Plato's *eidon* ('essence'; see Bostock 1994; Williams 1994).

² Bloomfield got his behaviorism from his Chicago colleague Weiss, thus indirectly from Watson. He and his structuralist followers never adopted the Platonic/Saussurean idealization, an anathema to empiricists.

5 Chomsky

Noam Chomsky's theoretical perspective displays a baffling melange of functionalist and structuralist features. On the one hand, Chomsky's structuralist provenance is clearly evident in his subscription to Saussure's **arbitrariness** ('autonomous syntax'), **idealization** ('competence') and **segregation** (irrelevance of diachrony). In ch. 1 of *Aspects* (1965), idealization is introduced as follows:

(15) "...Linguistic theory is concerned primarily with an idealized speaker-listener, in a completely homogeneous speech-community, who knows its language perfectly and is unaffected by such grammatically irrelevant conditions as memory limitation, distractions, shifts of attention and interest, and errors (random or characteristic) in applying his knowledge of the language to actual performance...This seems to me to have been the position of the founders of modern general linguistics, and no cogent reason for modifying it has been offered. In the study of actual linguistic performance, we must consider the interaction of a variety of factors, of which the underlying competence of the speaker-hearer is only one. In this respect, the study of language is no different from empirical investigation of other complex phenomena..." (Chomsky 1965, pp. 3–4; italics added)

There is nothing *in principle* inimical to functionalism in idealization – provided it is strictly **methodological**. Data is always simplified during analysis. Theory is always more abstract than the data it purports to organize and explain. However, once cognition was relegated to the realm of 'performance', and with disinterest in change and variation, 'competence' became a theoretical prime, the endgame of both description and theory.

Underscoring the connection between idealization and structuralism is Chomsky's (1961) description of grammar as a formal algorithmic machine:

(16) "...By "grammar of the language L " I will mean a device of some sort (that is, a set of rules) that provides, at least, a complete specification of an infinite set of grammatical sentences of L and their structural description. In addition to making precise the notion "structural description", the theory of grammar should meet requirements of the following kind. It should make available:

- (1) (a) a class of possible grammars $G_1, G_2...$
- (b) a class of possible sentences $S_1, S_2...$
- (c) a function f such that $f(i,j)$ is a set of structural descriptions of the sentence S_i that are provided by the grammar G_j ,
- (d) a function $m(i)$ which evaluates G_i ,

- (e) a function g such that $g(i,n)$ is the description of a finite automaton that takes sentences of (b) as input and gives structural descriptions assigned to these sentences by $Gi...$ " (*On the notion 'rule of grammar'*, 1961, p. 6)

This **formalism** has remained a foundational leitmotif, running through multiple reincarnations of Generative Grammar. Over the years, it has grown ever more extreme, as Chomsky eventually (1992) dispensed with the last vestiges of concrete syntactic structures altogether:³

(17) "...[Early generative grammar proposed that] each language is a rich and intricate system of rules that are, typically, construction-particular and language-particular... The principles-and-parameters approach that has developed in recent years, and that I assume here, breaks radically with this tradition... The notion of grammatical construction is eliminated, and with it, construction-particular rules. Constructions such as verb phrase, relative clause, passive, etc., are taken to be *taxonomic artifacts*, collection of phenomena explained through the interaction of the principles of UG, with the values of parameters fixed..." (Chomsky 1992, p. 3; bracketed material and italics added)

By the time *Aspects* (1965) came along, the feature mix of Generative Grammar has become rather heterogenous. First, the transformational relation between 'deep' and 'surface' structures has always hinged on **meaning** (propositional semantics). This was obscured by Harris' (1965) terminology ('co-occurrence'), but was explicitly embraced in ch. 2 of *Aspects*, and is only marginally compatible with structuralism (or empiricism).

Next came the assumption of Cartesian **mentalism** (1965, ch. 1, 1966, 1968). But this clashed head on with 'competence', which ruled psychology out of bounds. The mentalism Chomsky envisioned thus turned out to be so abstract and formal so as to have relatively little to do with empirically-studied mental representation and mental processing.

Next Chomsky (1959, 1965 ch. 1, 1966, 1968) came up with an extreme **innatist** account of language acquisition, again a move toward Cartesian Platonism. This was confounded, however, by Chomsky's puzzling resistance to a biologically-plausible account of language **evolution**, coupled with a life-long insistence on Cartesian **exceptionalism** (1968; see also Hauser *et al.* 2002).⁴

³ In the same vein, the rules of grammar were boiled down to a single abstract one, 'merge' (Rizzi 2009; Bickerton 2009)

⁴ The logical contradiction here is quite glaring, since innateness implies genetic coding, which is itself the cumulative product of adaptive-selected evolution. Many functionalists accept language evolution but reject innateness, the converse of Chomsky's contradiction.

Lastly, there is the puzzling contradiction between the implicit functionalism of ch. 2 of *Aspects*, where ‘deep structure’ is said to be isomorphic to propositional semantics (‘logical structure’), and ch. 3, where the communicative correlates of transformations are ignored (‘transformations don’t change meaning’), or dismissed as ‘stylistic options’. Chapter 2 was the real launching pad of the **Generative Semantics** rebellion (Ross and Lakoff 1967). And the frustration of chapter 3’s mid-stream retreat to structuralism forced many of us to undertake the empirical study of the communicative underpinnings of syntax (Hooper and Thompson 1973; Givón 1979, ed. 1979; Hopper ed. 1982; *inter alia*).

The schizophrenic legacy of *Aspects* has haunted subsequent functionalist work for years to come, with persistent focus on the relation between grammar and propositional meaning, to the exclusion of communicative pragmatics (Chafe 1970; Lakoff 1970; Dik 1978; Foley and van Valin 1984; Langacker 1987, 1991; *inter alia*).

6 The 1970’s pragmatic synthesis

Many could claim credit for the functionalist rebellion of the 1970s. My own take may sound a bit perverse, but I think the rebellion started with Chomsky himself, in *Aspects* (1965) and even before. Chomsky had managed, rather explicitly, to build so many apparent contradictions into his position, it was almost impossible to ignore them:

- Universality without the study of language diversity
- Mentalism without psychology (‘performance’)
- Logic/semantics without communication/discourse
- Innateness without evolution
- The centrality of acquisition without real child language data
- Native speaker’s intuition without spontaneous speech data
- Ordered rules that mimicked diachrony, but Saussurean segregation

In 1965–1967, each one of us focused on one – or at best a few – of these contradictions. But sooner or later it became clear that the emperor was stark naked.

The functionalism that emerged out of the anti-Generative rebellion of the late 1960s assembled its intellectual baggage gradually, piecemeal and often retroactively. The philosophical background, whether acknowledged or not, was the re-emergence of the Kantian-Peircean **pragmatic middle ground** between the two reductionist schools of epistemology, empiricism and rationalism. This went with a corresponding middle ground between extreme inductivism and extreme

deductivism in the philosophy of science (Hanson 1958). As Chomsky (1959, 1966) had it, there was no middle ground. But a closer examination reveals a persistent pragmatic middle in both epistemology and methodology. Consequently, many of the stark dichotomies in (7) turned out to be empirically untenable. A more fine-grained approach to language, incorporating elements of both extremes, could now emerge. The main strands of this approach may be given as follows.⁵

6.1 Communicative (discourse) function

Ch. 3 of *Aspects* was a clear challenge to functionalists – they had to demonstrate that transformations *were* communicatively motivated. That is, that surface-structure variation among clause types was not a mere matter of ‘stylistics’ (Hooper and Thompson 1973). What was needed, above all, were structure-independent criteria – or empirical tests – for hypotheses about the communicative function of syntactic structures. The initial step here was to study the **text-distribution** of morpho-syntactic structures (Chafe ed. 1980, 1994; Givón 1979, ed. 1983). But this was only a first step toward a more direct experimental validation of the notion ‘communicative function’.

6.2 Iconicity

A relatively short-lived boom in iconicity studies, inspired by Peirce (1934, 1940), took place in the 1980s, purporting to demonstrate the non-arbitrariness of grammar (Haiman 1985, ed. 1985). Unfortunately the notion of ‘iconicity’ involved in the discussion never transcended the relatively concrete pictorial level. Underlying cognitive, neurological and bio-evolutionary mechanism were seldom invoked, in spite of the near-certainty that pictorial iconicity was the surface product of complex emergence (Givón 1995).

6.3 Universality cum variation

Here, under the clear influence of Joseph Greenberg, a convergence took place between the extreme Bloomfieldian/Aristotelian approach of unconstrained diversity and the extreme Chomskian approach of abstract universality. Both were

⁵ Few of the participants in the functionalist renaissance of the 1970s explicitly acknowledge all these strands. They nonetheless hang together coherently as a broad *research programme*.