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Idiomaticity and functional variation: A case study of international amateur radio talk

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1. THE DOMAIN AND METHODOLOGY OF THIS STUDY

The linguistic domain of idiomaticity poses many problems for the study of language form, use, and variation. With selected aspects of idiomaticity as a starting point, I will attempt in this paper to develop a description of the use of idioms as a segment of a more general theory of language use. Evidence for this approach is drawn from international amateur radio talk (IART) in English.

Before starting on the description of IART, I will outline the main features of idiomaticity and a method for explaining contextual factors in language variation.

1.1. Idiomaticity

Criteria for idiomaticity are found in all areas of semiotics: language structure (phonology and syntax), meaning (semantics), and use (pragmatics); each area involves systematic but quasi-lexical enumeration rather than description that can be generalized by rule. This paper treats relations between structures and functions in idiomaticity; semantic considerations are omitted (but cf. Gibbon, in press). Terms like "stereotypy," "collocational stability," "frozenness," and "fossilization," are often used for the syntactic aspects and will be used here along with the term "idiom" (cf. Makkai 1972).

Hockett (1958: 309) proposed a hierarchy of idioms, from the morpheme to levels where "idioms merge imperceptibly into the sorts of discourse which . . . can reasonably be called *literature*." The thesis of the present paper is that his idea can be generalized from literature to speech, and that "restricted languages" (Firth 1968: 87) may involve idioms right up to the higher discourse levels.

The idiomaticity literature cannot be reviewed here, but a synthesis of relevant aspects can be given, grouped into subsentential and suprasentential levels. 1. Subsentential: a. *phonological* - rhyme, alliteration, phonaesthetic and synaesthetic units (Smith 1925; Bolinger 1950); b. *morphological (simple)* - morphemes as minimal stereotypes (Hocket 1958; Katz & Postal 1963); c. *morphological (complex)* - nonproductive word compounds and composites (Marchand 1960); d. *phrasal* - ill-formed, "unambiguous" idioms like *by and large, to kingdom come* (Newmeyer 1974; Weinreich 1966); e. *clausal* - transformational anomalies, from "binomials" (*bacon and eggs, eggs and bacon* vs. *kith and kin, *kin and kith;* Malkiel 1959) to verbals (*Gareth gave Gwyneth a piece of his mind,*

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**Gareth gave a piece of his mind to Gwyneth;* cf. Makkai 1972), along a scale of transformational frozenness (Fraser 1970). 2. Suprasentential: a. *simple dialogue contributions* ("speech acts") - proverbs, citations, interjections, exclamations, tags, parentheses (Bublitz 1978; Sadock 1974; Searle 1976) and the prosodic stereotypes that mark some of these (Chao 1956; Gibbon 1976a; 274ff., 1976b; Ladd 1978); b. *complex dialogue contributions* - set monologues like stories, jokes, poems, often embedded in practical/aesthetic interaction types (*selling, music,* etc.); c. *simple transactions* ("exchanges") - phatic sequences like greetings, probably Ervin-Tripp's "routines" (1964: 89), and uptake loops ("Which? - That. - Oh!," cf. section 3.4, below); d. *complex transactions* - fixed performances like plays, liturgies, often with practical/aesthetic interaction; Leech's "disjunctive and abbreviated modes" (1966: 90), the "restricted language" end of Crystal and Davy's "scale of utilization" (1969: 63). Suprasentential idioms have been called "pragmatic idioms" (Burger 1973; Gülich & Henke 1980).

It is essential to the present argument that the hierarchy be understood to cover specific composite speech forms with a common property of structural frozenness (nonproductivity, membership of enumerable lexical sets) and not functionally defined dialogue strategy types or genres. Since, however, the "defining contexts" for specific idioms are very restricted (Hockett 1956: 223), reducing form-context relations to near-isomorphism, at higher levels stable collocations may be seen as prototypes of speech act types, genres, registers, and so on.

Two further properties of these forms must be noted. First, idiomaticity is scalar, ranging from weakly to strongly idiomatic combinations (cf. Fraser's frozenness hierarchy). Second, idioms contain "leaky points," as in discontinuous idioms (allowing insertion of limited kinds of nonidiomatic material; cf. *bring X to light*) or in idioms where small amounts of free variation are tolerated (*bury the hatchet/tomahawk/*axe*). These properties also hold for higher level stereotypes.

1.2. Constitutive systems and functional variation

Functional variation is the adaptation of utterances to the immediate context of use. Its domain is often referred to by the cover term "register" (Ellis & Ure 1969; Leech 1966); adequate context descriptions, however, are not given by situation lists (lecturing, telephoning, radio communication, etc.) or variety taxonomies (lect, style, genre, register, etc.), even for stereotypic forms whose "defining contexts" are restricted by comparison with the weaker "determining contexts" for freer varieties. A need for a more basic frame is implicit in definitions of taxonomic categories in terms of different "primitives" such as "participant," "user," "use," and in the hybrid taxonomies proposed by Hymes (e.g., 1972). An explicit, coherent system of such primes is needed to

make such definitions useful: if a dialect is a "variety according to user" and a register is a "variety according to use" (Halliday, McIntosh, & Strevens 1964: 77), where is the border between the language of boilermakers and the language of boilermaking?

A basic set of constitutive factors for communication was proposed within the Prague school by Bühler (1934) and extended by Jakobson (1960); the approach has also influenced Hymes's ethnographic method (1975). These sets were originally used to define language functions, - *speech appeal* as hearer-orientation (Bühler 1934: 29), for example. Such sets may be arranged along a scale of relative idealization: Chomsky's "ideal speaker-listener" (1965: 3) is high on the scale; lower are Bühler's *sign, speaker, hearer, context;* then come Jakobson's *speaker, hearer, contact, context, message, code,* and the "indices" (sets of context coordinates) in formal semantics (e.g., Lewis 1972). The sets are often hybrid in content, being based on unanalyzed intuitions about context components, rather than on a structured theory; factors such as *hearer, participant* are themselves functions, though they are at a different level from those they define and are in need of further explanation.

A more highly structured descriptive approach will be developed here in three stages.

First, structured sets of constitutive categories are developed by making successive distinctions within speech events:

S1: <SPEECH EVENT>
S2: <UTTERANCE, CONTEXT>
S3: <UTTERANCE, <PERSON, ENVIRONMENT>>
S4: <UTTERANCE, <PERSON, <CHANNEL, SETTING>>>
S5: <UTTERANCE, <<INPUT, OUTPUT>, <CHANNEL, SETTING>>>

. . . . .
. . . . .
. . . . .

The categories may be analyzed further as the empirical domain of discourse requires; utterances, for instance, are complex gestural wholes to be analyzed into kinesic, paralinguistic, prosodic, and segmental components.

Second, these category sets are developed into *constitutive systems* by assigning to the members of categories properties and relations from a set of contextual parameters. These parameters may be roughly classed as natural (e.g., physical, perceptual) or conventional (e.g., codified or uncodified group consensus on interpretation); a related distinction is drawn by Searle (1969: 50ff.) between "brute" and "institutional" facts (cf. also Gibbon 1976a: 28). The following examples illustrate parameter values for the idealization level S4. A PERSON enters into natural (*perceiver*), conventional relations (*addressee, third-party-listener, eavesdropper*) or hybrid relations (*receiver, decoder*), all implicit in the

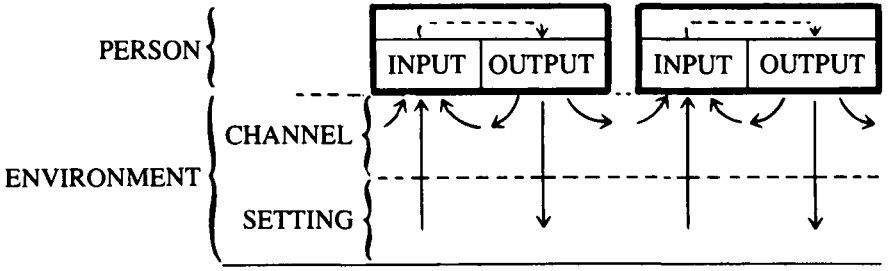

Figure 1: Sketch of dynamic relations between components of a functional constitutive system.

standard terms "hearer," "listener." A SETTING involves natural or conventional objects (cf. "cave" vs. "home"). A CHANNEL has natural (*visual* vs. *oral, noisy* vs. *clear, long-range* or *teleglossic* vs. *short-range*), conventional ("It might be more suitable to tell her in person"), or ambivalent (*private* vs. *public*) properties.

Third, in order to explain functional variation, dynamic relations within a constitutive system can be defined as a controlled, self-regulating process of continuous adaptation to and modification of the ENVIRONMENT by PERSONS, as shown in Figure 1. Although such configurations have often been suggested for the description of language use (from Shannon 1949, through Hockett 1955, to recent psycholinguistic studies) they have often lacked detailed empirical and theoretical motivation. A dynamically interpreted constitutive system may be termed a "functional constitutive system," and the "functional cycle" is its operative principle of continuous adaptation to and modification of the environment. The functional cycle forms an empirically motivated frame for explicating dynamic notions like functional variation, or types of variation in interaction such as "code-switching" (Blom & Gumperz 1972). It provides a suitable basis for describing notions listed in situation lists and variety taxonomies, which are simply cover notions for configurations of some functional constitutive system. They have no primary empirical status, though they possess considerable heuristic value and intuitive appeal (Hymes 1972).

2. INTERNATIONAL AMATEUR RADIO TALK: THE CONTEXT

National and international laws on radio communication, as well as publications of national amateur radio organizations such as the American Radio Relay League and the Radio Society of Great Britain, describe the essential contextual features, give lists of low-level codified phrase stereotypes and often contain fragmentary notes on IART usage. These notes are largely prescriptive, based partly on law, partly on etiquette. Typical topics for metalinguistic comments,

also heard on the air, are the justification for using telegraphy abbreviations in telephony, or the desirability of CB-type slang (Smith 1979). These topics relate to PERSON-oriented jargon in the technical sense (linguistic markers with phatic function for a restricted group); jargon is, of course, a common topic in other folk linguistic domains.

The present account is descriptive, based on lengthy experience of IART and analytic observation over a five-year period; the results have been used to plan English classes for radio amateurs in Germany. To hear IART in use, a short-wave receiver with beat-frequency-oscillator (BFO) is required; the relevant frequency bands are 20 meters (14,000–14,350 kHz) and 15 meters (21,000–21,450 kHz); exact frequency allocations may vary from country to country. Further information may be found in the official and semiofficial sources noted above.

2.1. *Summary of the main contextual factors*

The main contextual factors for the kind of IART analyzed here are summarized in the following taxonomy of situation dimensions. 1. PERSON: a. contacts – nonce-communication between strangers who do not seriously expect to meet again (vs. "skeds," prearranged schedules for friends or network traffic); b. institutions – constraints by international agreements and national regulations on CHANNEL properties (transmission modes, frequencies, power), PERSON properties (see Section 2.2) and UTTERANCE semantics (CHANNEL-oriented topics or personal small talk, no commercial transactions or propaganda, frequent self-identification). 2. CHANNEL: technically aided vs. unaided, and so forth (cf. Section 2.3). 3. UTTERANCE-ENVIRONMENT relations: CHANNEL-oriented metacommunication for equipment testing, studying propagation conditions, "collecting" contacts (vs. rag-chewing with old friends, contests, emergency traffic, etc.).

It will be shown below how these factors constitute a powerful set of natural and conventional constraints on IART speech; an appropriate term for a highly constrained variety like IART is "restrictive register." Both natural constraints on establishing and maintaining contact under difficult physical conditions and conventional constraints from the codified regulative institutional framework or uncodified constraints on contacts between strangers contribute in different ways to stereotypy of UTTERANCE forms at all levels, even giving whole transactions a collocationally stable, "ready-made" and therefore essentially lexical character, with "leaky points" (cf. Section 1.1) where discussion of technical problems or small talk occurs.

A peculiarity of IART is that ENVIRONMENT reduces to the category CHANNEL, as the summary above shows, with no other SETTING features. This is an oversimplification in view of the leaky points, but a justifiable generalization over the characteristic "clear cases" of IART (cf. Ervin-Tripp's

"relatively pure code," 1964: 90). This simplifies the relevant series of constitutive category sets:

S4′: <UTTERANCE, <PERSON, CHANNEL>>
S5′: <UTTERANCE, <<INPUT, OUTPUT>, CHANNEL>>
. . . .
. . . .
. . . .

The following subsections treat the categories of PERSON and CHANNEL in more detail.

2.2. *Properties and relations for the category PERSON*

The values of PERSON parameters in English language IART will be sketched informally. The community of IART speakers is (apart from a shared personal interest in the hobby) characterized institutionally: the members are adults (usually over eighteen) who are licensed by examination on technical and legal matters and on operating technique; this is the defining feature of the radio amateur in international law. No definition by nationality or class is possible, though a bias toward the industrialized nations and elsewhere toward the colonizing classes exists. More local social attributes derive from the status of technological hobbies in different societies; the most obvious is male predominance. Otherwise the range of social groupings is unrestricted and includes linguists, housewives, and heads of state as well as the "typical" male artisan or clerical radio ham. The community is multinational, numbering over a million worldwide; just over half are non-native speakers of English, many having learned English via amateur radio. Contextual constraints on IART in other languages are identical to those on English, and the linguistic effects appear to be similar.

Communication in IART is generally dyadic, though larger groups may arise spontaneously or by prior arrangement. An interesting feature is that any radio amateur is equally entitled to a. initiate a transaction (subject to common sense and politeness conventions, e.g., about when a frequency counts as "occupied"); b. participate in a transaction initiated by a general call, or a restricted call if the radio amateur falls into the specified category; c. alter the initiative function as required by the communicative process. Participant equality, rare in other restrictive registers (cf. Section 4), is due to the near absence of status criteria; two examples of higher status are network control stations and rare *dx* (long-distance contacts).

2.3. *Properties and relations for the category CHANNEL*

The CHANNEL used in IART has the following properties. 1. *Natural:* teleglossic (vs. face-to-face); simplex (nonsimultaneous transmission and reception vs. duplex, etc.); unimodal (vocal vs. multimodal vocal + visual, etc.); technically

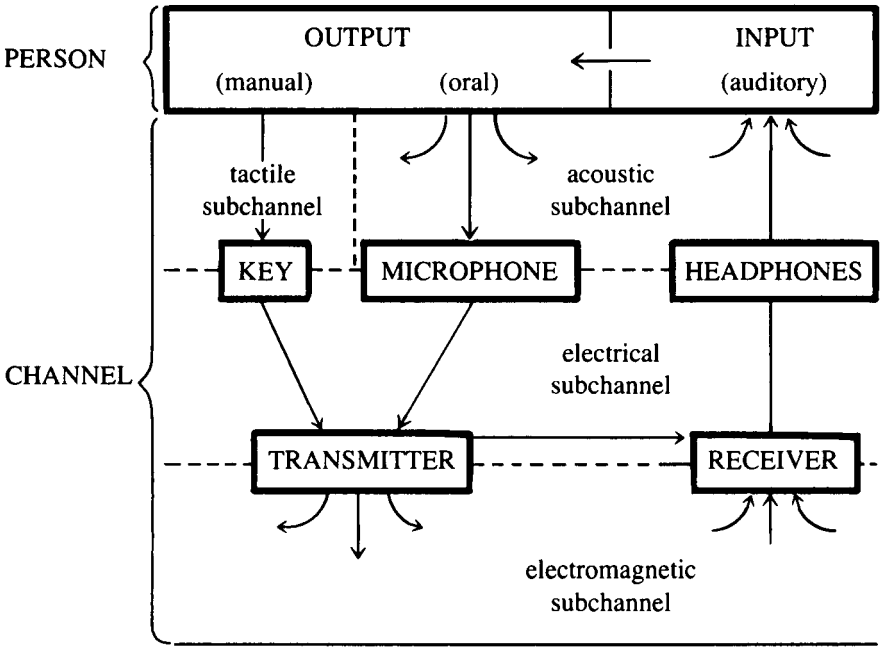

Figure 2: Channel structure in IAR talk and morse telegraphy.

aided (vs. unaided); transient (vs. storage) medium; electromagnetic (vs. acoustic or material) propagation; shortwave (transcontinental vs. local, e.g., VHF/UHF propagation); direct (vs. relayed via balloon/satellite-mounted, or fixed repeaters). 2. *Conventional:* legally restricted in mode (telephony, telegraphy, etc.), power, frequency; public by legal definition (unlike a "public" telephone service, which is public only in access or ownership). Natural and conventional aspects of the public CHANNEL relate to constraints on IART usage. One consequence is that participants may have an audience of unknown size and identity; this often disturbs new operators and fosters partially codified topic constraints, but it is a sine qua non for initiating new contacts and otherwise has little effect on average "clear case" contacts. Also ambivalent is CHANNEL directionality: both (natural) directional radiation and (conventional) verbal specification of target PERSON group (cf. Section 3.3.) may be used to restrict the set of addressees.

Natural aspects of the functional cycle in relation to a single participant are illustrated in Figure 2. CHANNEL structure is complex, each substretch contributing its own properties.

The CHANNEL category is related to that of UTTERANCE in four main areas: (1) as the topic of metacommunication (CHANNEL-as-SETTING); (2) in the relation of simplex CHANNEL to turn-taking routines; (3) in the relation of

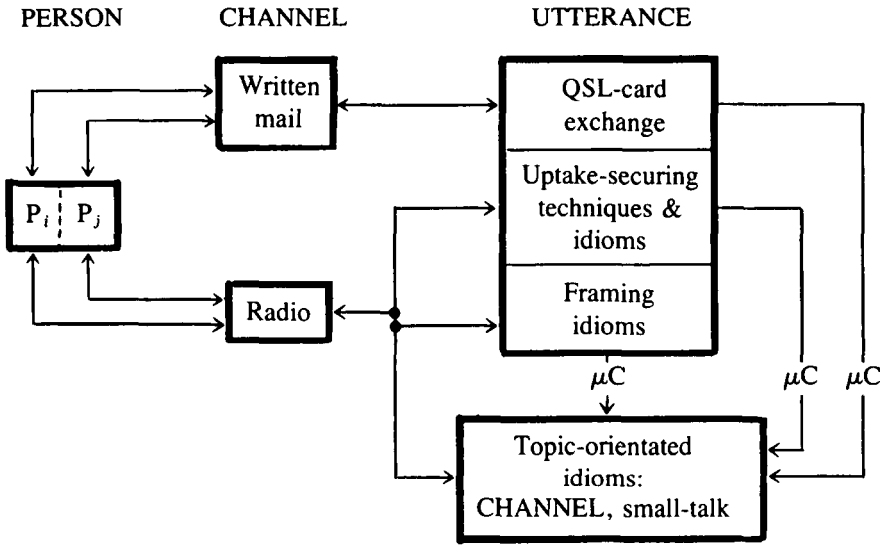

Figure 3: Outline of major <UTTERANCE, CHANNEL> relations ('μC' means metacommunicative semantic relations).

teleglossic CHANNEL to deictic patterns; and (4) in the use of redundancy-raising patterns to combat noise and low channel capacity. The major UTTERANCE-CHANNEL relations are sketched in Figure 3. Most communication is therefore CHANNEL-orientated metacommunication of some kind (abbreviated "μC" in the figure)-that is, phatic in the narrow sense of Jakobson (1960). A higher level of metacommunication is present in written documentation of contacts (log-book entries and exchange of QSL-cards to confirm contacts for various technical and conventional purposes).

Like PERSON-CHANNEL relations, the UTTERANCE-CHANNEL relations can create problems of "user noise" (fragmentary knowledge of or low fluency in IART) for newcomers to the variety.

3. LINGUISTIC PROPERTIES OF IART

In this section a sample of IART data will be presented, with an informal commentary on the relevant properties; subsequently the lexicon and structure of IART will be described more systematically and then summarized in terms of the functional cycle described in Section 1.2.

3.1. Selected fragments of IART contacts

The following excerpts from tape transcriptions illustrate dialogue patterning (initiation, turn control, uptake control, termination) and CHANNEL-as-SETTING utterance semantics (i.e., "topic") in IART. Some straightforward

transcription conventions are used: hyphens indicate spelling out; participants are labeled P1 and P2 in order of appearance; to preserve anonymity, the individuating suffix letters in the call signs are replaced by *xx*, or *xray xray* if a heterophonic spelling alphabet is used (perhaps an unnecessary precaution in view of the public CHANNEL property of IART).

1. P1: . . . ontario henry 2 xray xray calling cq dx, ontario henry 2 xray xray is by for a call.
   P2: Ocean henry 2 xray xray could I have a quick report old man, echo india 9 xray xray.
   P1: Echo india 9 xray xray, ontario hotel 2 xray xray, you're five nine plus 20 to 30 db, fine - five nine plus 20 db in the vicinity of Helsinki, ei9xx oh2xx.

In this initial fragment of an IART contact, P1, in Finland, makes a general call (*cq*) directed to potential long-range partners (*dx*); *by* (standing by) is an explicit turn-yielding signal. P2 (Irish Republic) is not in the addressee group, being in Europe, so his reply is functionally "marked"; this status is formally reflected in *quick* and the abbreviated turn-start and turn-end. Standard turn-starts and ends are present in P2's second contribution: addressee and speaker call signs in that order. The numbers denote values on metacommunicative judgment/measurement scales of received signal properties: readability (values 1–5), strength (1–9).

2. P1: . . . your signal here is five by nine, five by nine, very fine signal from England, very fine signal. The name here is Ken, kilowatt echo november. We're located in Taylor, Missouri, t-a-y-l-o-r Taylor Missouri, and er let's see em er back to you, I didn't get your name. golf 3 xray xray, køxx.

This medial turn shows redundancy-raising strategies: repetitions, alphabetic and heterophonic spelling out, and the initial segment of an uptake loop (see section 3.4). Two deictic conventions are also shown: first person plural for speaker, relatively common, and generalization of proximal local deixis to first person, ascribable to speaker-addressee distance in the teleglossic channel - *the name here* for *my name*.

3. P1: . . . and Mario please correct your qth, is that ontario radio india november delta delta alpha, is that roger?
   P2: Negative, negative, Alex [unreadable] is this okay now, go ahead.
   P1: er olinda, ocean london india november delta alpha, is that roger?
   P2: Okay okay one hundred percent copy now. Seventy-three to you good luck to you and the family and I'll see t- I hope to talk to you again some [unreadable].

In this exchange, P1 (USSR) initiates an uptake loop to elicit his partner's location (*qth*) in Brazil. On successful completion of the loop, P2 initiates a transaction terminating routine: *seventy-three* is a relict of older telegram codes (best wishes); the stereotypic nature of *good luck to you and the family* is obvious in the context of nonce communication. The same goes for the frequently heard *hope to talk to you again;* the chances of this happening are remote unless a "sked" is arranged.

4. P1: Lima zulu 2 xray xray from victor kilo 3 xray xray returning. Roger Mario, okay on your qth okay on your qth, papa lima echo victoria echo november, roger and thank you very much indeed for the contact. You are now strength 6 Mario, you are now 5 strength 6. All the very best from Australia. London zulu 2 xray xray from victor kilo 3 xray xray now clear. Cheerio Mario.
   P2: Yeah okay Bill, thank you very much again. All the very best to you and yours and to your wonderful [unreadable] best of seventy-three and have a good weekend, Bill. vk3 xray xray, lz2 xray xray signing. Bye-bye.

After uptake confirmation (roger) on the location of P2 (Bulgaria), P1 (Australia) initiates the termination routine; the features resemble those in the previous example. A standard phatic strategy to reduce distance between strangers in IART is use of first names; frequent repetition of these, as here, supports this strategy. Discourse relevance of a morphological feature is shown in spelling strategies for call signs: the general regional prefix (e.g., vk2, lz2) is often spelled out in the briefer alphabetic form, whereas the person-identifying suffixes (here uniformly *xx*) are spelled out more prominently with a heterophonic spelling alphabet. The principle is similar to that of stress assignment to the specifier constituent in many compound words. At the clausal level, a similar foregrounding strategy is used, with brief alphabetic spelling for the speaker's call sign and the fuller version for the addressee's call sign. The common denominator for these prominence-producing strategies is the *given-new,* or *topic-comment*, distinction (cf., e.g., Halliday 1967), linked with a semantic relation (hyponymy) in the first case and with pragmatic conventions (politeness) in the second.

5. P1: . . . okay on your coffee. Well we haven't yet er got around to our evening cup o' coffee er I say "we" - my wife's been sitting alongside me here [introduces wife].
   P2: Okay vk3 xray xray, sm6 xray xray. Fine business copy, Don, and hello to Carolyn in the background there. You certainly have found my qth on the map there, Don . . . well, er, fine on the rig, Don, doing a very nice job for you, no trouble whatsoever. Seventy-threes to you and seventy-threes and eighty-eights to Carolyn in the background there and hope to

have another chat with you, perhaps a longer one next time, Don. vk3 xray xray, sm6xx is clear and I will qsl you one hundred percent, er Don. Bye-bye.

P1: er Cheerio [unreadable] and thanks very much for the qso. sm6xx vk3xx off and clear and er qrz europe, qrz [noise from several new callers].

Apart from several features already noted (uptake confirmation idioms *okay on . . .* , *fine on . . .* ; first person plural, this time a literal use, functionally marked in IART and formally marked here by a metalinguistic comment; generalization of local to personal deixis, this time distal: *there = you/your,* etc.; termination stereotypes) example 5 shows a leaky point near the end of the transaction with small talk about the immediate environment. The non-CHANNEL SETTING is non-null (P1 's wife, coffee, map). *Eighty-eights* is a relict of telegram code (*love and kisses*), used as a polite stereotypic greeting to or from females, without literal connotations. The termination routine refers to QSL-card exchange; *qsl* has the general meaning of uptake confirmation (cf. *roger*), but is frequently used in this specialized sense. Stereotypic third person listener reference is made by . . . *in the background there,* twice. P1 's final contribution immediately initiates a new transaction with the question *qrz?* (*who is calling me?*), sometimes used as a substitute for *cq*.

The main points to note are the codified or otherwise stereotyped forms at various linguistic levels, particularly adherence by participants to a core transaction that may be expanded in restricted directions at certain fixed leaky points.

3.2. The lexicon

IART vocabulary is restricted both semantically - covering mainly CHANNEL properties and CHANNEL-PERSON relations, actions, and interactions - and morphologically, in its numerous abbreviations and other nonstandard word structures; a further restriction is syntactic: items are often ambivalent between clausal and subclausal categorial status. The morphological oddities were originally introduced to compensate for low channel capacity in Morse telegraphy: the 2-bit (≤ 4 item) code alphabet requires longer syntagmatic groups to encode the 6-bit (≤ 64 item) Roman alphabet, numerals, and punctuation, as well as being slower in production and perception (in amateur traffic, generally 60–120 letters per minute). In telephony, they have two secondary effects: 1. as group-identifying jargon (cf. section 2); 2. language neutrality, due to the arbitrariness or at least nontransparency of most items.

Five types of characteristic lexical items can be identified: (1) Q-signals, (2) abbreviatory codes, (3) whimsical abbreviations, (4) numerical codes, and (5) alphanumeric scalar codes.

First, the Q-signals, perhaps the most distinctive, are also used in official telegraphy and telephony and in private radio (CB). Their general structure is

Qxx, with *xx* standing for some biliteral sequence; in telegraphy, they are "propositional act" idioms (Searle 1969) with choice of illocutionary force in requests (for information or action, marked by a telegraphic question mark in the first case) or statements (cf. A.R.R.L. 1977: 647):

QRP: Shall I decrease power? Decrease power.
QRZ: Who is calling me? You are being called by . . . (on . . . kHz).
QTH: What is your location? My location is . . .

The dots show expansion points for inserting restricted types of further information. Syntactic aspects of Q-signal sequences are treated in section 3.4. In telephony, relative lack of terseness has induced a functional shift from the phrase-structure category of Sentence idiom to lower ranks like Noun, Adjective, Adverb:

QTH: $[_{S}$*my location is . . .* $] \rightarrow [_{N}$*my location*$]$

QSL: $[_{S}$*I am acknowledging receipt*$] \rightarrow \begin{cases} [_{N}\textit{(written) comfirmation}] \\ [_{V}\textit{confirm (in writing)}] \end{cases}$

QRP: $[_{S}$*Decrease power*$] \rightarrow \begin{cases} [_{Adj}\textit{low power (-ed)}] \\ [_{Adv}\textit{with low power}] \end{cases}$

Examples of functionally shifted uses are: *my qth is London, I will qsl via the bureau, I am using a qrp rig, I am working qrp.*

Abbreviatory codes, the second type, derive from English or French words. One subtype retains the first letter of an English word, replacing the rest by a dummy *x*, as in *tx, rx, dx,* and *wx* for *transmitter, receiver, distance,* and *weather*. Others are acronyms, like *ut* (*universal* [*Greenwich mean*] *time)*, with the arbitrary synonym *z* (spoken as *zulu*, e.g., *10:45 zulu*), or abbreviations preserving syllable information, such as *cfm* and *abt* for *confirm* and *about*.

The third type uses homophony between alphabetic letter names and words, such as *cq* (*seek you*), *xyl* (*ex-young-lady*, i.e., *wife*), or (only in telegraphy) *bcnu* (*be seeing you*) and *cuagn* (*see you again*). These are reminiscent of children's spelling riddles like 2YYUR2YYUBICUR2YY4ME. There is even an explicit idiom for laughter in telegraphy: *hi*, a rhythmical code sequence of four plus two dots; it has been adopted by some operators in telephony with the letters spelled out /eičái/, or /hai/, or reduplicated as /haihai/. The original telegraphic use, as an addressee-initiated uptake confirmation (see section 3.4) with additional positive evaluation, has changed in telephony to a speaker-initiated uptake-eliciting signal used as a tag, like *isn't it, nicht wahr,* or *n'est-ce pas,* with evaluative function.

The fourth type, numerical codes, is a relic of older wire telegraphy. The examples *seventy-three* and *eighty-eight* occurred in section 3.1. Interlanguage interference may be observed with the German whimsical number code *55* (in

telegraphy, five plus five dots), sometimes transferred by German hams to English, puzzling their non-German speaking interlocutors. It is based on an autological pun: a series of ten dots is *viele Punkte*, that is, *many dots; Punkt* means both *dot* and *point* (in a contest, etc.), giving the derived meaning *many points*, that is, *every success, all the best*, (in a contest, etc.), which has in turn become generalized to other situations.

The fifth type, alphanumeric scalar codes, was also represented in the data fragments; the telegraphic expression might be *ur sigs rst 599*, for instance, meaning *your signals are value 5 on the readability scale, 9 on the strength scale, 9 on the tonal quality scale*. Exact details are given in the sources already mentioned.

Some letter codes were originally arbitrary, based on perceptually distinctive Morse rhythms and later received acronymic folk etymological interpretations. The best known example (prohibited in amateur radio and reserved for official emergency services) is the originally unanalyzed code sequence · · · – – – · · ·, later construed as *sos* and then as *Save Our Souls*. It is possible that *ok* (*okay*) has a similar origin in nineteenth-century telegraphy (codified as *agreed*; cf. H.M.S.O. 1938: 91), though its origins are much debated.

Besides the abbreviations, the vocabulary includes standard alphabetic and codified heterophonic letter names for spelling out, ordinal and cardinal numbers, and stereotypic expressions at the various levels illustrated in section 3.1. Common expansions of the core transaction require expressions for frequencies and other physical measurement scales and units, components of radio equipment and their functions, time, date, weather, and so on. Further vocabulary is introduced at expansion points as required.

Some idiosyncracies of "closed set" grammatical formatives were noted in section 3.1, the most obvious being deictic terms. Another item to be noted is the *-ing* suffix as in . . . *listening/(standing) by/returning/calling*, used together with a call sign as explicit turn-status markers.

3.3. Contribution syntax

The word and sentence levels are similarly lexical in character, allowing, for instance, the simple Q-signal functional shift described in section 3.2. Contributions are composed of such elements in stereotypic ways that may initially be summarized in phrase structure schemata. The contexts in which contributions occur have two main dimensions, which are symbolized here as feature contexts: (1) the PERSON involved, indexed for identity as [*i* PERSON] (cf. the *P1* and *P2* of section 3.1), with [1 PERSON] being reserved for the transaction initiator; (2) status in the transaction context, initial or noninitial exchange, and so on, as [± INITIAL]. A third special aspect is category iteration, shown by a standard rule schema notation. These notational devices are provisional shorthand for more complex structures outlined in 3.4. This hybrid PSG contains the

following rules (the category names are mnemonically self-explanatory; cf. also the lexicon below):

1. CONTRIBUTION → <START ((INFO)^{n})^{m}> END / <[− $\overline{\text{INITIAL}}$]>
2. START → (IDENT)^{n} (CONFIRM), $n>\emptyset$
3. END → (CONFIRM?) (IDENT)^{n} CLOSURE, $n>\emptyset$
4. IDENT → (CALL$_i$)^{n} LINK (CALL$_j$)^{m} (ROLE$_j$) / [j PERSON], $i \neq j$, $n, m>\emptyset$
5. CALL → $\left\{ \begin{array}{l} \text{GENERAL} \left(\left\{ \begin{array}{l} \text{SPECIFIER} \\ \\ \text{CALL-SIGN} \end{array} \right\} \right) / \left[\begin{array}{l} 1 \ \text{PERSON} \\ + \ \text{INITIAL} \end{array} \right], [\text{\_\_LINK} \ldots] \\ \text{CALL-SIGN} \end{array} \right\}$

The two levels of bracketing round INFO allow CHANNEL-oriented item iteration (inner) and iteration of the whole category (outer) to accommodate different information types and possible expansion points. Transaction-initial contributions are treated, somewhat arbitrarily, as if they contain only an END constituent (cf. section 3.1, item 1). Stylistic or "marked" features noted in the data are omitted from the PSG, as are uptake loops.

A PSG is possible only as an <UTTERANCE, CONTEXT> categorial hybrid, under the simplifications just noted, and because of the near-isomorphic form context relations of idioms in highly restrictive registers like IART. It does not work without these assumptions or for other registers. Items like START, END, and their constituents are intruders from the higher transaction level and will receive more attention in section 3.4. A PSG provides a useful notation for summarizing contribution from a limited perspective, however. The following is an illustrative lexicon fragment (cf. section 3.4, Fig. 5, for a specimen structural diagram):

LINK: $\emptyset$, *from, this is . . .*
GENERAL: *cq, qrz, qst* (general announcement to all listeners);
SPECIFIER: *dx, Africa, Pacific, Florida*
CALL SIGN: country prefix: G3-, K1-, . . . , 5X5-, 9G1-, etc.;
individuating suffix: -A, . . . , -ZZZ.
CONFIRM: *roger, okay* (in first exchange, greetings: *good morning*, etc.)
CONFIRM?: *how do you copy?*, etc.;
CLOSURE: *over, go (ahead);*
ROLE: *calling, (standing) by, listening, returning;*
INFO: a. <UTTERANCE, <PERSON, CHANNEL>> relations: *you are five and nine*, etc. (cf. sections 3.1, 3.2);
b. <PERSON> properties, e.g., first name;
c. <PERSON, CHANNEL> relations, e.g., *qth* (location).

3.4. An approach to the description of transaction structure

Transactions involve two or more PERSONS, requiring more complex descriptions than monosystemic PSGs can offer. Their main properties in IART, beyond the contribution level, are explicit metacommunicative *framing* and *uptake-securing*. Contribution-level metacommunication is CHANNEL-as-SETTING semantics; *framing* and *uptake-securing* pertain to the pragmatics of CHANNEL use.

Framing, comparable to transaction-level "configurative functions" ascribed to intonation by the Prague school (e.g., Daneš 1960), is the marking of transaction component boundaries relevant to turn-taking, for instance, by IDENTification patterns, or participles in LINKS between these. Framing idioms include *over, go (ahead)* (contribution end), *(signing) ((off and) clear),* (transaction end). The unimodal simplex CHANNEL prevents simultaneous addressee feedback and addressee-originated framing like turn-bidding, which, with noise considerations, promotes explicitness in turn-yielding.

Uptake-securing (Austin 1962: 115ff.), that is, obtaining comprehension as a prerequisite for any speech act, is special semantics-based framing dependent on "normal input and output" preparatory conditions for speech acts (Searle 1969). IART speech can be explained functionally as being subject to "marked" or "abnormal" preparatory conditions based on <<INPUT, OUTPUT>, CHANNEL>relations (cf. section 2.1). Similar "metalocutionary" functions of prosodic devices may be observed, as in calls or other unaided teleglossic speech, in paralinguistic surrogates for these, or in ceremonial public speech, including chants, and so forth (cf. Chao 1956; Gibbon 1976a; section 4.3; Ladd 1978).

The CHANNEL-orientation of uptake-securing can be further analysed as (1) OUTPUT-orientation: (a) *linear* (spelling-out, use of predictable explicit stereotypes, clear enunciation, occasional use of prosodic features of unaided teleglossic speech (e.g., call contours), (b) *cyclic* (repetitions), (c) *technical* (filtering, power increase, speech compression) or (2) INPUT-orientation: (a) *linear* (*roger, okay/fine* (*on . . .*)), (b) *cyclic* (uptake loops to elicit repetition/expansion, etc., from previous speaker), (c) *technical* (tuning, filtering, low-noise amplification).

The OUTPUT-oriented patterns were already noted in section 3.3. INPUT-orientation requires functional constitutive systems (section 1.2) with more than one PERSON and with a structure like Shannon's "correction channel" (1949: 68), containing an additional "observer" to provide "correction data" for a "correction device." Uptake loops provide verbal feedback between two PERSONS; they have been discussed under other names (cf. Hall's "adumbrations," 1964; Yngve's "back channel," 1970; the "repair mechanisms" of Sacks et al., 1974), but the transaction structures usually suggested are not adequate to accommodate them. More structure is needed than the "two turns at a time" binary

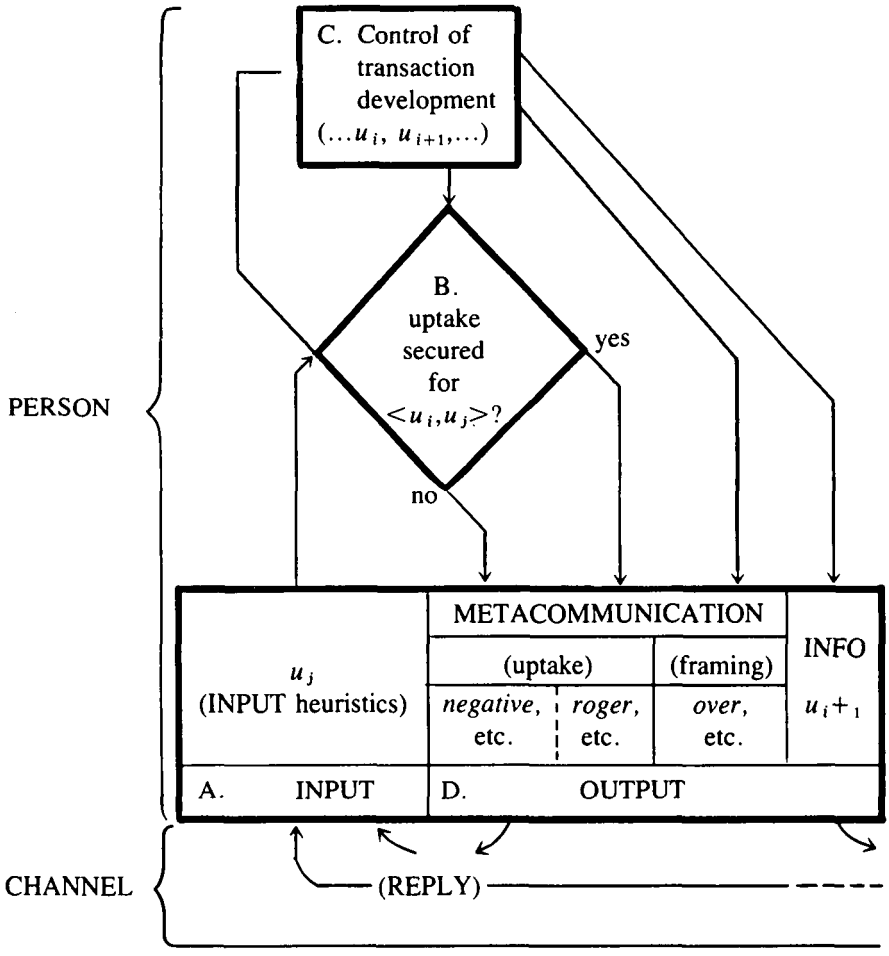

Figure 4: Outline of functional constitutive system with construction of internal <INPUT, OUTPUT> relations to explain uptake loops.

syntax of Sacks et al. or the ternary structures of Sinclair et al. (1975: 50ff.); the purely turn-oriented approaches (e.g., Duncan 1973) stop short of integrating turn-taking with linguistic patterning.

The following schema summarizes uptake loop structure: . . . (<DISCONFIRM REQUEST, REPLY>)^i, CONFIRM . . . An uptake loop is a structured quadruple of contributions: (1) a first exchange with a contribution containing a negative uptake signal (DISCONFIRM, e.g., *negative, bad copy*) and a REQUEST for repetition, followed by a REPLY; (2) a response superordinate to the whole first exchange, containing a positive uptake signal (CONFIRM, e.g., *qsl, roger, okay*). The first exchange, the uptake loop proper, may be iterated as

required. Such loops occur freely after turn-switches, either as the next exchange or initiated inside a longer contribution; distributionally, uptake loops may thus be seen as transaction-level parallels to contribution-level parentheses. The superordinate CONFIRM items may occur in any contribution outside a loop (partial confirmation, like *I got the first letter, but* . . . being a bridge to a new loop), an indication that uptake loop potential may be intrinsic to all nonloop contributions, contingent on uptake evaluation by the addressee, but not always realized. On this assumption, the functional constitutive system of Figure 4 may be constructed in order to account for the facts.

In this system, an utterance analysed as u_j (by heuristics ignored here) enters the system at *A* and is evaluated against current expectations derived from a previous utterance u_i at *B*. On positive evaluation, u_j passes to *C* for further development in a planning function that yields u_{i+1}, which is transmitted via the syntax and phonology of *D*. The evaluation itself may trigger a metacommunicative signal accompanying u_{i+1} and referring to u_i, or on its own as a pure feedback signal of no u_{i+1} is generated. On negative evaluation, INPUT-oriented uptake strategies may be triggered; if necessary, a loop is initiated and iterated (subject to further interest/motivation/frustration factors). A loop initiation may also trigger OUTPUT-oriented strategies in the previous speaker.

The structure of this system accommodates the peculiarities of IART transaction structure; contextual expectations such as those formulated in the hybrid PSG of section 3.3 are defined and revised in *C* as a function of time; comparison with actual interpreted contexts at various levels (of which the uptake comparator is only one) provides contextual expectations for continuing the transaction. Part of these expectations are the institutional and uncodified conventions on <UTTERANCE, CONTEXT> relations governing UTTERANCE semantics (e.g., topic), framing, and other aspects of CHANNEL use. The format of this paper does not allow definition of an appropriate functional constitutive system in full, but this outline, together with the systematic descriptions of the three main levels of such a system (categories, relations, dynamic interpretation) in previous sections, is sufficient to show its basic properties.

To illustrate the stereotypic core structure of transactions in this register, a specimen *qso* (transaction, contact) has been constructed and is shown in Figure 5. For reasons of space, a CHANNEL constraint on academic papers, the subvariety of Morse telegraphy (in alphabetic transcription), IARMT, was used; although not all abbreviations used in the idioms have been documented above, the form-context isomorphism of the restrictive register will enable readers to do their own decoding. Parts *A* through *D* of Figure 4 and the PSG categories of section 3.3 yield relational "defining contexts" for the idioms. Particularly striking is the regular "architecture" of transactions, with symmetrical exchanges reflecting equal participant status (section 2). Use of the wider resources of English face-to-face communication would rapidly result in a conflict with the restrictive forces of the CHANNEL and the institutions that define the commu-

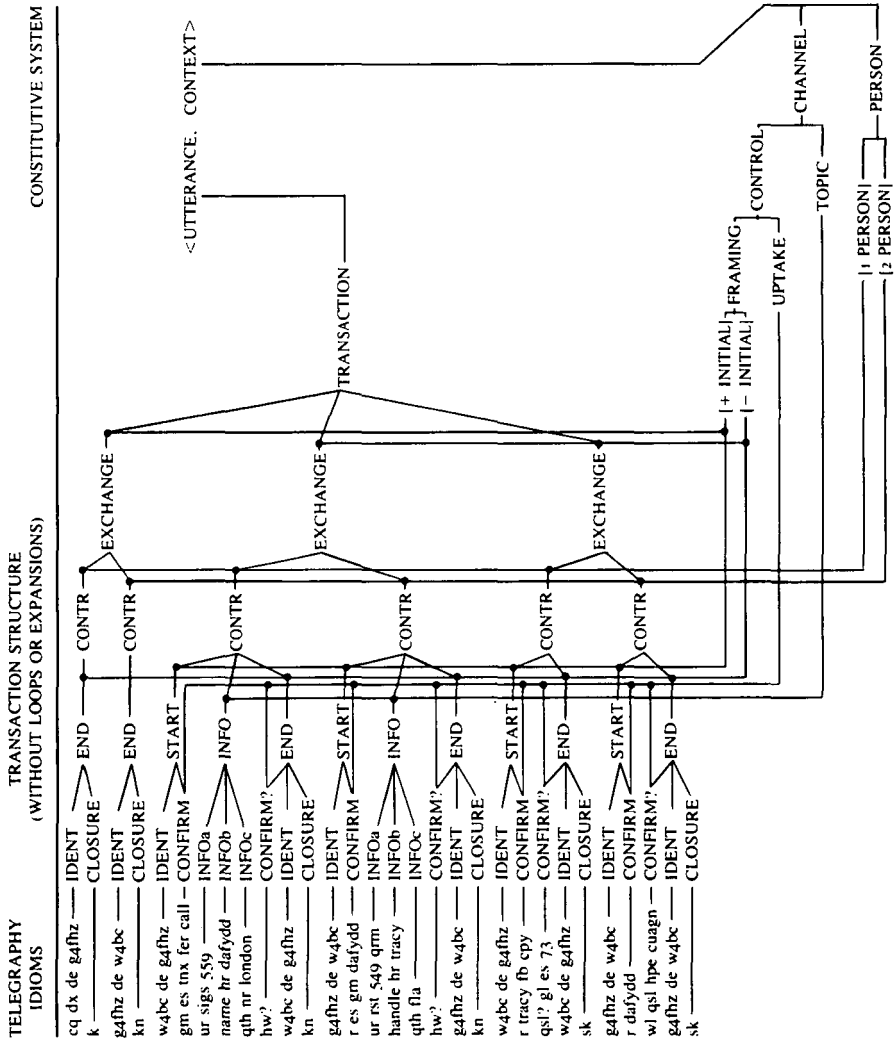

Figure 5: Structure assigned by constitutive system to a constructed minimal IARMT transaction.

nity of PERSONS, and the communication breakdown would be marked by excessive use of uptake loops.

4. CONCLUSION: IART AND OTHER VARIETIES

The present approach synthesizes an account of the linguistic problem of idiomaticity with selected aspects of dialogue analysis in order to account for functional language variation on a coherent functionalistic basis. Cover terms such as "register" (section 1.2) are replaced by more fundamental concepts, and variation that involves adaptation to and modification of contexts of utterance is analyzed using the "restrictive register" of IART. This approach is related to a large number of other parametric accounts of language variation (cf. Crystal & Davy 1969; Ervin-Tripp 1964; Hymes 1972; Klein 1974); it differs from them mainly in its explicit functionalistic foundations and in the intensive treatment of a single register. A specific feature of the approach is that each of the properties and relations assigned to constitutive categories (section 1.2) is a value of a communication parameter (e.g., *face-to-face* vs. *teleglossic*); each parameter is scalar and weighted or "marked" toward one end (here the teleglossic end is more "marked") in terms of the restrictions it imposes on utterances. The regions within the "quality space" defined by these parameters constitute specific registers, some of which are more "restrictive," some less "restrictive," depending on the total "markedness" of the parameter values involved.

A more restrictive neighbor of IART in this quality space is Morse telegraphy; similar to IART are official two-way radio services, less restrictive is CB (Smith 1979) or the telephone. Less restrictive in SETTING (non-null) but more in CHANNEL use (no turn-taking) are broadcast radio and television from the point of view of listener or viewer. Other registers resemble IART less, with fewer restrictive properties and less stereotypy. Kinds of language use with pronounced similarities to IART along one or more dimensions include writing, ritual or ceremonial speech (Arewa & Dundes 1964, esp. 8off.; Sacks et al. 1974: 710), classroom teaching (Sinclair & Coulthard 1975), advertising (Leech 1966), nonce communication between strangers with little if any knowledge of each other's language (high "user noise"), pidgins (Hymes 1971), and baby talk (Ferguson 1977). These suggestions cannot be documented in detail here, but by way of illustration it may be noted that, in written correspondence, turn-taking patterns and stereotypy in framing resemble properties of IART in being relatable to the unimodal, simplex, technically aided teleglossic CHANNEL (section 2.3). Differences in propagation speed (e.g., affecting uptake loop occurrence) result from visual storage properties of the written medium.

It is profitable to speculate on possible extensions of the present approach in other areas of language use and variation. For instance, the possibility of accounting for some aspects of language acquisition in terms of progression from stereotypic (as automatic, imitative, routine, gestalt, holistic) "restrictive"

speech to mixed restrictive and creative speech is interesting (Krashen & Scarcella 1978; Peters 1977; Fillmore 1976; also the system expansion modeled by Halliday 1975). The functional cycle (cf. section 1.2) is also related to the kinds of monitoring that are postulated in sociopsychological studies such as those of Labov (1972), in which parallels between natural and conventional contextual constraints were held to relate to just such a function.

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