

The Dialogic and the Semiotic: Bakhtin, Volosinov, Peirce, and Sociolinguistics

Julie E. Gurdin

This paper addresses the correspondences between two current approaches in sociolinguistics and discourse analysis: Peircian semiotics and Bakhtin/Volosinov's dialogism. Peirce's contribution to sociolinguistics has been the insight that language, though arbitrary, relies upon indexicality and iconicity to be meaningful. In their critiques of abstract objectivism, Bakhtin and Volosinov similarly argued that language is tied to the social contexts in which it is spoken (or written). Both approaches share three concerns. First, language is both arbitrary and socially and contextually grounded. A second issue is the relationship between social diversity and linguistic differentiation. Third, the role of language in the construction and transmission of ideology will be discussed.

INTRODUCTION

Sociolinguistics is committed to the study of language in its social and cultural context. Charles Sanders Peirce and M.M. Bakhtin and V.N. Volosinov provide guidelines for understanding language-in-use as a contextually grounded process. In this paper I will discuss the continuities between Peirce and Bakhtin, addressing how their formulations of the relationship between language and social context have been developed by sociolinguists. Although many investigators have engaged either semiotic or dialogic approaches, their compatibilities and similarities have rarely been addressed. This paper provides a dialogue between Peircian and Bakhtin/Volosinov's approaches, outlining the correspondences and differences between the two. I will first present Peirce's conception of the relationship between signs and their objects, elaborating on Peirce's index as the interface between language and culture. I will then address three continuities between Peirce's and Bakhtin's work. These issues include: an understanding of language as both an arbitrary system of reference and as socially and contextually grounded; the importance of a socially and linguistically differen-

tiated speech community; and the role of language in the construction and transmission of ideology.

PEIRCE'S TRICHOTOMY

The Peircian semiotic framework defines a sign (linguistic or otherwise) as "something which stands to somebody for something in some respect or capacity" (Peirce 1985:5). Peirce focuses on the relationship between a sign, the object it represents, and its interpretant, which is a new sign created in the observer's mind upon observing a sign and relating it to some object. He offers three possible relationships, or modes, between a sign and its object.

Peirce's first mode is *iconic*, in which a sign vehicle derives its meaning from an object because of a formal or physical similarity. A map, a picture, and onomatopoeia are a few examples of iconicity. The second mode is *indexical*, in which a sign stands for its object through co-occurrence in space or time. A siren signals an emergency vehicle, smoke indicates fire. The third mode is *symbolic*, connecting a sign to an object through an arbitrary rule. According to Peirce, lexical items in language are symbolic.

The higher sign modes encompass the lower modes. An index is also iconic because the interpreter notices that the indexical sign physically resembles, or seems like, other occurrences of the sign. The iconic mode is the basis for the interpretant. That is, an interpreter apprehends a sign (a token) and relates to past instances of apprehending the sign upon perceiving a formal similarity (a type). Not only does smoke signal fire, smoke looks like smoke.

Most Peircian semioticians argue that language in its actual use as a tool for human communication operates predominantly in the indexical and iconic modes (Urban n.d.). In this sense, every utterance of a word is an icon of past utterances. Pragmatics, or the use of language in social contexts, draws on the indexical component of language. Because any signalling event occurs at a particular time in a given place among individuals who have a socially constituted relationship, all signs necessarily carry indexical value.

PEIRCE AND SOCIOLINGUISTICS

Silverstein (1981, 1985) elaborated upon Peirce's notion of indexicality, providing a systematic model of the relationship between language, culture, and reality. He argues that the structure

of culture is not reducible to linguistic, grammatical, or semantic structures. The linkage of language to culture resides in the indexical mode, where language and social context merge through use.

Silverstein (1981) offers two forms of linguistic indexes: referential and nonreferential. A referential index, connects a propositional utterance to a specific time and place. Use of verb tense places the time of an utterance in relation to its referent. When I say "My brother ate pizza," I am not only providing information about my sibling's dinner, I am also posing a relationship between the time of my utterance and the time of his action.

Shifters, or deictics, are words which establish their referential value through use (Benveniste 1971). The sentence "I saw it here" makes little sense unless one knows who the speaker is and where she was at the time of the utterance. As they are contextually grounded, shifters can convey important social information. Urban (1989) suggests that the creative, performative use of the pronoun "I" operates in the social and cultural construction of self-identity. Cross-linguistic studies of spatial deictics (e.g. here/there, up/down, front/back) demonstrate how cultural notions of the space, the body, and orientation are encoded in and transmitted through referential indexes (Weissenborn and Klein 1982).

The second index Silverstein (1981) offers does not contribute to an utterance's referential value. Nonreferential indexes provide social information about participants in a speech event and structure social context. Here lies the interface between linguistic and cultural practice. Deference indexes signal the inequalities between speakers and addressees along age, sex, class, hierarchy, and status divisions. First and second person pronouns, in addition to being referential indexes, can also signal status differences, provided they have more than one possible form. Brown and Gilman (1960) traced European pragmatic usage of the informal and formal second person pronoun (T or V, akin to "thou" and "you"). A speaker's use of T or V indexes relative power differential or level of acquaintance among individuals.

A Javanese speaker's word choice marks a speaker's and addressee's social class. The sentence "Did you take that much rice" has 7 possible realizations, depending on the relative statuses of the speaker and addressee. In addition to status considerations, speakers select words to flatter, irritate, or scold (Errington 1985).

The formal features of speech can indicate membership in a

particular social group. Sociolinguistic studies have shown that the intersection of status, class, or gender categories correlates with pronunciation, syntax, and lexical choice. Labov (1972) demonstrated that deletion of post-vocalic /r/ was systematically related to social class in New York City. Shibamoto's (1987) Japanese study indicates that women use politeness markers and certain syntactic forms more often than men. Ochs's (1987) Samoan work and Milroy's (1980) project in Belfast suggest that gender and class/status can operate together to affect linguistic form, though the impact of each factor on linguistic form varies cross-culturally. Although none of these researchers used a Peircian model to explain linguistic variation, their studies clearly reflect the correspondence between linguistic form and social categories.

The use of particular genres can also "pick out" a group of speakers. Kaluli men engage in storytelling, women participate in sung-texted weeping, and *elema* ("say like that") routines occur between mothers and their children (Schieffelin 1990, 1987). Hence, storytelling indexes masculinity, ritual wailing indexes femininity, and *elema* indexes the mother-child relationship. Goodwin and Goodwin (1987) found that African-American girls and boys in Philadelphia employ different strategies when arguing. Unlike conflicts between boys, girls' arguments often focus on remedying the insulting remarks said behind their backs and are structured around a "he-said-she-said" format. Thus, the he-said-she-said arguing style marks speakers as feminine.

That nonreferential indexes can convey social meaning presupposes a socially and linguistically differentiated speech community. Irvine (1989) suggests that

the speech community [is] an organization of linguistic diversity, having a repertoire of ways of speaking that are indexically associated with social groups, roles or activities. In other words, there is a diversity on the linguistic plane that indexes a social diversity (p.251).

People who operate within communities index themselves against others in creative ways, manipulating and transforming categories and their social identities.

The above discussion has focused on linguistic indexical relationships as they coincide with social categories such as class and gender. Linguistic forms also coincide with the ideologies that

shape these categories. The co-occurrence between a particular style of speech and particular social category is not arbitrary, but rooted in social, political, and economic processes (Irvine 1989).

Speakers reflect upon the ideological consequences of language form and style, and shape their utterances to reflect these concerns. Any linguistic form is a possible index of the social context in which it is used. However, some linguistic variants have more ideological salience than others. Silverstein (1985) argues that language and ideology form a "bidirectional dialectic," in which ideology is transmitted by and through language, and speakers' language use is affected by ideological concerns. Hence, a speaker indexes her own political or ideological positions, consciously or unconsciously.

The Peircian semiotic framework's power lies in its systematic understanding of the relationship between the sign and its object. Signs are both socially and contextually grounded. Peirce provides a way "to see the sign as mediate in itself—and as socially grounded" (Mertz 1985:3). For the sociolinguist, this also means that language and culture can be apprehended as observable, empirical, tape-recordable systems.

THE BAKHTIN-VOLOSINOV CIRCLE

Bakhtin and Volosinov were Russian critics who provided a Marxist orientation to the relationships between the sign and its referent, between language and ideology. Although most of Bakhtin and Volosinov's work has centered on literature, their understanding of the processes of language in the novel required attention to how language has operated in social context. Contextualized language, the heteroglossic nature of the speech community, and the relationship between language and ideology are three concepts which relate to Peircian sociolinguistics. Each concept challenges Saussure's (1959) contention that language, as a formal system, carries only symbolic value and a single interpretive frame with which to apprehend it.

Bakhtin's discussion of the "word" as "language in its concrete living totality" (1973:150) closely approaches Peircian interpretations of the linguistic sign. Bakhtin and Volosinov (1973) argue that focusing only on language's strictly referential semantic content eclipses its social, ideological, and transformative power. Words do carry strictly referential, semantic value, akin to the

Peircian symbolic mode. However, the contextual grounding of linguistic signs in time and space between socially constituted individuals provides words with their ideological and social value.

Bakhtin's notion of the word has received the attention of sociolinguists (e.g. Hill 1985, Wertsch 1985). The word is "language in its complete and living totality" (1973:150) and is directly tied to the contexts in which it is used. Bakhtin elaborates:

All words have the "taste" of a profession, a genre, a tendency, a party, a particular work, a particular person, an age group, the day and hour. Each word tastes of the context and contexts in which it has lived its socially charged life; all words and forms are populated by intentions. Contextual overtones are inevitable in the word (1981:293).

The three types of words in the novel include the direct word, the objectivized word, and the double-voiced word, each depending on a distinct relationship between a speaker's authority and context (or author and character) for its meaning (Bakhtin 1973).

The *direct word* is akin to language in its symbolic mode, depending on pure referential and semantic value for its meaning. There is necessarily an indexical relationship between an author's form of expression and her personality, ideological beliefs, social background, etc. However, this indexical relationship is backgrounded because, in the writing itself, the author posits no other voice or word. An author thus asserts her own singular "ultimate authority" (Bakhtin 1973:164) by selecting and imposing a single, unitary interpretive frame.

The *objectivized word* is an author's representation of another's word. In this relationship, the author's speech carries semantic authority over that of her character; there are no inconsistencies between a character's voice and that of the author. Objectivized words are indexical to the extent that the author relies upon certain formal features of speech to typify a character through speech, as well as the indexical features of her own, direct word.

The *double-voiced word* merges an author's word with that of another, and is distinctive of novelistic writing. Bakhtin offers three kinds of double-voiced words: single directed, hetero-directed, and active. Authors use single-directed words when depicting another persona, assuming stylistic characteristics to typify that person's speech. When the author's and character's voices merge,

they are consistent with one another, "the distance between them is lost" (Bakhtin 1973:164), and the single-directed word is reduced to the singular semantic authority of the direct word.

The hetero-directed word is an author's ironic or parodied use of another's word. If the parodied words "are allowed no independence against the author" (Hill 1985:729) and are subordinated to the author's semantic control, the hetero-directed word can be reduced to two distinct forms of the direct word.

The active word, characteristic of the modern novel and discourse-in-practice, incorporates the struggle between the author's word and the word of others. Each competes for prominence, involving a dialogue where the reader (or listener) necessarily contributes to interpreting the importance and value of each.

All of these formulations of the word presuppose indexical value. Each word involves a writer (or speaker) struggling with her own semantic authority. She can falsely assert a single, legitimate interpretive frame, as in the direct word and single direct word, to establish legitimacy for her words. Another option is to allow her word to mingle with other voices, making her utterance into the listeners' opportunity to transform their interpretation of the semantic and ideological content of each of the voices—the active word.

Volosinov (1973) suggests that every utterance of a word has a different meaning, because "there are as many meanings of words as there are contexts to its usage" (p.79). The word, by definition, is contextually grounded. Once placed in context, through being uttered or written in a novel, the interpretation of an utterance is subject to change (Bakhtin 1981). However, Volosinov realizes that there is always a unifying feature that connects all utterances (or tokens) to a semantic value (or symbolic type). In Peircian terms, Volosinov distinguishes between the symbolic and indexical value of words, but realizes the difficulty of establishing a word's strictly symbolic value.

A paradox arises when we try to "unpack" the indexical value of another's utterance. When reproducing another's word, we necessarily omit some contextual features and place the utterance in a new contextual position, flavoring it, for example, with academic overtones. An informant's word in context, becomes something very different when tape-recorded or exposed to (to take a close example) semiotic exegesis.

As Peircian indexicality presupposed an internally differentiated speech community, the double-voiced word entails socially patterned variants entering into dialogue with one another. All national languages are internally differentiated (or "stratified" [Bakhtin 1981:262]) at any single moment. These stratifications create and are created by social differentiation. Bakhtin notes:

Actual social life and historical becoming create within an abstractedly unitary national language a multitude of concrete worlds, a multitude of bounded verbal-ideological and social belief systems; within these systems are elements of language filled with various semantic and axiological content and each with its own different sound (1981:288)

This view supports Irvine's (1979) contention that linguistic diversity and social diversity imply one another. This relationship is based on the indexical relationships utterances generate when they co-occur with a social group or a particular ideological message. Ochs's (1987) and Schieffelin's (1987) work shows that the linguistic manifestations of social categories can be variable.

Bakhtin and Volosinov view language as a necessarily ideological phenomenon. Speech co-occurs with the ideological position(s) of a speaker; it indexes ideology. Human consciousness becomes possible only through the symbolic (in the Peircian or Peirce) quality of language. Ideology is encoded in and transmitted through language because "wherever a [linguistic] sign is present, ideology is present" (Volosinov 1973:10).

Bakhtin (1981) discusses the tension between "centripetal" and "centrifugal" forces of language (p.272). Centripetal forces (e.g. state-sponsored language academies, the Church) seek to impose a unitary frame for linguistic, ideological, and political expression and interpretation. This process is constantly thwarted by centrifugal forces, the spatial-temporal grounding of the word-in-context, which prevents a unitary frame from taking hold. Because every word "tastes" of the different contexts in which it has been uttered and the speakers who have used it, centripetal forces, seeking to impose ideology as well as linguistic form on speakers, are doomed to failure (or only partial success). Language can thus be seen as both "reflecting" and "refracting" ideology (Bakhtin 1981:300, Volosinov 1973:9).

In his discussion of the ideological nature of the linguistic sign, Volosinov (1973) discusses language's involvement in class struggle. The word is flavored with the intentions of all social classes and groups through use. The dominant class may try to impose a singular, dominant (centripetal) interpretation for all linguistic signs. The inner "dialectical" quality, or contradiction, embedded in the word persists, but remains hidden. Bakhtin's centripetal forces may thus succeed for a time, but inevitably fail at the time of social crisis or revolutionary change.

Hill (1985, n.d.) discusses how ideology and resistance are conveyed through language, documenting Mexicano speakers' struggles with the use of their indigenous language and Spanish. A speaker's code choice (of lexical items and grammatical structures) signal attitudes about the relationship between Spanish speakers and Mexicano speakers. A cultivator's addition of Mexicano morphology onto a Spanish loan word can be seen as a form of "double-voicing," at once acknowledging Spanish influence in Mexicano life and language, and resistance to this process through claiming Spanish as her/his own (Hill 1985). Don Gabriel's stumbling and use of Spanish words when discussing his son's capitalistic business ventures relates to his use of language as an "ongoing ideological resistance to capitalist ideology" (Hill n.d.:66) characteristic of peasant discourse. Power relations, between urban and rural, between capitalism and reciprocity, are played out in the linguistic field.

Bakhtin (1973, 1981) and Volosinov's (1973) interpretation of the concept of ideology, rooted in Marxist theory, refers to the conscious and unconscious, socially mediated understanding of the relationships between social groups, power, and access to resources. According to their analyses, language necessarily conveys ideological information.

Bakhtin and Volosinov's conception of language as reflecting and refracting ideology is a process similar to Silverstein's (1985) bidirectional dialectic between language and ideology. Silverstein's discussion of ideology, however, implies that utterances do not necessarily carry ideological value. The ideological force of some lexical items in language can have salience, such as the use of English pronouns "she" and "he" for an unspecified third person. Strict Peircians would argue that signs have indexical ideological value when, and only when, an interpreter apprehends this value.

Hence, the unconscious ideological value of utterances that Volosinov posits is problematic in a Peircian framework.

CONCLUSION

Bakhtin, Volosinov, and Peirce provide mechanisms for understanding language as a contextually grounded phenomenon, as it operates in time and space between socially constituted individuals. The relationship between language and context is an important issue for sociolinguists, who maintain a commitment to documenting this relationship. It is not clear, however, what "context" means. From a perspective centered on indexicality, context is that which co-occurs with an utterance, which may include (to take a very few examples) the time of day, season, gender of participants, their emotional states, and the political-economic milieu in which the utterance is situated.

How do we apprehend and re-present context? How can sociolinguists possibly address all the contextual variables involved in an utterance?

Lave (1986) suggests separating two dimensions of context, arena and setting. A setting is the individual experience and socially mediated interpretation of a place or event. An arena includes the shared dimensions of groups of individuals' settings, the context as grounded in space and time. Arenas are "outside of, yet encompass the individual" (p.151) A setting is the "personally ordered and edited version of the arena" (ibid). Settings are not limited to immediately observable realities. They include motivations, emotions, expression, and social interaction. This view provides a much more complex, and complete, description of the processes within context, as the "lived-in world."

Like Lave, Briggs (1988) believes that "context" needs to be theorized in a more systematic manner. He warns against presenting a false opposition between "text" and "context." Context is not merely those features which are external to language and the referential meaning of an utterance. Rather, context is constituted and constructed through linguistic practices and verbal performances.

Indexicals express different elements of context, and create the very context in which they are uttered. Bakhtin and Volosinov's treatment of the contextual grounding of language does not systematically address different contextual variables. Lave's "arena"

approaches the physical, spatial, and temporal contextual features that referential indexes signify, including components such as personal pronouns, verb tense, and spatial deixis. Nonreferential indexes co-occur with the "setting" portion of context, including variables that co-occur with social groups and power relationships. Although Lave's division between arena and setting complement Silverstein's (1981) discussion of referential and nonreferential indexes, the variables involved with setting alone are numerous, and appear to be the variables of interest to Bakhtin and Volosinov.

Careful attention to some contextual features in sociolinguistic (and ethnographic) studies is often at the expense of others. For example, Goodwin and Goodwin (1987) elaborately code metalinguistic components in their study of children's arguing, but fail to address the children's arguing in terms of how the children are involved within class or ethnic forms of discourse. A similar critique is in order for conversation analysts Sacks and Shlegoff, who re-present a microscopic part of context in their studies, without addressing how these variables are grounded and situated in "macro" social and cultural process.

One route, followed by Lave (1986), Hill (n.d) and Schieffelin (1990) is to make the social actor the unit of analysis, showing how she articulates with and negotiates the larger social processes of everyday life. This approach is consistent with Bakhtin's tradition of looking the texts of individual authors. Schieffelin (1990) closely follows the linguistic socialization of four Kaluli children, showing how ideas about gender and sharing are encoded in and transmitted through language. Unfortunately, issues such as the Kaluli village's relationship to world political and economic processes remain outside the scope of the study.

Hill's (n.d.) explication of a single story told by Don Gabriel draws upon Bakhtin's notions of the word, ideology, and diglossia. This study clearly reveals both the stylistic, performative aspects of Don Gabriel's narrative and how style relates to Mexican and world political economy.

The Bakhtin- inspired focus on the individual performer, however, eclipses Peirce's interpretant as an essential component of the sign. Not only does the word have a different meaning each time it is uttered, an utterance has a distinct meaning for each person who hears it; every interpretant is different. How interpre-

tations of signs are socially mediated is an important element of semiotic analysis (Meintjes 1990).

Although Bakhtin and Peircians would be loathe to suggest that the locus of culture is in people's heads, interpretants are located "in the mind" (Peirce 1985:5). "Getting into" the mind of another is not possible, and any linguistic signs that are used to explain an interpretant are *not* the equivalent of the interpretant, but require another interpretant to apprehend the explanation. The issues of the interpretant and context are critical, and must be resolved by those desiring to integrate Peirce's and Bakhtin's models.

REFERENCES

- Bakhtin, Mikhail 1973 *Problems of Dostoevsky's Poetics*. Ann Arbor: Ardis.
 — 1981 *The Dialogic Imagination*. Austin: University of Texas Press.
- Barthes, Roland 1964 *Elements of Semiology*. New York: Hill and Wang.
- Benveniste, Emile 1971 *Problems in General Linguistics*. Miami: University of Miami Press.
- Briggs, Charles 1988 *Competence in Performance: The Creativity of Tradition in Mexicano Verbal Art*. Philadelphia: University of Pennsylvania Press.
- Brown, R. and A. Gilman 1960 The Pronouns of Power and Solidarity. In *Style in Language*, T.A. Sebeok, ed., pp. 253-76. MIT Press.
- Errington, J. Joseph 1985 On the Nature of the Sociolinguistic Sign: Describing the Javanese Speech Levels. In *Semiotic Mediation*, Elizabeth Mertz and Richard Parmentier, eds., pp. 287-310. New York: Academic Press.
- Geertz, Clifford 1973 *The Interpretation of Cultures*. New York: Basic Books.
- Goodwin, Marjorie Harness and Charles Goodwin 1987 Children's Arguing. In *Language, Gender and Sex in Comparative Perspective*, Susan Philips, Susan Steele, and Christine Tanz, eds., pp. 200-248. Cambridge: Cambridge University Press.
- Hill, Jane n.d. The Voices of Don Gabriel: Responsibility and Self in a Modern Mexicano Narrative.
 — 1985 The Grammar of Consciousness and the Consciousness of Grammar. *American Ethnologist* 12:725-737.
- Irvine, Judith 1989 When Talk Isn't Cheap: Language and Political Economy. *American Ethnologist* 16:248-267.
- Labov, William 1966 *The Social Stratification of English in New York City*. Washington, D.C.: Center for Applied Linguistics.
- Lave, Jean 1988 *Cognition in Practice*. Cambridge: Oxford University Press.
- Meintjes, Louise 1990 Paul Simon's Graceland, South Africa and the Mediation of Meaning. *Ethnomusicology* 34(1):37-74.
- Mertz, Elizabeth 1985 Beyond Symbolic Anthropology: Introducing Semiotic Mediation. In *Semiotic Mediation*, Elizabeth Mertz and Richard Parmentier, eds., pp. 1-19. New York: Academic Press.

- Milroy, Leslie 1980 *Language and Social Networks*, second edition. Oxford: Blackwell
- Peirce, Charles Sanders 1985 Logic as Semiotic: A Theory of Signs. In *Semiotics: an Introductory Anthology*, Robert E. Innis, ed., pp. 4-23. Bloomington, Indiana: University of Indiana Press.
- deSaussure, Ferdinand 1959 *Course in General Linguistics*. New York: Philosophical Library.
- Scheffelin, Bambi 1990 *The Give and Take of Everyday Life: Language Socialization of Kaluli Children*. Cambridge: Cambridge University Press.
- 1987 Do Different Words Mean Different Worlds?: An Example from Papua New Guinea. In *Language, Gender and Sex in Comparative Perspective*, Susan Philips, Susan Steele, and Christine Tanz, eds., pp. 200-248. Cambridge: Cambridge University Press.
- Shibamoto, Janet 1987 The Womanly Woman: Manipulation of Stereotypical and Nonstereotypical Features of Japanese Female Speech. In *Language, Gender and Sex in Comparative Perspective*, Susan Philips, Susan Steele and Christine Tanz, eds., pp. 26-49. Cambridge: Cambridge University Press.
- Silverstein, Michael 1985 Language and the Culture of Gender: At the Intersection of Structure, Usage, and Ideology. In *Semiotic Mediation*, Elizabeth Mertz and Richard Parmentier, eds., pp. 219-259. New York: Academic Press.
- 1981 Shifters, Linguistic Categories, and Cultural Description. In *Meaning in Anthropology*, K. Basso and H. Selby, eds., pp. 11-55. Albuquerque: University of New Mexico Press.
- Urban, Greg 1989 The Eye of Discourse. In *Semiotics, Self, and Society*, B. Lee and G. Urban, eds. Berlin: Mouton de Gruyter.
- n.d. *Semiotics and Linguistics*
- Volosinov, V.N. 1973 *Marxism and the Philosophy of Language*. Cambridge, Massachusetts: Harvard University Press.
- Weissenborn, J. and W. Klein 1982 Introduction. In *Here and There: Cross-Linguistic Studies on Deixis and Demonstration*, J. Weissenborn and W. Klein, eds., pp. 1-12. Amsterdam: John Benjamins.
- Wertsch, James 1987 The Semiotic Mediation of Mental Life: L.S. Vygotsky and M.M. Bakhtin. In *Semiotic Mediation*, Elizabeth Mertz and Richard Parmentier, eds., pp. 50- 71. New York: Academic Press.

