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ABSTRACT
        This collection of working papers contains four
papers on varied topics in lintuistic theory. The first paper, "Some
Grammatical Correlates of Felicity Conditions and Presuppositions,"
attempts to show that there is a systematic relationship between what
a speaker of a language does in uttering sentences of that language
and the syntactic form of those utterances. The second paper is the
translation of a Russian article on the typology of causative
construction. The article presents the study of a universal
classificatory schema which would be appropriate in different
languages. The third paper considers why sound change is gradual and
discusses the factors and processes involved. The final paper
explores the feasibility of the basic idea of natural phonology and
considers whether the restrictions on inventories of underlying
phonological segments are due to processes rather than abstract
hierarchies or morpheme structure constraints. Vowel systems are
considered here. (VM)

WORKING PAPERS IN LINGUISTICS NO. 11

By

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Working Papers in Linguistics No. 11

Introduction

This issue of Working Papers in Linguistics treats a variety
of topics. Heringer's contribution (also submitted as a Ph.D.
dissertation, August, 1971) and Wojcik's translation from Russian
concern aspects of syntax and semantics. Schourup's paper (the
winner of the O.S.U. 1971 Prize Essay Contest in Linguistics) examines
a classic question in historical linguistics. Miller's work (also
submitted as an M.A. thesis, June, 1971) explores problems in
phonological theory.

With this issue, the publication of Working Papers in Linguistics
has been released from ties to departmental grants and is financially
self-supporting. Future issues will include collections of papers on
single topics (e.g., acquisition), as well as diverse collections like
this one. Each number will have its own editor.

Arnold M. Zwicky

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SOME GRAMMATICAL CORRELATES OF FELICITY

CONDITIONS AND PRESUPPOSITIONS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

James Tromp Heringer, Jr., A.B.

* * * * *

The Ohio State University
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CHAPTER I

INTRODUCTION

This dissertation is an attempt to show that there is a systematic relationship between what a speaker of a language does in uttering sentences of that language and the syntactic form of those utterances. That is to say, through an examination of some of the acts performed by a speaker in producing an utterance we will be able to find an account for the grammar of the utterances used to perform those acts.

Of necessity such an attempt must draw heavily from the work of Austin (1962) and Searle (1969), who both concern themselves with speech acts. In chapter two, we review some of Austin's concepts and Searle's development of them, and in particular, the concepts of illocutionary act and felicity condition.

It has recently been shown that by reference to certain felicity conditions on illocutionary acts, it is possible to explain a certain type of expression of those acts (Gordon and Lakoff, 1971), called conversational implications by Gordon and Lakoff and indirect illocutionary acts here. In chapter three, we examine this process, especially the subset of felicity conditions on which such indirect illocutionary acts may be based, which subset we here define as the subset of intrinsic conditions. It is shown that several of these

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intrinsic conditions are not conditions on particular illocutionary

acts, but rather general conditions on all illocutionary acts, and

that therefore a variety of illocutionary acts may be indirectly

performed by use of one such general intrinsic condition. We attempt

an explicit account of the process by which such indirect performance

can take place.

Intrinsic conditions on illocutionary acts do not only serve

as the basis for indirect illocutionary acts; they also are signifi-

cant in a process called here illocutionary act qualification. In

chapter four, we delimit a class of if clauses which do not behave

in utterances like the antecedents of true conditionals. It is shown

that such if clauses, named qualifying if clauses, can be explicated

only by reference to the illocutionary acts performed by the utter-

ances which contain them. When such reference is made, it turns out

that a qualifying if clause serves to call into question whether an

intrinsic condition on the illocutionary act performed by the

utterance holds. Further, the syntactic form of the if clause is

directly related to the intrinsic condition which it calls into

question. We find that only a subclass of intrinsic conditions on

illocutionary acts may be the basis for illocutionary act qualification

and argue that this subclass is a semantically natural class.

All of the above work concerns itself with illocutionary acts.

Speakers uttering sentences also perform propositional acts, i.e.,

acts of reference and predication (Searle, 1969). Chapter five

discusses the relationship between propositional acts and the fact

that some presuppositions may be the basis for qualification of

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propositional acts through the syntactic medium of _if_ clauses which
have almost the same properties as _if_ clauses used to qualify
illocutionary acts. It also turns out not only that some presupposi-
tions may constitute the basis for propositional act qualification,
but also that truth conditions on propositional acts may constitute
the basis for such qualification. Truth conditions are logically
necessary conditions for a propositional act to be true, while pre-
suppositions are necessary conditions for a proposition to have a
truth value or to be meaningful.

In chapter six, we find that parallel to indirect illocutionary
acts based on intrinsic conditions, there are indirect propositional
acts based on truth conditions. Such indirect propositional acts
are shown to be identical to what Geis and Zwicky (1971) have called
invited inferences. The exact process by which invited inferences
are generated is discussed and several examples of its application
are illustrated. We also attempt an explanation for why presuppoitions
may not be the basis for invited inferences.

In short, this dissertation discusses two processes in which
conditions on speech acts figure, the process of performing an indirect
act and the process of qualifying an act. These processes are discussed
with respect to the performance of illocutionary acts and the perfor-
mance of propositional acts. It is shown that in all cases, it is
possible to explain syntactic features of utterances used to perform
speech acts by reference to semantic conditions on those acts.

In this dissertation, we consider application of the ideas
presented to the study of English syntax only. Because of the
elusiveness of the acceptability judgments involved in testing such

application, it would seem necessary to employ native speaker
intuitions about a language to extend the analysis presented here
to that language. However we would be surprised if it were impossible
to extend the analysis to all human languages, since the abstractness
and generality of the notions involved make them candidates for
semantic universals. This is not to say that all English utterances
presented here should be literally translatable into any other
language with no change in acceptability judgments, or that all
languages have the same syntactic mechanisms for the qualification
of acts or the expression of indirect acts. Rather the claim would
be that all languages have some process for expressing illocutionary
and propositional acts indirectly and some process for qualifying
illocutionary and propositional acts, and that these processes would
depend on intrinsic conditions on illocutionary acts and presuppositions
of and truth conditions on propositional acts in a manner similar to
the corresponding processes in English.

By the same token, it is expected that there will be dialectal
(or idiolectal) variation in the reaction to the English sentences
used as examples here. However, if our hypotheses about the general
relationship between speech acts performed with an utterance and the
syntax of that utterance are correct, all such variation is to be
explained as dialectal idiosyncracies in the use of lexical items
and in the application of syntactic rules. This does not render our
hypotheses unfalsifiable and therefore empty, since there are types
of variation which would count as counterevidence against them, namely,
variation that is general and not specific to a particular lexical
item or purely syntactic rule.

CHAPTER II

ILLOCUTIONARY ACTS AND FELICITY CONDITIONS

We owe to Austin (1962) the notion of the _illocutionary force_
of an utterance. This is, essentially, the act that one performs
in producing a linguistic utterance under the appropriate circumstances.
Some examples are:

(2.1) I advise you not to eat that popcorn.

(2.2) I order you to leave the premises.

(2.3) I promise to wash half the dishes.

In appropriate circumstances, if a speaker of English utters (2.1),
(2.2), or (2.3), he has in fact performed the act of advising,
ordering, or promising, respectively, and (2.1), (2.2), and (2.3)
under such circumstances have the illocutionary force of a piece of
advice, an order, and a promise, respectively.

In the case of (2.1), (2.2), and (2.3), the main verb of the
sentence gives explicit expression to the illocutionary force of the
utterance. Such verbs are called _explicit performative verbs_ by
Austin. Austin notes that an explicit performative verb must be
the main verb of the sentence and must generally be in the 1st
person present tense, i.e., must be used performatively, if the
sentence is to have the illocutionary force indicated by the verb.
Further, _hereby_ may modify only explicit performative verbs and these

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only when they are used performatively.

In other cases of performing acts by uttering words, however, there need not be an explicit performative verb present. Thus, (2.4), (2.5), and (2.6) are just as much acts of advising, ordering, and promising when uttered under the appropriate circumstances as (2.1), (2.2), and (2.3) would be.

> (2.4) You shouldn't eat that popcorn.
>
> (2.5) Leave the premises.
>
> (2.6) I shall wash half the dishes.

In fact it can be maintained (and will be maintained in this work) that all normal utterances made by speakers of a language have illocutionary force (Searle, 1969) in that all normal utterances perform acts of asserting, apologizing, criticizing, welcoming, etc. (although Austin would distinguish some of these as locutionary rather than illocutionary acts).

Many utterances may also have the effect of performing what Austin calls perlocutionary acts, as well as illocutionary acts. Thus by uttering (2.1) or (2.4) the speaker may alarm his hearer. The speaker then, by performing the act of advising, has secondarily performed the perlocutionary act of alarming.

One difference between illocutionary acts and perlocutionary acts is that while the former are directly involved in the act of producing an utterance, the latter are less central to the act (Austin, 1962). This is evidenced by the fact that, while a given utterance under normal circumstances must be the performance of one and only one illocutionary act, the same utterance may under normal

circumstances be the performance of several perlocutionary acts or
perhaps none. If the addressee to whom (2.7) is directed takes it
as an informational question while the speaker intended it as a
request for action, the addressee has misunderstood.

(2.7) Do you want to open the door?

However, the utterance of (2.7) may inspire, persuade, frighten,
etc., the addressee or may have several of these effects on him
without it being said that he misunderstands (2.7), independent of
whether the speaker intended to produce any of these effects in the
hearer.

The question immediately arises whether the illocutionary
force of an utterance is a well-defined notion, that is whether for
a given utterance there is any way of determining other than by vague
intuition what illocutionary act(s) may be performed by the speaker
using it and distinguishing such illocutionary acts from the possible
perlocutionary acts associated with the utterance. It should be
obvious that this question cannot be answered positively without
reference to the circumstances surrounding the utterance. One cannot
discover, by intuition or any other means, whether (2.8) is a simple
statement of fact, a promise, a threat, or a question without knowing
something about the speaker's intentions, beliefs, and desires.

(2.8) You are going to leave.

However, given for example that the speaker believes he does
not know whether or not the hearer is going to leave, that the speaker
believes that the hearer is able to tell him whether he is leaving
or not, and that the speaker wants to know whether or not the hearer

is leaving, it is necessarily the case that (2.8) was uttered as a
question. This may be tested in the case by noticing that under
these circumstances the utterance of (2.8) has the same illocutionary
force as the utterance of (2.9), which contains an explicit
performative verb, that is, they both count as requests for information.

(2.9) I hereby ask you whether you are going to leave.

It turns out that for every illocutionary act there is a rela-
tively small set of necessary conditions on the intentions, beliefs,
desires, and external circumstances of the speaker and addressee who
are performing the illocutionary act, that is a set of conditions on
the speaker's and addressee's set and setting.[1] These conditions are

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[1]These terms are to be construed only as convenient labels,
without psychologistic connotations.

---

called felicity conditions. In the case of illocutionary acts in the
legal sphere, such as pronouncing a couple man and wife or contracting
to form a partnership, the conditions are partly legal in nature and
therefore conventional, as noted by Austin (1962). As Searle (1969)
would have it, all felicity conditions are conventional, but this
appears to be false (David Stampe, personal communication). For
example, it seems strange to say that the condition that the speaker
requesting something to be done must intend for that thing to be
done is conventionalistic rather than naturalistic. If the condition
were merely a convention, one would expect to find in some language
utterances having illocutionary force almost like that of requesting
but lacking the condition on the speaker that he intends to be done

what he 'requests' to be done. However, we will not pursue this matter further here, since our results here do not depend crucially on the conventionality or naturalness of felicity conditions.

Felicity conditions do not only have the function of allowing us to distinguish between the different possible illocutionary forces of an utterance. Their main function is to characterize felicitous illocutionary acts and thereby indicate the various ways that illocutionary acts can go wrong. The necessity for this derives from the fact that the illocutionary force of an utterance is not strictly speaking true or false, unlike the proposition expressed by an utterance. Thus suppose the speaker uttering (2.10) does not own a car.

(2.10) I hereby bequeath you my car.

There is something wrong with his uttering (2.10) then, but it cannot be said that (2.10) <u>as an illocutionary act</u> is false (or true for that matter). (2.10) is odd or misleading under the circumstances, i.e., 'infelicitous'. By distinguishing between the proposition expressed by an utterance and the illocutionary act performed by an utterance, we can account both for the possibility that (2.11) (or the proposition expressed by (2.11)) is false and for the possibility that (2.11) (or the illocutionary act performed by asserting (2.11) is odd if, e.g., the speaker believes that the hearer already knows that his wife is faithful.

(2.11) Your wife is faithful.

Austin distinguished various types of felicity conditions, according to the following taxonomy (from Austin, 1962, pp. 14-16):

(α.1) There must exist an accepted conventional
       procedure having a certain conventional
       effect, that procedure to include the uttering
       of certain words by certain persons in
       certain circumstances, and further,
(α.2) the particular persons and circumstances in
       a given case must be appropriate for the
       invocation of the particular procedure
       invoked.
(β.1) The procedure must be executed by all parti-
       cipants both correctly and
(β.2) completely.
(γ.1) Where, as often, the procedure is designed
       for use by persons having certain thoughts
       or feelings, or for the inauguration of
       certain consequential conduct on the part
       of any participants, then a person partici-
       pating in and so invoking the procedure must
       in fact have those thoughts or feelings,
       and the participants must intend so to
       conduct themselves, and further,
(γ.2) must actually so conduct themselves
       subsequently.

Austin calls violations of the (α) or (β) conditions misfires

while violation of the (γ) conditions are termed abuses by him. In

the former case, the illocutionary act involved is said to be void

while in the latter it is said to be hollow. Violations of the (α)

conditions are called misinvocation (act disallowed) with violations

of (α.1) being termed non-plays, and (α.2), misapplications.

Violations of the (β) conditions are called miscarriages (act

vitiated) with (β.1) violations being called flaws or misexecutions

and (β.2) violations being called hitches or non-executions. Among

the violations of the (γ) conditions, violations of the (γ.1) type

are called insincerities or dissimulations, while those of (γ.2) are

called non-fulfillments, disloyalties, infractions, indisciplines,

or breaches.

In what follows, we will consider only the (γ.1) type of

felicity condition, those involving beliefs, knowledge, intentions,

and desires, i.e., the set of the participants in an illocutionary

act, the reason being that these are the ones which have the most

interesting syntactic consequences. Before proceeding, however,

we must modify Austin's terminology for violations of (γ.1). First

of all, the distinctions between (α) and (β) conditions on the one

hand and (γ) conditions on the other was made by Austin because it

seemed to him that the last type, unlike the first two, could be

violated without utterly voiding the illocutionary act, that is,

that all felicity conditions involving participant set are not

central to the illocutionary act and may be violated without totally

vitiating the act. However, there are cases of felicity conditions

on the speaker's and addressee's beliefs which are central to the

act being performed, in the sense that they cannot be violated

without voiding the illocutionary act being performed. For example,

in order for a speaker to perform the act of promising, his addressee

must prefer the speaker's doing what he is promising to do to his

not doing it, and the speaker must believe that the hearer would so

prefer. In order to perform the act of threatening, on the other

hand, the addressee must believe that he would prefer that the

speaker would not do what he is threatening to do, and the speaker

must believe that the hearer would so prefer (Searle, 1969). In all

other respects, promises and threats seem to have identical felicity

conditions. If the felicity conditions made explicit above for

promises were both violated, one would not say the speaker has made

an insincere promise; one would say he has failed to promise and has

instead threatened something, if he has done anything at all. If

only one of the conditions is violated, again, one would not say

that an insincere promise had been made, but that no promise had

been made.[2] Thus (γ.1) type of felicity conditions may be central

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[2]Alternatively it might be said that promises in general
have no felicity conditions involving hearer preferences and that
threats are a special subclass of promises set apart from the
rest by felicity conditions involving negative hearer preferences.
Even if this were so, the illocutionary act of threatening would
still have criterial felicity conditions involving speaker and
hearer beliefs. A threat to do something the speaker believes
the hearer wants him to do is not a hollow threat; it is simply
not a threat.

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to the performance of the illocutionary act, and may cause misfiring,

or voiding of the act, if they are violated.

A second objection is to Austin's labeling of failure of (γ.1)

conditions as insincerities or dissimulations. This terminology

leads Austin, Searle (1969), Gordon and Lakoff (1971), and others

to call (γ.1) conditions sincerity conditions. However not all

failures of felicity conditions on participant set lead to utterances

which could be called simply insincere. The case given above, where

ϵ (γ.1) condition failure causes voiding of the illocutionary act,

is one example. Although it might be argued that in the example

given the act was void because the promise or threat was insincere,

the act was not performed, and thus could not be called an insincere

act.

There are also cases where a (γ.1) type violation causes only

abuse and not misfiring of an illocutionary act (i.e., the act is

still performed) but where the abuse results from impoliteness

rather than insincerity. Thus, if you request a person to do some-

thing that you believe he would object to doing, you are simply not

being polite.[3] You can be accused of being insincere in this

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[3]To dispel an obvious objection to the notion of politeness
conditions on requests, that politeness or lack of it is not
specifically a feature of requests but rather a general phenomenon
which need not even be verbal, we point out that what we actually
have here is the application to requests of a general politeness
condition on acts involving another individual, that that individual
not object to any part of a polite act. We will find in chapter
three that not only politeness conditions but other sorts of
intrinsic conditions may be conditions on acts in general rather
than specific to a particular illocutionary act.

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instance only if you use polite phrasing deceptively, but this

insincerity is secondary to a violation of what might be called a

politeness condition on requests, that the speaker believes his

addressee would not object to doing what he is being asked to do.

Sincerity and politeness are in fact parallel modes of behavior,

in that, just as there are cases where one is not expected to be

polite, such as when speaking to close friends or when angry, there

are cases when one is not expected to be sincere, such as when

pretending or when engaging in diplomacy. In these cases, sincerity

or politeness conditions on illocutionary acts may be violated

without causing infelicity. Thus, if a diplomat utters (2.12), his

fellow diplomats spend little time questioning his sincerity in

uttering (2.12) but consider rather the possible perlocutionary acts

performed by such an utterance--e.g. convincing them of the truth of

(2.12), frightening them by suggesting that (2.12) is false, or

lulling them into feeling secure--and why the diplomat would want

to perform such acts.

> (2.12) We have no intention of widening the war in
>   Southeast Asia.

Other examples of felicitous insincere illocutionary acts are rife

among the pronouncements of politicians, e.g., (2.13).

> (2.13) I am not now, never have been, and never will
>   be a candidate for that office.

We shall call felicity conditions on the participants' set for

an illocutionary act (that is, Austin's (γ.1) type of felicity

condition) intrinsic conditions on that illocutionary act, and all

others, those involving the setting of an illocutionary act,

extrinsic conditions. Those intrinsic conditions on an illocutionary

act violati ns of which cause the act to be void will be called

essential intrinsic conditions. We will still use the term sincerity

condition, but reserve it for those intrinsic conditions which have

to do with the sincerity of illocutionary acts, and similarly we

will use the term politeness condition for those intrinsic conditions

which have to do with politeness of illocutionary acts.

CHAPTER III

INDIRECT ILLOCUTIONARY ACTS

We are now in a position to discuss a grammatical correlate
of felicity conditions on illocutionary acts. A basic claim defended
here is that by making reference to the class of felicity conditions
we have just defined as intrinsic conditions, we can in theory
account for all the possible grammatical expressions of a given
illocutionary force, and moreover that without reference to
intrinsic conditions, such an account would be impossible, We make
this claim programmatically, in that we do not intend to discuss
here all cases of grammatical expressions of illocutionary acts.
We will present some confirming cases which substantiate a general
claim about the relationship between intrinsic conditions and
expressions of illocutionary acts, one which we know of no clear
counterexamples to. Complete validation of the claim must wait,
however, until there is a complete working out of the intrinsic
conditions on illocutionary acts, a project beyond the scope of this
work.

One class of possible alternative expressions of illocutionary
force has been discussed by Gordon and Lakoff (1971), who attempt
to show that "one can convey a request by (i) asserting a speaker-
based sincerity condition [on that request] or (ii) questioning a

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hearer-based sincerity condition [on that request]." This is based

on the fact that all of the following are possible requests (the

examples are Gordon and Lakoff's), and that there exist sincerity

conditions on requesting expressable as follows: "if a sincerely

requests of b that b do R, then a wants b to do R, a assumes that b

can do R, a assumes b would be willing to do R, and a assumes that b

will not do R in the absence of the request."

(3.1) a. I want you to take out the garbage.

b. Can you take out the garbage?

c. Would you be willing to take out the garbage?

d. Will you take out the garbage?

On the other hand, sentences similar to (3.1) in _form_ such as (examples

Gordon and Lakoff's) (3.2) cannot possibly be used to convey requests

because there are no sincerity conditions on requesting like those

above by which such sentences as (3.2) could be related to requests.[4]

(3.2.) a. I suppose you're going to take out the garbage.

b. Must you take out the garbage?

c. Are you likely to take out the garbage?

d. Ought you to take out the garbage?

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[4]It should be pointed out that since it is not obvious that
there should be _any_ formal characterization of requests (although
such a claim is defended in Gordon and Lakoff (1971) and here),
it is not clear why anyone would expect sentences like (3.2) to
convey requests any more than he would expect "Salt is NaCl." to
(David Stampe, personal communication).

Gordon and Lakoff discuss under what circumstances sentences

like (3.1) can convey requests. They state that (i) the utterance

must not have its literal meaning, (ii) elements of the conversational context and conversational postulates, in the sense of Grice (1968), must entail the request. Conversational postulates are said to be parallel to meaning postulates and to include among others (3.3), where the capitalized words are intended to represent semantic units.

(3.3) a. SAY (a,b, WANT (a, Q)) → REQUEST (a,b,Q)

b. ASK (a,b, CAN (b,Q)) → REQUEST (a,b,Q)

In other words, sincerity conditions on requests can be the basis for conversational postulates, which explains how some utterances which can be literally taken as assertions or informational questions can convey requests.

When we attempt to extend Gordon and Lakoff's analysis to other illocutionary acts and to other felicity conditions on illocutionary acts, we find that, while it appears to be essentially correct, modifications must be made in the original formulation of the analysis.

First of all, it is fairly obvious that when Gordon and Lakoff speak of sincerity conditions, they are in fact referring to what we have called intrinsic conditions. This can be seen even with one of the purported sincerity conditions on requests given above, that the speaker wants the addressee to do R if he requests him to do R. If A requests B to do R and at the same time A has no desire for B to do R, it may be said that A is being insincere and even that A has made an insincere request. However, as indicated in the last chapter, this is not what is at issue in Austin's framework. At issue is whether requests which are insincere in this manner still

count as real requests, the way the assertion of something one does
not believe, that is, an insincere assertion, still counts as a
real assertion. This issue can be settled by considering (3.4) and
(3.5), which seem to indicate that, while requesting something one
does not want can be grounds for saying the request was misexecuted
and void, asserting something one does not believe cannot be grounds
for saying that the assertion was misexecuted and void.

> (3.4) He requested me to help him, but since it turned
> out that he didn't have any desire for me to help
> him, it wasn't a real request.

> (3.5) *He stated that Mary was his wife, but since it
> turned out that he didn't believe she was his
> wife, it wasn't a real statement.

Furthermore, while (3.6) conveys a request, it cannot be main-
tained that a condition on the <u>sincerity</u> of requests is that the
speaker believe that the hearer would not object to doing what he is
being requested to do.

> (3.6) Would you mind taking out the garbage?

This is obviously a condition on the politeness of requests which
derives from a general condition on polite acts.

Thus it seems that Gordon and Lakoff's analysis is actually an
analysis of the conveyance of illocutionary acts by the use of
intrinsic conditions. Another objection to their analysis is that
they make it appear that the intrinsic conditions on a given illocu-
tionary act are unrelated to the intrinsic conditions on any other
illocutionary act, or, if they are related, that the relationship
is accidental. But this is not the case. For example, consider the
intrinsic conditions at the right side of the arrows in (3.7).

(3.7) a. A requests B to do R → A believes B is able
          to do R

      b. A offers to do R for B → A believes A is able
          to do R

      c. A asserts P to B → A believes that B is able
          to come to believe (or to know) P

      d. A asks B P → A believes that B is able to tell
          A P (where P is an incompletely specified
          proposition or the disjunction of a proposition
          and its negation)

All of these intrinsic conditions may be used to convey illocutionary

acts, as in (3.8).

(3.8) a. Can you answer the phone? (request)

      b. $\begin{Bmatrix} \text{Can I} \\ \text{I can} \end{Bmatrix}$ help you with the dishes $\begin{Bmatrix} ? \\ . \end{Bmatrix}$ (offer)

      c. Can you believe that Irv is a virgin? (assertion)

      d. Can you tell me what time it is? (question
          about the time)

In Gordon and Lakoff's system, the conversational postulates justifying

the indirect illocutionary acts in (3.8) would probably come out

something like those in (3.9).

(3.9) a. ASK (a,b, CAN (b,Q)) → REQUEST (a,b,Q)

      b. ASK (a,b, CAN(a,Q)) → OFFER (a,b,Q)
          or SAY (a,b, CAN (a,Q)) → OFFER (a,b,Q)

      c. ASK (a,b, CAN (COME ABOUT (KNOW (b,Q)))) → SAY
          (a,b,Q)

      d. ASK (a,b, CAN (b, SAY (b,a,Q))) → ASK (a,b,Q)

Instead of setting up four different intrinsic conditions and basing

five different conversational postulates on them to account for the

illocutionary acts conveyed with utterances like those in (3.8), an

account which captures the underlying relatedness of the intrinsic

conditions in (3.7) and illocutionary acts conveyed by them seems

necessary.

The most direct way to achieve such an account is to postulate
one general intrinsic condition on illocutionary acts having to do
with participant ability. A preliminary statement of this condition
is given in (3.10).

> (3.10) The performer of an illocutionary act K believes
> that the performers of the volitional acts
> involved in the carrying out of K are in fact
> able to perform those volitional acts.

The volitional acts referred to in (3.10) are those acts denoted by
a subclass of the non-stative verbs and adjectives (Lakoff, 1966),
namely the pro-agentive verbs discussed in Lee (1970) <u>when they occur
with agents</u>. Thus, while (3.11a) is ambiguous between an agentive
reading where John intentionally frightened the baby and a non-agentive
reading where John frightened the baby, perhaps by accident, (3.11b)
<u>understood as a request</u> does not show this ambiguity.

> (3.11) a. John frightened the baby.
>
> b. Can you frighten the baby?

As an informational question about the addressee's abilities, however,
(3.12) is ambiguous as to agentiveness.

> (3.12) Can you frighten the baby by accident?

(3.12), unlike (3.11b), cannot be understood as a request but only
as an informational question (unless one is talking about frightening
the baby accidentally on purpose). The reason (3.12) cannot be
understood as a request is that the phrase <u>by accident</u> forces a non-
agentive interpretation on the sentence, thus making the act denoted
by <u>frighten</u> non-volitional. Since the act is non-volitional, the

ability condition given in (3.10) cannot be used to perform an
indirect illocutionary act.

Given an intrinsic condition such as that in (3.10), the next
thing we need to know is how such a condition is used to perform
illocutionary acts indirectly. Modifying Gordon and Lakoff's (1971)
account somewhat, we shall say that:

> (3.13) An illocutionary act K is performed indirectly
> by asserting that an intrinsic condition on K
> holds or by questioning whether an intrinsic
> condition on K holds.[5]

---

[5]Asserting an intrinsic condition to perform K is not
interchangeable with questioning an intrinsic condition to perform
K. Gordon and Lakoff (1971) would have it that assertion is used
when the agent is first person and questioning is used when the
agent is second person, but this is wrong, as shown by the
possible indirect acts given in (a) and (b).

> (a) Can I help you? (offer)
> (b) You can take out the garbage. (command)

The distinction between assertion and questioning will be
discussed further below.

For intrinsic conditions with more than one possible application
to a given illocutionary act--such as that in (3.10), which refers
to all volitional acts needed to carry out K--an illocutionary act
is performed indirectly by asserting that a specific application of
the intrinsic condition holds or by questioning whether a specific
application holds. In the case of (3.10), this means asserting that
a participant in the illocutionary act has the ability to perform
one of the volitional acts necessary to the carrying out of the
illocutionary act or questioning whether such is the case.

To illustrate these ideas, we need an analysis of illocutionary acts which makes explicit the volitional acts involved. A rough attempt at such an analysis is given in (3.14) for some illocutionary acts.

(3.14) a. <u>Assertions, Granting of Permission</u>

SAY (S,H,P)

SAY (S,H, (ALLOW (S, (DO (H,A)))))

b. <u>Questions</u>

IMPERE[6] (S,H, (SAY (H,S,p)))

c. <u>Promises, Offers</u>

PROMOFF[6] (S,H, (DO (S,A)))

d. <u>Commands, Requests, Asking Permission</u>

IMPERE (S,H, (DO (H,A)))

IMPERE (S,H, (ALLOW (H, (DO (S,A)))))

---

[6]IMPERE is a representation of the semantic content common to the explicit performative verbs <u>command</u>, <u>order</u>, <u>request</u>, <u>ask (that)</u>, and others like them, as well as of the illocutionary force of many imperatives. The term is from Ross (1970), as is the analysis of questions. A similar representation of the semantic content common to offering and promising is labelled by PROMOFF.

The representations in (3.14) are intended to be semantic representations and the items in capital letters are to be taken as semantic primes. These representations are very schematic. It is highly probable that the posited semantic primes are actually semantically complex, but, we hope, not in ways which bear on the argument. S and H are labels for the speaker and addressee of the illocutionary

act. A is an arbitrary volitional act, and P is an arbitrary proposition.

Before continuing, it should be noted that embodied in the representations in (3.14) is the claim that promises and offers are not two different types of illocutionary acts, but rather two realizations of the same illocutionary act, and that commands and requests are similarly related. In fact, we wish to claim that requests and offers are just deferential commands and promises.

One piece of evidence for this claim is the fact that while there are explicit performative verbs for the illocutionary acts of commanding and promising, there are no explicit performatives for the illocutionary acts of requesting and offering (David Stampe, personal communication). This is shown by the fact that (3.15b) is unacceptable and that (3.15a) is not really a request, but is rather an order, as shown by the unacceptability of this utterance with following please.[7]

(3.15) a. I (hereby) request you to leave the premises (*please).

b. *I (hereby) offer to help you fix your flat tire.

---

[7]Sadock (1970) considers the acceptability of a following please to be a test for true imperatives. However, this constitutes a confusion of form and function, since imperatives used as commands cannot be followed by please, as in (a), and yet one would not want to claim that imperatives used as commands are not true imperatives.

(a) *Shoulder arms, please.

Gordon and Lakoff (1971) consider the acceptability of a following please to be a test for illocutionary requests, the view adopted here.

Of course, the lack of explicit performative verbs for requesting and offering does not in itself show anything, since there are other illocutionary acts, such as insulting someone, which do not have an associated explicit performative verb (Austin, 1962), as shown by (3.16).

(3.16) *I hereby insult you be calling you a rapscallion. However, there is also the strongly felt semantic (or pragmatic) relationship between the acts of promising and offering and commanding and requesting. To capture this relationship, we need only say that they are basically the same acts, and that explicit performative verbs cannot be used in deferential situations. (This of course leaves the unacceptability of (3.16) a mystery.)

Another claim made in (3.14) is that utterances used to grant permission are a type of assertion rather than a type of promise, say, or a type of illocutionary act unrelated to the others we have given. The reason for making this claim is that later we shall come across cases of indirect illocutionary acts performed with utterances which are literally grants of permission and we shall then need this claim to arrive at an explanation of them. Since we have hypothesized that indirect illocutionary acts are performed by asserting or questioning that intrinsic conditions on those acts hold, we would expect only literal assertions or questions to be used to perform indirect illocutionary acts. If grants of permission are assertions, we can explain how these grants of permission can be used to perform indirect acts. If, on the other hand, such an analysis is wrong, then such illocutionary acts will remain unexplained.

Given the representations in (3.14) and our hypothesis about how the intrinsic condition on ability may be used to form indirect illocutionary acts, we would expect the following to be indirect illocutionary acts (with A and P instantiated):

(3.17) Assertions, Granting of Permission

a. Can I say that Harry is a fool?

I can say that Harry is a fool.

b. I can allow you to leave.

c. You can leave.

Questions

d. Can I ask you what you plan to do?

e. Can you tell me what you plan to do?

You can tell me what you plan to do.

Promises, Offers

f. Can I offer you my help?

I can offer you my help.

g. Can I help you?

I can help you.

Commands, Requests, Asking for Permission

h. Can I ask you to help me?

I can ask you to help me.

i. Can you help me?

You can help me.

j. Can I ask you to allow me to leave now?

k. Can you let me leave now?

l. Can I leave now?

However, there is a problem here, in that some of the utterances in (3.17) may be paraphrased using may for can and others using be able to for can as in (3.18):

(3.18)   Assertions, Granting of Permission

a.   May I say that Harry is a fool?

 *Am I able to say that Harry is a fool?

 ?I may say that Harry is a fool.

 I am able to say that Harry is a fool.

b. *I may allow you to leave.

 I am able to allow you to leave.

c.   You may leave.

 You are able to leave.

Questions (about plans)

d.   May I ask you what you plan to do?

 *Am I able to ask you what you plan to do?

e. *May you tell me what you plan to do?

 Are you able to tell me what you plan to do?

 You may tell me what you plan to do.

 *You are able to tell me what you plan to do.

Promises, Offers

f.   May I offer you my help?

 *Am I able to offer you my help?

 *I may offer you my help.

 I am able to offer you my help.

g.   May I help you?

 Am I able to help you?

g. (continued)

   *I may help you.

   I am able to help you.

Commands, Requests, Asking for Permission

h. May I ask you to help me?

   *Am I able to ask you to help me?

   I may ask you to help me.

   I am able to ask you to help me.

i. *May you help me?

   Are you able to help me?

   You may help me.

   You are able to help me.

j. May I ask you to allow me to leave now?

   *Am I able to ask you to allow me to leave now?

k. *May you let me leave now?

   Are you able to let me leave now?

l. May I leave now?

   Am I able to leave now?

What appears to be the case here is that, even though illocu-
tionary acts are themselves volitional acts, one cannot question one's
ability to perform such acts as an indirect way of performing those
acts, as shown by (3.18 a, b, d, h, j). Put another way, one cannot
question one's ability to perform an illocutionary act and at the
same time perform that act. One can however assert one's ability to
perform the act and at the same time perform it, as shown by (3.18 a,
d, h). This may be accounted for by modifying (3.13), the formulation

of how indirect illocutionary acts are performed, as in (3.19).

(3.19) An illocutionary act K is performed by
asserting that an intrinsic condition on K
holds or by questioning whether an intrinsic
condition on K which is a matter of belief
only (not knowledge) holds.

Since when you perform an illocutionary act you know that you are performing it, you must also know that you have the ability to perform it. Thus it is not a matter of belief only that you have the ability to perform the act and you cannot question this ability to perform an indirect illocutionary act.

To account for the illocutionary force of the utterances in (3.17) where may is possible (grouped together in (3.20) below), we need to appeal to another intrinsic condition.

(3.20) Assertions, Granting of Permission

a. May I say that Harry is a fool?

b. You may leave.

Questions

c. May I ask you what you plan to do?

d. You may tell me what you plan to do.

Offers

e. May I offer you my help?

f. May I help you?

Commands, Requests, Asking Permission

g. May I ask you to help me?

h. You may help me.

i. May I ask you to allow me to leave?

j. May I leave now?

Without becoming involved in a detailed analysis of may, we can at least note that all of the utterances in (3.20) have paraphrases with be allowed to for may and in fact that they all are literally cases of asking and giving permission. This suggests that we need an intrinsic condition or conditions having to do with permission on which to base illocutionary acts. A candidate for such an intrinsic condition is given in (3.21).

> (3.21) In settings where he is being deferential to the addressee, the performer of an illocutionary act K believes that he has permission of the addressee to perform the volitional acts involved in the carrying out of K. i.e., that the addressee will allow him to carry out these acts.[8]

---

[8]It is probably the case that the politeness condition discussed in chapter two, that the speaker believes that the addressee would not mind performing the volitional acts involved in the illocutionary act, is actually a deference condition related to this one.

Now questioning whether this intrinsic condition holds, i.e., questioning whether one is allowed to carry out some volitional act involved in the illocutionary act, amounts to the same thing as asking permission to carry out that volitional act, by our analysis of asking permission in (3.14). Thus we can explain how a request for permission is used to perform indirect illocutionary acts without modifying our account of how illocutionary acts are performed. One modification is needed, however, to account for the fact that the assertions in (3.22) cannot be used to perform the illocutionary acts that their question counterparts can.

(3.22) a. I may say that Harry is a fool.

b. I may ask what you plan to do.

c. I may offer you my help.

d. I may ask you to help me.

A superficial explanation would be that may in the permission sense takes 1st person subjects only in questions and takes 2nd person subjects only in assertions. However, this explanation is inadequate since we are not dealing with a fact about the morpheme may here but with a fact about permission in general. Thus (3.23) is exactly parallel to (3.22).

(3.23) a. You will allow me to say that Harry is a fool.

b. You will allow me to ask you what you plan to do.

c. You will allow me to offer you my help.

d. You will allow me to ask you to help me.

A deeper explanation for the facts in (3.22) and (3.23) is based on the fact that there seems to be a contradiction between a speaker's being deferential to an addressee and his asserting that he has the addressee's permission to perform a volitional act. This contradiction makes it impossible for an indirect illocutionary act based upon an assertion of the intrinsic condition in (3.21) to go through.

The illocutionary acts in (3.20) which are expressed with assertions may be accounted for by (3.24).

(3.24) The performer of an illocutionary act K believes (and, in fact, knows) that the addressee has his permission to perform the volitional acts involved in K, i.e., that he will allow the addressee to carry out those acts.

This intrinsic condition, unlike (3.20), does not involve deference, but does involve knowledge. As we saw before, in the discussion of (3.19), this disallows indirect illocutionary acts by questioning. When the intrinsic condition is asserted, i.e., when the speaker asserts that he allows the addressee to perform some volitional act involved in K, this amounts to the same thing as granting permission to the addressee to perform the volitional act, thus accounting for the literal interpretation of utterances like (3.25) as granting of permission.

(3.25) You may tell me what you plan to do.

Since the intrinsic condition in (3.24) does not involve deference, the antideferential character of indirect illocutionary acts performed by utterances like (3.25) still needs to be accounted for. This is easily explained by considering that (3.25), taken as a question, amounts to the assertion of a logically necessary truth, since it is logically impossible to ask a question of someone without being willing to allow him to answer. It is part of the meaning of the notion illocutionary act that in performing it, permission is granted to the addressee to perform his parts of it, which is to say that (3.24) is an essential condition on illocutionary acts (of which more will be said in chapter four).

It is instructive to compare this case of the assertion of a logically necessary truth with another case, given in (3.26) (Searle, 1969, p. 124), discussed in Gordon and Lakoff (1971).

(3.26) Either John is a communist or he isn't.

By asserting (3.26), the speaker commits himself to the belief that

either member of the disjunction may be true and thus implies that
it is possible that John is a communist. Since (3.26) is on the
surface tautological and thus empty, the implication is all that
is meaningfully conveyed by the sentence.

Utterances like (3.25) (repeated below) seem to be similar to
(3.26) not only in their logical necessity but also in the fact that
they imply the possibility that they could have been false. That
is, with (3.25) taken as a question, it implies that the speaker might
not have given the addressee permission to answer the question, and
further that the speaker is in a position to deny permission for the
addressee to answer the question.

(3.25) You may tell me what you plan to do.
Similarly with (3.27), taken as an order, there is an implication
that the speaker is in a position to grant permission for the
addressee to carry out the speaker's desires.

(3.27) You may help me.
In such cases, the speaker's permission is the hearer's command.

We have so far discussed cases of indirect illocutionary acts
based on the assertion or questioning of intrinsic conditions
involving belief and knowledge. There also appear to be cases of
indirect illocutionary acts on intrinsic conditions concerning speaker
intentions.

Some examples of such intrinsic conditions are as follows:
When the speaker (S) asserts a proposition (P) to an addressee (H),
it is S's intention to cause H to believe P. When S asks H P, it
is S's intention to cause H to tell S P. When S promises or offers

to do a volitional act (A), it is S's intention to do A. When S commands or requests H to do A, it must be his intention to cause H to do A. These conditions on speaker intention appear at the right side of the arrows below.

(3.28) a. SAY (S,H.P) → INTEND (S, CAUSE (S, BELIEVE (H,P)))

b. ASK (S,H.P) → INTEND (S, CAUSE (H,SAY (H,S,P)))

c. PROMOFF (S,H,DO (S,A)) → INTEND (S,DO (S,A))

d. IMPERE (S,H,DO (H,A)) → INTEND (S,CAUSE (S,DO (H,A)))

These conditions cannot be used by themselves to perform indirect illocutionary acts. This is shown, for example, by the fact that the utterances in (3.29) cannot be used as commands or requests (although (3.29b) may have the perlocutionary _effect_ of getting the addressee to take out the garbage).

(3.29) a. Will I $\left\{ \begin{array}{c} \text{cause} \\ \text{get} \end{array} \right\}$ you to take out the garbage?

b. I will $\left\{ \begin{array}{c} \text{cause} \\ \text{get} \end{array} \right\}$ you to take out the garbage.

However, the utterances in (3.30) can be taken as indirect illocutionary acts.

(3.30) Assertions

a. Can I get you to believe that I wouldn't hurt a fly?

b. Can you believe that Irv is bald?

Question

c. Can I get you to tell me what time it is?

Request

d. Can I get you to help me?

Apparently these illocutionary acts are examples of the ability intrinsic condition applied to the intentional intrinsic conditions on the acts in question. For example, the speaker in (3.30b) by questioning the addressee's ability to believe a proposition P conveys indirectly his intention to cause the addressee to believe P, and by conveying this intention conveys P at second remove. It seems that this method of performing indirect illocutionary acts is possible only when the ability condition is applied to the intention conditions by questioning, since, for example, the assertions corresponding to the questions in (3.30) cannot be used to perform the respective indirect illocutionary acts. We have no explanation for this restriction. Doubly indirect illocutionary acts like the ones we have been discussing need more research.

We have so far discussed indirect illocutionary acts based on general intrinsic conditions concerning ability and permission. There are other general intrinsic conditions which can be used to convey a variety of indirect illocutionary acts. Some of these are as follows:

> (3.31) The performer of an illocutionary act K believes that no acts involved in the performance of K are already performed.

> (3.32) The performer of K believes that all acts involved in the performance of K (save for K itself) will occur in the future. (In the case of acts involved in the performance of K which are acts performed by the performer of K, this intrinsic condition is a matter of desire rather than of belief. cf. (3.33))

> (3.33) The performer of K desires that all acts involved in the performance of K should take place.

(3.34) In settings where he is being deferential
to the addressee, the performer of K
believes that the addressee is willing for
all acts involved in the performance of K
to take place, i.e., that the addressee
does not object to any of the acts involved
in K occurring.

(3.35) In less formal settings where he is being
deferential to the addressee, the performer
of K believes that the addressee desires
that all acts involved in the performance
of K take place.

The sorts of illocutionary acts that may be performed using these

intrinsic conditions are illustrated by the following sentences;

The sentences in (3.36) are based on the condition that the speaker

believes that no part of the illocutionary act is already performed.

(3.36) <u>Assertions, Granting Permission</u>

a. Have(n't) I (already) said that John is
coming tomorrow?

b. Did(n't) I say that John is coming tomorrow?

c. Did(n't) you know that John is coming tomorrow?

d. Do(n't) you (already) know that John is coming
tomorrow?

e. Have(n't) I (already) told you you may go?

f. I haven't said yet that John is coming tomorrow.

g. You don't know yet that John is coming tomorrow.

h. I haven't yet told you you may go.

<u>Questions</u>

i. Have(n't) I (already) asked you when you'll be
done?

j. Did(n't) I ask you when you'll be done?

k. Have(n't) you (already) told me when you'll
be done?

l. Did(n't) you tell me when you'll be done?

m. Have(n't) you (already) let me know when you'll be done?

n. Did(n't) you let me know when you'll be done?

o. Do(n't) I (already) know when you'll be done?

p. Have I (already) gotten you to tell me when you'll be done?

q. I haven't yet asked you when you'll be done.

r. You haven't yet told me when you'll be done.

s. You haven't yet let me know when you'll be done.

t. I don't know yet when you'll be done.

u. I haven't yet gotten you to tell me when you'll be done.

Promises, Offers

v. Did(n't) I offer to help you?

w. Has(n't) anybody helped you?

x. I haven't yet offered to help you.

y. Nobody has yet helped you.

Commands, Requests

z. Have(n't) I (already) asked you to close the door?

aa. Have(n't) you (already) closed the door?

bb. I have(n't) yet asked to close the door.

cc. You haven't yet closed the door.

The sentences in (3.37) are based on the condition that the speaker believes that all acts involved in the illocutionary act (save for the illocutionary act itself) will occur in the future.

(3.37) **Assertions, Granting Permission**

    a. Will you believe that my dog has fleas?

    b. I will allow you to close the door.

Questions

    c. Will (Won't) you tell me how you knew that?

    d. Will (Won't) you let me know what your name is?

    e. You will tell me how you knew that.

    f. You will let me know what your name is.

    g. I <u>will</u> know how you knew that.

Promises, Offers

    h. I will help you.

    i. I will climb that mountain.

Commands, Requests, Asking Permission

    j. Will (Won't) you fix that leak?

    k. Will (Won't) you allow me to see her?

    l. You will fix that leak.

The sentences in (3.38) are based on the condition that the speaker
desires that all acts involved in the performance of the illocutionary
act should take place.

(3.38) **Assertions**

    a. I want to say that this is a proud moment for me.

    b. I want to tell you that you're the greatest.

    c. I want you to know that it wasn't personal.

Questions

    d. I want to ask you why you did it.

    e. I want you to tell me where the stash is.

f. I want to know what you think of me.

Promises, Offers

g. I want to offer to help pay for that.

h. I want to help you with the dishes.

i. I want to promise it will never happen again.

Requests, Asking Permission

j. I want to ask you to close the door.

k. I want you to close the door.

l. I want to ask you to let me leave now.

m. I want you to let me leave now.

n, I want to leave now.

The sentences in (3.39) are based on the deference condition that the speaker believes that the addressee is willing for all parts of the illocutionary act to be performed.

(3.39) Assertions

a. Would you mind if I said that the meat's overdone?

b. Is it alright with you if I say that the meat's overdone?

c. Do you mind knowing that John is unfaithful?

d. Do you mind my letting you know that John is unfaithful?

Questions

e. Do you mind my asking how many more children you're going to have?

f. Would you (be so kind as to) tell me where she is?

g. Will you (be kind enough to) let me know who you think you are?

h. Do you mind my knowing what you're going to do?

Offers

i. Would it be alright if I offered to help you?

j. Would you mind my helping you?

Requests, Asking Permission

k. Would you object to helping me?

l. Would it be alright if I got you to help me?

m. Do you mind my asking you to help me?

n. Would you (be kind enough to) let me leave?

o. Is it OK if I leave you?

The sentences in (3.40) are based on the informal deferential condition that the speaker believes that the addressee desires that all parts of the illocutionary act be performed.

(3.40) Assertions

a. Do you want me to tell you what I think?
You're nuts.

b. Do you want to know what I think? The butler did it.

Questions

c. Do you want to tell me what you did with the body?

d. Do you want to let me know what you did with the body?

Requests, Asking for Permission

e. Do you want to close the door?

f. Do you want to give me permission to leave?

Several points should be noted about the intrinsic conditions in (3.31)-(3.35), and how they may be used to perform illocutionary

acts. First of all the formulations given are only intended as an attempt at representing the intrinsic conditions and are not to be construed as the last word. One inadequacy is that (3.31) and (3.32) obviously do not contain two independent intrinsic conditions, but should probably be analyzed as two aspects of the same condition. This is made difficult, however, by the fact that part of the intrinsic condition in (3.32) is a matter of desire, while (3.31) is totally a matter of belief. This is evidenced by the impossibility of conveying an indirect act by questioning (3.32) when the performer is the speaker, and by the possibility of doing so by questioning (3.31). (3.41) illustrates this.

> (3.41) a. Do I already know what this is?
>
> b. I don't yet know what this is.
>
> c. I will know what this is.
>
> d. Will I know what this is?

All the utterances in (3.41) may be taken as questions about the identity of something, except for (3.41d). This is explained if knowing the answer in the future is not a matter of belief, given our formulation of how to perform indirect illocutionary acts with intrinsic conditions (cf. (3.19)). It is called a matter of desire here on the basis of the relationship between (3.32) and (3.33).

Another similar inadequacy in the formulations given is that (3.34) and (3.35) should not be considered two different intrinsic conditions. There are only two differences between (3.34) and (3.35). The first is that (3.35) is used in less formal settings than (3.34) to perform indirect illocutionary acts and the second is that (3.34)

involves a speaker belief about what his addressee would not object
to, i.e., would not not desire, while (3.35) involves a speaker belief
about what his addressee would desire. In short, the speaker belief
in (3.34) is simply a weakened version of the speaker belief in
(3.35). This fact cries out to be related to the formality difference
between (3.34) and (3.35). It might be said, for example, that in
a more formal setting, the speaker is more distant from his addressee
and, because of this, makes fewer and weaker assumptions about the
addressee's beliefs. However, not enough is known about what
constitutes formality to allow more than speculation.

A second point concerning the intrinsic conditions given in
(3.31) - (3.35) as well as the ones discussed earlier is that when
they are questioned to perform an indirect illocutionary act, the
question may be either positive or negative, as shown by (3.42) and
some of the sentences in (3.36) - (3.40).

> (3.42) a. Can you help me? (request)
>
> b. Can't you help me? (request)
>
> c. Do you want me to help you? (offer)
>
> d. Don't you want me to help you? (offer)

This is the case even with the intrinsic condition in (3.31), which
itself is negative, as (3.43) shows.

> (3.43) a. Have I already told you that John eats
>   brown rice?
>
> b. Haven't I already told you that John eats
>   brown rice?
>
> c. ?Haven't I not already told you that John
>   eats brown rice?

It appears that whether or not the intrinsic condition is itself

negative, the possible realizations of its use as an indirect

illocutionary act remain the same. This is not true for cases of

assertion of intrinsic conditions, as shown in (3.44).

    (3.44) a. You can help me. (request)

           b. You can't help me. (not a request for help)

           c. I have already told you John eats brown rice.
              (not an assertion of _tell_'s complement)

           d. I haven't yet told you John eats brown rice.
              (assertion of _tell_'s complement)

The difference between the relationship between positive and negative

questions and the relationship between positive and negative assertions

can probably be used to explain this. (See Schachter, et al., 1968,

for a discussion of positive and negative questions.)

The final point concerning the intrinsic conditions above

concerns those intrinsic conditions which are used in deferential

situations. As with (3.21), (3.34) and (3.35) cannot be asserted to

perform indirect illocutionary acts, but can only be questioned, as

we find in (3.45).

    (3.45) a. Do you mind stopping the car? (request)

           b. You don't mind stopping the car. (not a request)

           c. Do you want me to wash the dishes? (offer)

           d. You want me to wash the dishes. (not an offer)

As was the case with (3.21), we can explain this by appealing to the

contradiction that exists between being deferential to an addressee

and at the same time asserting that the addressee does not mind or

actively desires that a part of the illocutionary act be performed.

This leads to the following generalization:

> (3.46)   An illocutionary act K is performed in a
>   deferential situation by questioning (not
>   by asserting) that an intrinsic condition
>   on K involving deference holds.

This generalization is explained by the following;

> (3.47)   One cannot perform an illocutionary act by
>   asserting an utterance the assertion of which
>   contradicts any aspect of the illocutionary
>   act in question.

From examination of the examples of indirect illocutionary acts

we have given, it appears that performing such acts with a question

is in general more deferential than performing them with an assertion.

This may be because questions somehow make the act seem more

conditional and thus subject to veto by the addressee. This

conditionality may be emphasized by the use of the subjunctive for

indicative modal verbs as in (3.48), in which case the deferentiality

of the act is also increased.

> (3.48)   a.   Could I ask you when you are leaving?
>
>   b.   Would you take out the garbage?
>
>   c.   Might I help you?

Such use of the subjunctive for indicative modals is not found in

assertions used to perform indirect illocutionary acts.[9]

---

[9]The use of subjunctive for indicative in indirect
illocutionary acts is treated in Sadock (1970) as the use of past
tense modals for present tense modals. While there are sentences
in English which seem to contain past tense modals, such as (a)
and (b), the sentences which we have been discussing and those
which Sadock discussed do not seem to be of this type.

(a) It used to be that John could leap tall buildings
in a single bound.

(b) When I was young, my mother would tuck me into bed.

It may be instructive at this point to compare the account

given here of indirect illocutionary acts with the account provided

for some of them by Sadock (1970). Sadock discusses a class of

utterances which have the form of questions but which are used

imperatively and to some extent behave syntactically like true

imperatives. These utterances he calls <u>whimperatives</u>.[10] Some of

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[10]In another paper (Sadock, 1971), Sadock also discusses
a class of superficial questions which are taken as assertions,
which he calls <u>queclaratives</u>. Examples are given in (a) and (b),
with the assertions conveyed by them given in (a') and (b')
respectively.

(a) Who gives a damn bout Turing machines?
(a') Nobody gives a damn about Turing machines.
(b) Is being a middle executive type easy?
(b') Being a middle executive type isn't easy.

We have no way to account for queclaratives, in our framework,
since we presently have no idea what intrinsic condition on
assertions could be said to be questioned with sentences like
(a) and (b). The <u>wh</u>-question type is especially problematic for
us, since it is difficult to relate to the questioning of whether
an intrinsic condition holds or not. (The same goes for Sadock's
(1970) whimperatives which are wh-questions, such as "What do you
have to drink?" as a request for a drink.) However we expect that
further research will show some relationship between queclaratives
and indirect illocutionary acts in our sense.

Sadock's examples are given in (3.49).

(3.49) a. Won't you give me a drink?

b. Do you have anything to drink?

c. May I have a drink?

        d. Would you give me a drink?

These examples and the other (yes-no question) examples given by

Sadock are examples of what we have been calling indirect commands

and requests performed by questioning whether an intrinsic

condition holds (although we have not postulated the intrinsic

conditions necessary to account for all of them).

Sadock gives three tests for what he calls true imperatives

and one test for what he calls true questions and shows that

whimperatives pass the former tests and fail the latter. The three

tests for true imperatives are: 1) please may follow true imperatives,

2) the indefinite vocative someone may follow true imperatives,

3) true imperatives, but not true questions, may be conjoined with

true imperatives. The test for true questions is that they may be

preceded by tell me. In our terms, the please test is a test for

illocutionary requests, the someone test is a test for commands and

requests with unspecified addressee, the conjunction test is

explained by noticing that utterances performing two different types

of IMPERing cannot be conjoined, and finally, the tell me test is

a test for requests for information, i.e., informational questions.[11]

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[11]There is another test mentioned in Sadock (1970, from Jerry
Morgan and Georgia Green, personal communication), for distin-
guishing between formal imperatives and whimperatives, which is
that formal imperatives (as well as other types of utterances)
may be followed by the 'tag' I tell you, while whimperatives may
not. Apparently this tag has a more superficial environment which
allows its appearance than the tests just mentioned, since it seems
to appear with superficial assertions and imperatives and not with
superficial questions and exclamations, no matter what illocu-
tionary force is involved. Thus we have:

(a) John is a doctor, I tell you. (assertion)
(b) You may leave, I tell you. (granting permission)
(c) I want to know what time it is, I tell you.
    (question)
(d) I can help you with the dishes, I tell you. (offer)
(e) You will take out the garbage, I tell you. (command)
(f) I want you to help me with the dishes, I tell you.
    (request)

These all seem to be cases of repetition of an illocutionary act
but the form of the tag is a mystery.

On the basis of the tests given and some other considerations,

Sadock opts for representing whimperatives semantically as a

conjunction of an imperative and an interrogative hypersentence,

i.e., as a conjunction of a sentence of imperative illocutionary

force with a sentence which has the illocutionary force of an informa-

tional question. The two conjoined sentences are said to be partially

identical. This solution is more or less ad hoc and does not provide

an account of which questions can convey requests and commands and

which can't.

In our framework, on the other hand, whimperatives (like other

indirect illocutionary acts) are represented at the remote structure

level as explicit commands or requests, possibly by the use of the

appropriate higher performative predicate. These representations

are then mapped onto structures which have a performative predicate

associated with either assertion or questioning. The mappings which

can take place are based only on felicity conditions on commands or

requests and thus explain how at some later (but relatively early)

stage in their derivation commands and requests become questions.

By this account, all tests for distinguishing between whimperatives

and true questions must be tests involving relatively deep semantic facts, and, as we have seen, this appears to be the case.

In fact, we hypothesize that the mapping of illocutionary acts onto illocutionary assertions and questions takes place in the derivation before any syntactic transformations apply, i.e., that assertions and questions used to perform indirect illocutionary acts are syntactically indistinguishable from literal assertions and questions (taking cooccurrence restrictions to be semantic).[12]

---

[12]This hypothesis seems to be borne out by such facts as that both (a) and (b) may be indirect assertions of (c), thus showing that negative hopping must apply after the mapping of the structure underlying (c) onto the structure underlying (a).

      (a)   I believe John isn't insane.
      (b)   I don't believe John is insane.
      (c)   John isn't insane.

(The felicity condition justifying this mapping is given below). However, Sadock (personal communication) has shown that a queclarative such as (d) can either be understood as either the assertion of (3) or the assertion of (f).

      (d)   Does Nixon believe that Rusk knows the meaning of chutzpah?
      (e)   Nixon does not believe that Rusk knows the meaning of chutzpah.
      (f)   Nixon believes that Rusk does not know the meaning of chutzpah.

If queclaratives are to be handled in our framework, we are forced by this fact either to claim that the mapping in this case occurs after negative hopping, or to claim that the mapping involved maps two different structures onto the structure of (d), thus duplicating the work of negative hopping in the mapping. Both alternatives are unattractive. A third alternative would be to say that queclaratives are not illocutionary questions and thus fall outside our framework. The choice between these alternatives must await further research.

Another instructive comparison is between Gordon and Lakoff's

(1971) mechanism for relating questions and assertions to the indirect illocutionary acts performed by them and our own mechanism, the mapping indicated above. Gordon and Lakoff's mechanism is a transderivational constraint (see (Lakoff, 1970a) for a discussion of this notion). This works as follows: given derivations D^a and D^b as in (3.50), where S is a surface structure and L is remote structure, there will be cases where L^a conversationally entails L^b, which is to be understood as a transderivational relationship between D^a and D^b.

$$(3.50) \quad D^a: S^a, \ldots, L^a$$
$$D^b: S^b, \ldots, L^b$$

The transderivational relationship of conversational implication is always to be explained on the basis of a sincerity condition on L^b, L^a being the literal illocutionary act and L^b being the illocutionary act conveyed. The transderivational rule relating L^a and L^b is to be understood as an interpretive rule operating on remote structures.

In our framework, there would be only one derivation involved, that given in (3.51) (using the notation given above).

$$(3.51) \quad D^a: S^a, \ldots, L^a, L^b$$

There would be a generative rule mapping L^b onto L^a, where L^b is the indirect illocutionary act and L^b the literal illocutionary act which conveys it. Thus the difference between Gordon and Lakoff's approach and the one adopted here is essentially between the use of an interpretive rule or a generative rule to account for the indirect illocutionary act conveyed by a question or assertion. There seem to be no conclusive arguments for favoring one of the approaches over the

other. However, there are two considerations which seem to tip the
scales towards the approach adopted here. First, in Gordon and
Lakoff's framework, every intrinsic condition involved in a trans-
derivational rule must be turned backwards to yield that rule, while
the mappings posited here correspond directly to the intrinsic
conditions involved. This is more than a mere notational difference
since several different illocutionary acts can have essentially the
same intrinsic condition on them, thus forcing Gordon and Lakoff
to have several transderivational rules all with the same left-hand
side but each with a different right-hand side.

Second, if our hypothesis about the mapping occurring before
all syntactic rules is correct, there is no case in which the
derivation of L^b, the indirect act, is relevant to the derivation of
L^a, the literal act. Only the remote structure, i.e., the semantics
of L^b, is relevant. This means that the use of a transderivational
rule to account for the facts would be much too powerful a move.

We conclude this chapter by pointing out that, while many
intrinsic conditions which heretofore have been considered
conditions on particular illocutionary acts can be more profitably
viewed as general intrinsic conditions on all illocutionary acts,
there are intrinsic conditions which must be viewed as particular
to specific illocutionary acts. Two are given in (3.52).

(3.52)   a.   SAY (S,H,P) → KNOW (S,BELIEVE (S,P))

         b.   IMPERE (S,H,SAY (H,S,P) → BELIEVE (S,KNOW (H,P))

(3.52a) is the condition that a speaker who performs the act of
asserting P must know that he believes P. This is a condition on

sincere assertions only. Searle (1969, p. 66) would have this condition be simply that the asserter believes what he is asserting, but if this were the case, we would not be able to explain the indirect assertion conveyed by (3.53a) and (3.53b) and the impossibility of (3.53c) being an indirect assertion.

(3.53) a. I believe that John left.

b. John left, I believe.

c. Do(n't) I believe that John left?

In all our previous examples it was the content of the speaker's belief that was asserted or questioned to perform an indirect illocutionary act, not that he believed it. Thus the examples in (3.54) do not seem to constitute indirect requests, offers, or questions, but only indirect assertions of believe's complement.

(3.54) a. I believe you can help me.

b. I believe I can help you.

c. I believe you can tell me what time it is.

Further, it would seem impossible to believe a proposition without knowing that one believed it, or vice versa, if "knowing" is used in its ordinary sense.[13] The analysis of the intrinsic

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[13] For some philosophers, "I know that p" primarily means "p, and no amount of further information would have made any difference to my saying so." Among these philosophers is Hintikka (1962), who shows convincingly that if one is using "know" in this sense, one can indeed believe p without "knowing" that one believes p.

---

condition in (3.52a) is thus in some sense equivalent to Searle's

analysis, and at the same time allows us to explain by our account the form of (3.53a) and the impossibility of indirectly asserting with (3.53c), the latter following from the fact that the intrinsic condition is not a matter of belief only.

The condition in (3.52b) says that a performer of the act of questioning his addressee must believe that his addressee knows the answer to the question. This intrinsic condition accounts for the use of (3.55a) and (3.55b) as indirect questions about who John is with.

> (3.55) a. Do you know who John is with?
>
> b. Don't you know who John is with?
>
> c. You know who John is with.

The fact that (3.55c) cannot be so employed would seem to indicate that (3.52b) is a condition which holds only when the speaker is being deferential to the addressee, and thus that it _is_ possible to ask an addressee for information one knows he doesn't have, if one is not being deferential to him. This seems to be correct.

This chapter has only scratched the surface of the topic of indirect illocutionary acts; it needs to be gone into much deeper. We have at least shown one way in which intrinsic felicity conditions are important to any consideration of the syntax of illocutionary acts.

CHAPTER IV

QUALIFICATION OF ILLOCUTIONARY ACTS

Besides their significance for the performance of indirect
illocutionary acts, intrinsic conditions are also syntactically
relevant in that certain of them may be used to qualify illocutionary
acts. The sort of process we are going to consider is illustrated
in (4.1).

    (4.1) a. You'll never be a politician, if you don't
              mind my saying so. (assertion)

           b. If I can ask, what do you mean by what?
              (question)

           c. You're a wonderful cook, Martha, if I haven't
              already told you so. (assertion)

           d. I'll help you with the dishes, if it's
              alright with you. (offer)

           e. Perhaps I've already asked you to, but could
              you take out the garbage? (request)

The _if_ clauses in (4.1a) - (4.1d) differ from the _if_ clauses
of conditional sentences in several ways. First of all, there is
no causal connection between the proposition in the _if_ clause and
the proposition of the main clause as there is between the antecedent
and consequent of the normal conditional sentence. Thus while (4.2a)
and (4.2c) are acceptable, (4.2b) and (4.2d) are not:

    (4.2) a. If John comes, Mary will leave because of
              his coming.

b. *If I can say something, that's a stupid idea
because of my being able to say something.

c. If John were dead, how would Mary feel
because he was?

d. *If I could ask, when are you leaving because
I can?

Second, while the normal conditional expresses a contingent
proposition, there is nothing contingent about (4.1a) - (4.1d).
that is, the truth of the illocutionary force of the main clause in
these sentences is not contingent on the truth of the _if_ clause.

Third, the _if_ clause of normal conditionals may occur in a
variety of tenses and moods, while qualifying _if_ clauses can only be
present indicative or subjunctive, or in the case of sentences like
(4.1c), only in the past indicative. This is illustrated in (4.3).

(4.3) a. If I had studied, I would have passed.

b. If I were to study, I would pass.

c. If I study, I (will) pass.

d. If I studied, I passed.

e. If I were to have been able to say so, John
would have been a doctor.

f. If I were to be able to say so, John would
be a doctor.

g. If I could say so, John would be a doctor.

h. If I can say so, John is a doctor.

i. If I was able to say so, John was a doctor.

j. If I could say so, John is a doctor.

(4.3a) - (4.3d) illustrate the pattern for normal conditionals. Of
the sentences (4.3e) - (4.3j), (4.3e) and (4.3i) cannot be construed

as assertions of the noncontingent truth of the consequent qualified by the antecedent, (4.3j) cannot be construed as a true conditional, and (4.3f) - (4.3h) are ambiguous between a reading with causal connection and one without. In the last case, (4.3f) and (4.3g) must be read with heavy stress on <u>would</u> to count as noncontingent assertions that John is a doctor. Note that in normal conditionals, if the antecedent is subjunctive, the consequent must also be. This is not, however, the case with qualifying clauses and the associated main clauses. This is the reason why (4.3j) cannot be interpreted as a normal conditional, but only as an assertion that John is a doctor.

A fourth difference is found by comparing sentences like (4.4a) and (4.4b) with sentences like (4.4c) and (4.4d).

(4.4)   a. If you don't mind my saying so, whales are mammals.

         b. Perhaps you will mind my saying so, but whales are mammals.

         c. If whales are viviparous, whales are mammals.

         d. Perhaps whales are not viviparous, but whales are mammals.

While the former bear a paraphrase relationship to each other, the latter do not. All qualifying clauses have such paraphrases. Another type of paraphrase not shared with conditional <u>if</u> clauses is exemplified in (4.5).

(4.5)   a. How's your wife, if I haven't already asked.

         b. How's your wife, or have I already asked that?

         c. Your house is a mess, if you don't mind my saying so.

d. Your house is a mess, or do you mind my saying so?

e. Take out the garbage, if I may ask you to.

f. Take out the garbage, or may I ask you to?

g. You may go, if you really want to.

h. You may go, or do you really want to?

To summarize, qualifying if clauses are if clauses which have the following properties: a) they do not bear a causal relation to their main clauses; b) they do not make the utterance hypothetical or contingent; c) they occur only in the present indicative or subjunctive, or in one case, the past indicative; d) they may occur with indicative main clauses when they themselves are subjunctive; e) they are paraphrasable by perhaps not x but y or y, or x?.

The reason that qualifying phrases are of interest to us is that, like indirect illocutionary acts, they appear to be based on intrinsic conditions, in fact, on a semantically natural subclass of intrinsic conditions. For example, all of the following if clauses are based on the intrinsic conditions on ability and permission discussed in the last chapter, and they may all qualify just those illocutionary acts one would expect them to qualify, given the precondition that the qualifying if clause must be an expression of an intrinsic condition on the illocutionary act it is qualifying:

(4.6) Assertions

a. Fred loves Jello, if I can say so.

b. Fred loves Jello, if you can believe it.

c. Fred loves Jello, if I can get you to believe it.

Questions

d. Where were you last night, if I can ask (you something)?

e. Where were you last night, if you can tell me?

f. Where were you last night, if you can let me know?

g. Where were you last night, if I can know?

Promises, Offers

h. I'll give you a lift, if I can offer to.

i. I'll give you a lift, if I can.

Commands, Requests, Asking Permission

j. Would you walk the dog, if I can ask you to?

k. Would you walk the dog, if you can?

l. I want to leave, if I can ask you to allow me.

m. I want to leave, if you can allow me to.

n. I want to leave, if I can.

Just as with indirect illocutionary acts, possible ambiguities arise. Thus, the _if_ clauses of (4.6i) and (4.6n) are identical, and (4.7) is ambiguous.

(4.7) I'll help you, if I can.

It may be used either to offer help or to request permission to help, which one determined by whether the hearer obviously wants the help or not. Of course, (4.7) may also be used as a straight conditional sentence, a contingent assertion of intention to help. Notice that this last possibility is not open in (4.8), while the first two possibilities still are.

(4.8) I'll help you, if I could.

The conditional reading is disallowed because of the fact noted before, that if the antecedent of a conditional is subjunctive, the consequent must also be.

It was said before that not all intrinsic conditions may be used to qualify illocutionary acts. Of the intrinsic conditions we have examined, the ones on intention, e.g. that the speaker intends to get the addressee to do what he orders or requests him to do, the one on desire, that the speaker wants what he intends, and the ones involving speaker knowledge cannot be used to qualify indirect illocutionary acts. All of the others can, as shown in (4.6) and below.

(4.9) Assertions, Granting Permission

    a. John is here, if you didn't already know it.

    b. John is here, if you don't mind knowing what I think.

    c. *John is here, if I intend to tell you.

    d. *John is here, if I want to tell you.

    e. John is here, if you want to know.

    f. *John is here, if I believe he is.

    g. You may eat some cake, if you haven't already.

    h. You may rescue the maiden, if you wouldn't mind.

    i. *You may leave, if I want to let you.

    j. You may leave, if you want to.

    k. *You may leave, if I intend to let you.

Questions

    l. When is the party, if you haven't already told me $\left\{ \begin{array}{c} ? \\ . \end{array} \right\}$

    m. When is the party, if you don't mind me knowing $\left\{ \begin{array}{c} ? \\ . \end{array} \right\}$

n. *When is the party, if I intend to know $\{ \begin{smallmatrix} ? \\ . \end{smallmatrix} \}$

o. *When is the party, if I want to know $\{ \begin{smallmatrix} ? \\ . \end{smallmatrix} \}$

p. When is the party, if you want to tell me $\{ \begin{smallmatrix} ? \\ . \end{smallmatrix} \}$

q. When is the party, if you know $\{ \begin{smallmatrix} ? \\ . \end{smallmatrix} \}$

Promises, Offers

r. I promise to do it, if I haven't already done so.

s. I'll take care of the baby, if you wouldn't mind.

t. *I'll take care of the baby, if I intend to.

u. *I'll take care of the baby, if I want to.

v. I'll take care of the baby, if you want me to.

Commands, Requests, Asking Permission

w. Make your bed, if you haven't already.

x. Take out the trash, if you wouldn't mind.

y. *Take out the trash, if I intend for you to.

z. *Take out the trash, if I want you to.

aa. Take out the trash, if you want to.

bb. Can I go, if you haven't already said I could?

cc. Can I go, if you don't mind?

dd. *Can I go, if I intend to?

ee. *Can I go, if I want to?

ff. Can I go, if you want to let me?

It must be understood that some of the starred sentences are

acceptable on some readings; however, they cannot be uttered with

the illocutionary force indicated.

What the intrinsic conditions which can be the basis for

qualification have in common is that they are all conditions on the

beliefs of the speaker performing the illocutionary act. The
condition on speaker intention, that he intends for example to do
what he promises to do, the condition on speaker desire, that he
wants to happen what he intends to happen, and conditions involving
knowledge on the part of the speaker cannot be matters of mere
belief for the speaker. In general, it appears that qualifying <u>if</u>
clauses qualify those aspects of illocutionary acts which the
speaker might reasonably have doubt about, namely the felicity
conditions involving his own beliefs. It is the <u>content</u> of the
belief which the speaker has doubt about which appears in the <u>if</u>
clause. Thus, the following are unacceptable because of the otiose
<u>I believe</u>:

        (4.10) a. *I like rhubarb, if I believe I can say so.

                 b. *Open the door, if I believe you want to.

                 c. *Where's Melvin, if I believe you know.

In passing, we note that there is further support here for the
formulation given in (3.52a) of the sincerity condition on assertions,
repeated below:

        (3.52) a. SAY (S,H,P) → KNOW (S,BELIEVE (S,P))

If this condition were merely that one believes what one asserts,
we would expect to be able to base a qualifying <u>if</u> clause on this
belief. This is impossible, however, as shown by an examination of
(4.11).

        (4.11) a. Frank did the easy problems, if (he did) them.

                 b. Did Frank do the easy problems, if (he did)
                    them?

While (4.11a) is acceptable with heavy stress on <u>easy</u> and <u>them</u>, it
is not a simple case of the qualification of the speaker's belief

in the proposition he is asserting. For one thing, there is
involved in (4.11a) (and (4.11b)) the question of which problems
Frank was most likely to do, since (4.12) is only acceptable if
Frank is wont to do difficult problems in preference to easy ones.

(4.12) Frank did the difficult problems, if them.

Also, there is a parallelism between (4.11a) and (4.11b) which we
do not find with the qualifying if clauses we have been discussing,
for example:

(4.13) a. John is here, if you will believe it.

b. *Is John here, if you will believe it?

This is the case because the application of intrinsic conditions to
assertions and questions yields different results. If (4.11) were
examples of qualifying if clauses based on an intrinsic condition,
it would have to be an intrinsic condition on both assertions and
questions and further, one which yielded the same result when applied
to questions as when applied to assertions. The intrinsic condition
in (3.52a), however, is specific to assertions and has no application
to questions. We will discuss sentences like (4.11) further in the
next chapter, where we find that they are examples of qualification
of a presupposition rather than of an intrinsic condition.

So far, we have discovered one necessary condition on intrinsic
conditions which are the basis for qualification of illocutionary
acts: they must be conditions on the beliefs of the speaker. We
have argued that this is a natural restriction, assuming that the
qualification we are discussing is a calling into question of some-
thing. There is another condition which is equally natural given

this assumption. It is that the intrinsic condition involved must

be a non-essential condition. The only essential intrinsic

condition we have discussed so far was the one on threats, that

the speaker believe that the hearer does not want the speaker to

do what the speaker is proposing to do. If this condition does not

hold, the speaker cannot be said to be threatening; he is either

promising or offering.

Notice that the essentiality of this condition does not prevent

its being used in performing an indirect illocutionary act. (4.14)

can convey a threat or an offer, depending on the circumstances.

(4.14) Do you want me to hit you?

The fact that the negative force of the condition does not show up

in the indirect act is paralleled by what happens to the negative

of the intrinsic condition that part of the act already has been

performed. In fact as (4.15) shows, unlike other indirect illocu-

tionary acts, these perhaps cannot be conveyed by negative questions.

(4.15) a. Don't you want me to hit you?

b. Haven't I already asked you to help me?

It is difficult to construe (4.15a) as a threat and slightly

difficult to construe (4.15b) as a request. This is perhaps an

accidental gap in English usage of intrinsic conditions to perform

indirect illocutionary acts.

Now consider (4.16):

(4.16) a. I'll hit you, if you want me to.

b. I'll hit you, if you don't want me to.

(4.16a) can only be a promise or offer and can't be a threat. (4.16b)

cannot be any of these. It is instead a plain conditional assertion, with causal connection between antecedent and consequent. We would expect (4.16b) to be the correct expression of the qualified threat, since negatives in intrinsic conditions do show up in qualifying if clauses, unlike the case with indirect assertions. Thus:

(4.17) a. John is here, if I haven't already told you.

        b. Why purple, if you don't mind me asking?

Another case of an essential intrinsic condition, which is particular to the act of warning the addressee that X (as opposed to warning the addressee to X), where X is some event, is that the speaker must believe that the occurrence of X is not in the addressee's best interest (Searle, 1969, p. 67). If the speaker believes to the contrary or has no opinion on the matter, he is not warning; he is simply asserting X to the addressee. As expected, one can perform an indirect illocutionary act using this condition; e.g., (4.18), when not an informational question, constitutes a warning.

(4.18) Is it to your best interest that your car has
        no brakes?

And, bearing out our hypothesis, (4.19), if acceptable at all, is not illocutionarily a warning.

(4.19) I warn you that your car has no brakes, if it
        isn't in your best interest.

To summarize, we have determined that qualifying if clauses are based on a natural subclass of intrinsic felicity conditions, non-essential intrinsic conditions on the speaker's beliefs.

We next consider what happens when qualifying if clauses are

used with utterances which are expressions of indirect illocutionary
acts. When we begin examining such cases, we notice first of all
that the same intrinsic conditions cannot be both the basis for an
indirect illocutionary act and qualified by an if clause. Thus
the utterances in (4.20) and others like them are unacceptable
except, perhaps, as conditional questions.

(4.20). a. *If I may say something, may I say that it has
         been wonderful?

b. *Did I ask you how you've been, if I haven't
   already asked you?

c. *Do you want me to help you, if you want me to
   help you?

d. *Do you mind taking out the garbage, if you
   don't mind?

e. *Do you know what time it is, if you know?

f. *If you may tell me, you may tell me what
   you're doing.

g. *If you will, you will not speak.

This restriction on qualification of indirect illocutionary acts is
given in (4.21).

(4.21) One cannot perform an indirect illocutionary
       act by asserting that or questioning whether
       an intrinsic condition on K holds and at
       the same time call that same intrinsic
       condition into question by qualifying it.

However, we must be careful to be exact about what we mean by "same
intrinsic condition." Actually it appears that problems don't
arise if the indirect act and the qualification derive from different
applications of the same intrinsic conditions, as the examples in
(4.22) show.

(4.22) a. Can I say that it has been wonderful, if
            you can believe it?

        b. Do you want me to let you leave, if you
            want to leave?

        c. Do you mind taking out the garbage, if you
            don't mind my asking you to?

        d. Do you know where my wife is, if I can know?

        e. *Did you tell me where you're going, if I
            haven't already asked?

The only exception is (4.22e), and, as it turns out, this is

explainable by the fact that indirect illocutionary acts based on

the intrinsic condition that the speaker believes that no part of

the act has already been performed cannot be qualified at all, as

illustrated by the examples in (4.23).

(4.23) a. *Did you walk the dog, if you can?

        b. *Did I ask you how you like my hair, if you
            know?

        c. *Did I tell you that I'm pregnant, if you can
            believe it?

        d. *Did I offer to help you with the dishes, if
            you want me to?

        e. *Did you take out the garbage, if you don't
            mind?

        f. *You haven't told me yet where you are, if
            you want to.

        g. *You haven't yet closed the door, if you don't
            mind.

It would appear that qualifying an illocutionary act by calling any

felicity condition on that act into question makes it impossible

to convey that act by asserting that or questioning whether some

part of that act has already been performed.

Other intrinsic conditions which act the same way are ones
based on the intentional condition on assertions, that the speaker
intends to cause the addressee to believe what he is asserting.
Two such derived conditions are that the speaker believes that the
addressee is able to believe what he is asserting and that the
addressee will believe in the future what he is asserting. The
impossibility of qualifying indirect illocutionary acts based on
these conditions is shown in (4.24).

(4.24) a. *If I can tell you something, can (will) you
            believe that John has passed his exams?

        b. *Can (will) you believe that my wife is
            pregnant, if you didn't already know?

        c. *Can (will) you believe that George left, if
            I haven't already told you?

        d. *Can (will) you believe that my son is a drop-
            out, if you want to know what I think?

        e. *Can (will) you believe that I saw Jesus last
            night, if you don't mind my saying so?

The unacceptability of the utterances in (4.24) is not to be
explained by reference to the behavior of the ability and futurity
intrinsic conditions, for, in general, indirect illocutionary acts
based on them can be qualified. (4.25) gives some examples.

(4.25) a. Can I say, if I haven't told you already,
            that I'm sorry?

        b. Can I tell you something? If you don't
            already know it, your hair's on fire.

        c. If I haven't already asked, can you tell me
            when you're leaving?

        d. Can I say that your husband is the world's
            best cook, if you can believe it?

e. You can go in now, if you want to.

f. Can you clean the cat-box, if you don't mind?

g. I will allow you to close the door, if I haven't already told you so.

h. You will tell me how you knew that, if you don't mind my asking.

i. I will be a faithful husband, if I can.

j. Will you allow me to see her, if you can?

Nor can the unacceptability of sentences like those in (4.24) be explained by the fact that there is a mediating intentional condition involved, since intrinsic conditions based on a similar intentional condition on questions, that the speaker intends to cause the addressee to cause him to know what he is asking, can be used to perform indirect illocutionary acts which can be qualified, as in (4.26).

(4.26) a. If I can ask you something, do you (will you let me) know where the nearest telephone is?

b. If I haven't already asked, do you (will you let me) know why they put you in jail?

c. If you want to tell me, do you (will you let me) know what she ate for lunch?

d. If you don't mind me asking, do you (will you let me) know what has four wheels and flies?

Apparently, the inability to be qualified shown by assertions based . on the intentional condition that the speaker intends the addressee to believe what he is asserting can only be explained as some idiosyncrasy in the behavior of this particular intrinsic condition. Perhaps further research will yield a more satisfactory explanation for the facts in (4.24).

With respect to qualifiability of indirect illocutionary acts

based on them, the other intrinsic conditions we have discussed all

act like the ability condition with two restrictions, the one given

in (4.21) concerning not qualifying an indirect illocutionary act

with the same application of the intrinsic condition which it is

based on, and a second one, that the intrinsic condition that the

speaker believes that the addressee wants what the speaker intends

cannot be qualified in an indirect illocutionary act based on the

intrinsic condition that the speaker believes that the addressee

doesn't object to any part of the illocutionary act in question.

The reverse is also true. This is shown in (4.27).

> (4.27)   a. *Do you want to take out the garbage, if you
> don't mind (taking it out)?
>
> b. *Do you mind my asking where your bathroom
> is, if you want to tell me?
>
> c. Do you want to open the window, if you
> don't mind my asking?

This seems to provide further evidence that these two intrinsic

conditions may actually be one (cf. the discussion of (3.31) - (3.35)),

because if they were one, we could then account for the unacceptability

of (4.27a) and (4.27b) as resulting from a violation of the

restriction given in (4.21). This suggests itself strongly, since

(4.27c) is acceptable, as would be expected if two different applica-

tions of the same intrinsic condition were involved.

If we attempt to use this type of argument to demonstrate that

(3.31) is the same condition as (3.30), i.e., that the condition that

the speaker believes that no parts of the illocutionary act have

already occurred is the same condition as the one that the speaker

believes that all parts of the illocutionary act (save the act
itself) will occur in the future, we find that the argument will
not work. This is because sentences like (4.28a) are acceptable as
requests and the unacceptability of sentences like (4.28b) as
requests is explained by the unqualifiability of any indirect
illocutionary acts based on the non-prior-performance intrinsic
condition (cf. the discussion of (4.23)).

> (4.28)   a.   Will you see what's wrong with Jane, if
>   you haven't already?
>
>   b.   *Have you already seen what's wrong with
>   Jane, if you will?

This seems to be negative evidence that the conditions in (3.31)
and (3.32) are in fact different intrinsic conditions.

CHAPTER V

PRESUPPOSITIONS

In the last chapter, we discussed the phenomenon of illocutionary act qualification and showed how it could be explicated by reference to intrinsic felicity conditions. In this chapter, we will show that there is a considerable parallelism between presuppositions and intrinsic felicity conditions, in that there is a process of qualification of utterances having presuppositions, or in other terms, a process of qualification of the presuppositions of utterances which seems to be a process quite similar to illocutionary act qualification.

Before we can demonstrate this parallelism, however, we must be clear on what we mean by the term 'presupposition' and more precisely, who or what presupposes and what happens when the presupposition is violated. Garner (1971), in a comprehensive review of the notion of presupposition, points out that while most philosophers writing on presuppositions assume either that illocutionary acts presuppose or that the (abstract) speaker of an utterance presupposes, and presupposition failure leads to the non-performance of the illocutionary act involved, many linguists speak of the presuppositions of sentences and say that presupposition failure causes the statement made by the sentence to lack truth or

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to be meaningless. Garner gives reasons why the linguists' view leads to difficulties. One is as follows: suppose one claims sentences of the type "A knows that P" presuppose the factuality of P. Then "it would seem that we would have to say that unless P were the case, nobody could either assert or deny (successfully) that P was known by anyone. This is, at the very least, highly problematic" (Garner, 1971, fn. 23). On the other hand, if we speak of the speaker of an illocutionary act presupposing P, we may restrict our attention to whether the speaker believes P to be true or not, and not get involved in the question of whether or not P is actually true.

Let us tentatively adopt the view that speakers performing illocutionary acts presuppose things, and further, that for a speaker to presuppose a proposition is for him to believe that the proposition is true. If it is in fact false that the speaker believes the presupposition to be true, then the illocutionary act is void or at least infelicitous.

The question then arises as to what the difference is between presuppositions and the sort of speaker beliefs we are calling intrinsic felicity conditions. An obvious answer is that while intrinsic conditions are either very general conditions on the performance of all illocutionary acts or are less general conditions on specific illocutionary acts (independent of what the form of the utterance is which is used to perform the act), presuppositions are associated with the use in utterances of specific lexical items (or specific complexes of semantic primes) and don't seem to vary from

one type of illocutionary act to another. In other words, intrinsic
conditions on illocutionary acts in a sense follow by definition
from a consideration of the meaning of those acts or what it means
in general to perform an illocutionary act, while presuppositions
are unrelated to the meaning of illocutionary acts. Thus, given the
proposition P, "You point out that Q" (where Q is a propos. tion),
no matter whether you assert P, question P, promise P, or command P,
it must always be the case that you believe Q. Further, you can
even deny the proposition P or use it as the antecedent of a counter-
factual conditional and you would still be committed to the truth
of Q.

Actually, matters are not as simple as the preceding account
would have it. Not all presuppositions are as invariant as the
belief in the complement of point out. Karttunen (1971) has shown
that there are some verbs like manage and remember which apparently
presuppose[14] the truth of their complements in all assertions, but

---

[14]When we speak of a word presupposing, it must be understood
only as a convenient locution for the speaker of an utterance
containing the given word presupposing.

---

presuppose the negative of their complements in denials and in
questions conveys the question of their complement. This is
exemplified in (5.1).

    (5.1) a. John managed to stop eating anchovies. →
               John stopped eating anchovies.

           b. John didn't manage to stop eating anchovies. →
               John didn't stop eating anchovies.

    c. Did John manage to stop eating anchovies? →
       Did John stop eating anchovies?

The so-called presuppositions in (5.1) look suspiciously like what we have been calling indirect illocutionary acts, since rather than merely being presupposed, they are often _conveyed_ by the utterances they are associated with. Further, _manage_ shows up in utterances we already know to be indirect illocutionary acts, as in (5.2).

   (5.2) a. Can you manage to tell my why you're wearing that mask?

         b. I can manage to say that we plan no wider war.

         c. Can I manage to help you somehow?

         d. Could you manage to shave before Mother comes?

         e. Did I manage to tell you that Sylvia got married?

         f. ?Did you already manage to tell me what her name is?

         g. Can you manage to believe that Harry proposed?

However, as (5.3) shows, _manage_ may not be used _by itself_ to convey an indirect illocutionary act.

   (5.3) a. *I am managing to say that you're wrong.

         b. *Are you managing to tell me what you're doing here?

         c. *I manage to say that you're wrong.

         d. *Do you manage to tell me what you're doing here?

These facts can be accounted for, if we employ Searle's (1969) distinction between illocutionary acts and propositional acts. Acts of asserting, commanding, questioning, promising, etc., are

illocutionary acts, while acts of referring and predicating are propositional acts. One propositional act can usually be used to perform any of a number of illocutionary acts, but it is impossible to perform a propositional act without at the same time performing an illocutionary act. On the other hand, some illocutionary acts, like utterances of "Huzzah" or "Ouch," do not have propositional content, and may thus be performed without performing any propositional act. Propositional acts must be distinguished from utterance acts, i.e., the uttering of words, because the same proposition may be expressed by different paraphrases and different referring expressions.

How let us modify what we said before about what presuppositions are. We shall say that a speaker performing a <u>propositional</u> act presupposes, and further, that for a speaker to presuppose something is for him necessarily to believe that another <u>proposition</u> is true. If there is presupposition failure, the <u>propositional</u> act is invalid, and therefore any illocutionary act performed by performing the propositional act is void.

In this view, presuppositions are nothing more or less than felicity conditions (in fact intrinsic felicity conditions) on propositional acts. As such they may be the basis for indirect propositional acts, just as felicity conditions on illocutionary acts may be the basis for indirect illocutionary acts. In the case of verbs like <u>manage</u>, <u>succeed (in)</u>, <u>get (to)</u>, we notice that for the speaker to perform the propositional act of predicating a volitional act V of some agent A, it is necessary for the speaker to

believe that A manages to perform V, that A succeeds in performing V, and that A gets to perform V. These are conditions on the predication of a volitional act. Moreover, these conditions are not only **necessary** conditions on the predication of a volitional act, but also **sufficient** conditions for the predication of a volitional act (Karttunen, 1971, p. 350ff). Thus, it makes sense that one can predicate of an agent that he manages to, succeeds in, or gets to perform a volitional act as the performance of an indirect propositional act of predicating that the agent does perform the act. Since the conditions on which the indirect propositional act may be based are both necessary and sufficient conditions on the propositional act involved, the indirect propositional act cannot be avoided. We shall see in the next chapter that there are cases of indirect propositional acts which are not obligatory.

The unacceptability of the utterances in (5.3) shows that the distinction between propositional acts and illocutionary acts is not just philosophical hair-splitting, but has syntactic relevance. The utterances in (5.3) are unacceptable because a felicity condition on propositional acts has been used as the basis for an alternative expression of an explicit performative verb or illocutionary force marker. All we need to say is that explicit performative verbs do not predicate, in the normal sense of the term, when they are used performatively. When a presupposition is used as the basis for an indirect propositional act and applies to a verb which may be either taken as an explicit performative or a simple predicate, the former interpretation is disallowed, and thus

the utterance is disambiguated.

> (5.4) a. I request (to have) 50 boxes a day. (ambiguous
> between performative and aorist interpretations)
>
> b. I manage to request (to have) 50 boxes a day.
> (unambiguously aorist)

We shall have more to say about indirect propositional acts in
the next chapter, when we examine invited inferences. Right now we
will examine the qualification of presuppositions, a process parallel
to the qualification of felicity conditions on illocutionary acts.
(5.5) gives examples of what we are concerned with.

> (5.5) a. The stash is in the air vent, if anywhere.
>
> b. Only John has the strength to lift that, if
> he does.
>
> c. (Only) five people came, if that many.
>
> d. Few blue whales, if any, have survived.
>
> e. John has stopped beating his wife, if he
> used to beat her.

Lakoff (1970b) has described this sort of thing as a process of
presupposition cancelling. (It has also be discussed from an inter-
pretive viewpoint by Wilson (1970)). For example, considering
(5.5d) in detail, the proposition "Few blue whales have survived"
presupposes the proposition that there exists at least one blue
whale which has survived. The latter proposition must be true
before the former proposition is meaningful. However, the presupposed
proposition need not be true in the case of (5.5d). This is
shown by the fact that (5.5d) can have a continuation which denies
the presupposition in question, while the same sentence without the
if clause cannot have such a continuation, as in (5.6).

(5.6) a. Few blue whales, if any, have survived, but
perhaps none have.

b. *Few blue whales have survived, but perhaps
none have.

To call this process presupposition cancelling is to suggest that
(5.5d) no longer has the presupposition in question. Lakoff
himself argues against this, giving evidence that the presupposition
is still there, but no longer required to be true. Thus, instead
of using the term cancelling, we shall call this process presupposition
qualification.

Before continuing the discussion of Lakoff's treatment of
presupposition qualification, we shall demonstrate some of the
resemblances between the if clauses used for the qualification of
presuppositions and those used for the qualification of intrinsic
conditions. (5.7) contains the utterances of (5.5) with their if
clauses expanded.

(5.7) a. The stash is in the air vent, if it is
anywhere (around here).

b. Only John has the strength to lift that, if
(even) he has the strength to lift that.

c. (Only) five people came, if (even) that
many people came.

d. Few blue whales have survived, if any blue
whales have survived.

e. John has stopped beating his wife, if he
used to beat her.

The first point of similarity between the if clauses in (5.7) and
the qualifying if clauses we have discussed is the lack of causal
connection in both of them between the proposition expressed by the

_if_ clause and the proposition expressed by the main clause.

Actually, normal conditionals, such as those in (5.8), also seem

to lack causal connection at times.

(5.8) a. If the moon has a ring around it, it will
rain.

b. The moon's having a ring around it would
cause it to rain.

c. If John thinks he can get away with it, he's
crazy.

d. John's thinking he can get away with that
would cause him to be crazy.

Thus, (5.8b) and (5.8d) are not paraphrases of (5.8a) and (5.8c).

However, it can be seen that there is in such conditionals a causal

connection between the _if_ clause proposition and the speaker's

believing the proposition expressed by the main clause. Thus, (5.9a)

and (5.9b) are paraphrases of (5.8a) and (5.8c), respectively.

(5.9) a. The moon's having a ring around it would
cause me to think that it's going to rain.

b. John's thinking he can get away with it
would cause me to believe he's crazy.

However, as a comparison of (5.10) with (5.7) will show, neither type

of causal connection exists with _if_ clauses of the type illustrated

in (5.7).

(5.10) a. *The stash's being anywhere around here would
cause it to be in the air vent.

a'.*The stash's being anywhere around here would
cause me to think it's in the air vent.

b. *(Even) John's having the strength to lift
that would cause only John to have the
strength to lift that.

b'. *(Even) John's having the strength to lift
that would cause me to think that only
John has the strength to lift that.

etc.

The two types of _if_ clauses are also similar in that they
share the same types of paraphrases. Utterances containing either
type may be paraphrased with utterances of the form _Y, or X?_ or of
the form _Y, or perhaps not X_. However, only utterances containing
_if_ clauses qualifying illocutionary acts may be paraphrased with
utterances of the form _Perhaps not X, but Y._, perhaps because of
some difference between the use of _but_ as a conjunction of propositions
and its use as a conjunction of illocutionary acts. These para-
phrases are illustrated in (5.11) for the corresponding sentences
of (5.7), the paraphrasability of utterances containing _if_ clauses
qualifying illocutionary acts already having been discussed in
chapter four.

(5.11) a. The stash is in the air vent, or

$\begin{Bmatrix} \text{perhaps it's nowhere around here.} \\ \text{is it anywhere around here?} \end{Bmatrix}$

b. Only John has the strength to lift that,

or $\begin{Bmatrix} \text{perhaps (even) he doesn't.} \\ \text{does (even) he?} \end{Bmatrix}$

c. Five people came, or $\begin{Bmatrix} \text{perhaps not (even) that many.} \\ \text{did (even) that many?} \end{Bmatrix}$

d. Few blue whales have survived, or $\begin{Bmatrix} \text{perhaps none.} \\ \text{have any?} \end{Bmatrix}$

e. John has stopped beating his wife,

or $\begin{Bmatrix} \text{perhaps he never used to.} \\ \text{did he use to?} \end{Bmatrix}$

The third similarity is that if clauses like those in (5.7) apparently may be indifferently subjunctive or indicative while the main clause remains indicative, although there is dialectal variation concerning this:

(5.12)   a. The stash is in the air vent, if it would be anywhere around here.

b. Only John has the strength, if even he would have.

c. ?Five people came, if even that many would have.

d. ?Few blue whales have survived, if any would have.

e. John has stopped beating his wife, if he would use to beat her.

(5.12c) and (5.12d) show that the subjunctive paraphrase must be restricted to the present tense cases, perhaps because of the usual counterfactual presupposition of the past subjunctive.

The fourth similarity is that the propositions expressed by the utterances in (5.7) are not contingent propositions. In fact, the if clause use increases the number of circumstances under which the proposition of the main clause may be true, while in normal conditionals, the proposition of the antecedent limits the circumstances under which the proposition of the consequent may be true.

There is a major dissimilarity between the if clauses qualifying illocutionary acts (intrinsic conditions) and those qualifying propositional acts (presuppositions), and that is that the latter may be past subjunctive or indicative if the main clause is past subjunctive, as in (5.13).

(5.13) a. The stash would have been in the air vent,

if it $\begin{cases} \text{had been anywhere.} \\ \text{were to have been anywhere.} \\ \text{was anywhere.} \end{cases}$

b. Only John would have had the strength, if

(even) he $\begin{cases} \text{had had it.} \\ \text{were to have had it.} \\ \text{had it.} \end{cases}$

c. Five people would have come, if (even)

that many $\begin{cases} \text{had.} \\ \text{were to have.} \\ \text{did.} \end{cases}$

d. Few blue whales would have survived, if

any $\begin{cases} \text{had.} \\ \text{were to have.} \\ \text{did.} \end{cases}$

e. John would have stopped beating his wife,

if he ever $\begin{cases} \text{had beat her.} \\ \text{were to have beat her.} \\ \text{did beat her.} \end{cases}$

We see above the same indifferent use of past subjunctive and
indicative that we noticed with the present, but this may perhaps
be explained in this case by the dying out of the past subjunctive
in English. Ths difference we have discovered may be explained by
assuming, as Searle (1969) does, that the subjunctive mood is part
of an illocutionary force indicator, i.e., that subjunctively
asserting and questioning are illocutionary acts. Since the
qualification of propositional acts has no connection with illocu-
tionary acts performed by those propositional acts, we would expect
to find real subjunctive qualifying _if_ clauses on subjunctive
propositional acts, while qualifications of illocutionary acts

could never be subjunctive. In other words, while qualifications
of presuppositions are inside the domains of the illocutionary acts
in question, qualification of intrinsic conditions on illocutionary
acts are outside the domain of these acts.

We have demonstrated enough similarity between the qualifying
_if_ clauses on intrinsic conditions of illocutionary acts and those
on presuppositions to consider them to be manifestations of the same
process, with the differences between them accounted for by the
differences that exist between illocutionary and propositional acts.
We now turn to a consideration of the fact that not all presuppositions
are qualifiable. Lakoff (1970b) claims that not only are some pre-
suppositions inherently not qualifiable, e.g. the factivity of the
complements of factive verbs, but also that those presuppositions
that are qualifiable may in fact be qualified only if they occupy
a certain position in the presuppositional structure of the sentence
(in our terms proposition) in question, namely, that they are first
order presuppositions.

Lakoff defines the order of presuppositions in terms of the
concept "immediately presupposes": "Thus we will say that 'S_1
immediately presupposes S_2 ['] if and only if S_1 presupposes S_2 and
there is no S_3 such that S_1 presupposes S_3 and S_3 presupposes S_2"
(Lakoff, 1970b). First order presuppositions are those
which the propositional act immediately presuppose, second order
presuppositions are those which the first order presuppositions
immediately presuppose, and so forth.

An example of first and second order presuppositions (from

Lakoff, 1970b) is given in (5.14).

> (5.14) a. Few men have stopped beating their wives.
>
> b. (first order presupposition) Some men have stopped beating their wives.
>
> c. (second order presupposition) Some men have beaten their wives.

Lakoff notes that (5.14a) presupposes both (5.14b) and (5.14c),[15] but

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[15]Lakoff claims that the relationship of presupposing is not always transitive. However, all his counterexamples to the transitivity of presupposition either are based on a faulty presuppositional analysis of _pretend_ (Karttunen, 1970a) or the nonfactivity of _realize_ in conditional sentences (Karttunen, 1970b).

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that while the first order presupposition can be qualified, as in (5.15a), the second order presupposition apparently cannot be qualified, as shown by (5.15b).

> (5.15) a. Few men have stopped beating their wives, if any have stopped.
>
> b. *Few men have stopped beating their wives, if any have ever beaten them at all.

However, it seems more likely that (5.15b) is unacceptable not because of qualification of a second order presupposition, but because one _if_ clause is being used to qualify two presuppositions at the same time. If we separate the qualification of the presupposition associated with _few_ from the qualification of the presupposition associated with _stop_, as in (5.16), we find that the 'second order' presupposition associated with the verb _stop_ can in fact be qualified.

(5.16)   a.   Few men, if any, have stopped beating
              their wives, if they ever beat them at all.

            b.   Few men have stopped beating their wives,
              if they ever beat them at all.

Sentence (5.16b), for example, could be asserted by somebody who

is taking a poll to determine, of those men who have beaten their

wives, how many have stopped, and who finds that few men have in

fact stopped and further that it is questionable that those men

should count in the poll, since there is evidence that they lied in

response to the initial question, whether they had ever beaten their

wives.

It can be further shown that the notion of order of presupposition

is somewhat problematic. since in cases like (5.17), there is no way

to determine which is the first order presupposition and which is

the second, of Pr_a and Pr_b, while admittedly Pr_c seems to be more

distantly associated with the proposition expressed be the assertion.

(5.17)   John has stopped beating his wife.

          Pr_a.   Somebody has stopped beating his wife.

          Pr_b.   John used to beat his wife.

          Pr_c.   Somebody used to beat his wife.

The difficulty could be solved by calling both Pr_a and Pr_b first

order presuppositions and Pr_c a second order presupposition.

However, it is not very explanatory to say that (5.18) (as an

example of qualification, not as a conditional) is unacceptable

because Pr_c is a second order presupposition, when really what is

going on is that one cannot qualify two presuppositions at the same

time.

(5.18) *John has stopped beating his wife, if anybody
used to.

Another condition on qualification of presuppositions is
that the qualifying if clause must be in the same clause as the
word connected with the presupposition being qualified, thus, in
(5.19), the NP being qualified can only be the one immediately
following the qualifying phrase.

(5.19) a. If anybody, Harry was sick.

        b. If anybody, John said that Harry was sick.

        c. If anybody, Milt regretted that John said
            that Harry was sick.

Putting heavy stress on Harry in (5.19b) or (5.19c) or Milt in (5.19c),
thus marking them as the referring expression which has its pre-
supposition qualified, causes these sentences to be unacceptable.

Returning to the subject of qualifiable versus nonqualifiable
presuppositions, we recall that there were two possible reasons why
a given intrinsic condition could not be qualified: 1) it is a
condition on the speaker's intentions, desires, or knowledge rather
than on the speaker's beliefs, or 2) it is an essential condition
which must be fulfilled for the illocutionary act to take place.
Since all presuppositions seem to be conditions on the speaker's
beliefs rather than on his knowledge, intentions, or desires, it
appears that an explanation of why some presuppositions are not
qualifiable similar to that given in 1) is not open to us. Nor
can we expect to find an explanation similar to that given in 2),
since by definition the presuppositions associated with a proposi-
tional act are necessarily believed to be true if the propositional

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act is to have a truth value or be meaningful. There are no
cases of propositional acts which have a truth value but which are
odd or misleading because of a presupposition failure, parallel to
the cases of illocutionary acts which are infelicitous because of
the falsity of an intrinsic condition but which still constitute
illocutionary acts. In fact we have no explanation for why some
presuppositions are not qualifiable.

Continuing this discussion, we give some examples of qualifiable
and non-qualifiable presuppositions. Corresponding to the examples
of qualifying if clauses given in (5.7), we have the following
qualifiable presuppositions:

(5.20) a. if anything   If the speaker predicates f of
            if anybody   a referring expression r, he
            if anywhere   presupposes that there exists
            etc.   in the domain of discourse
                               some object that f is true of.

        b. if he does   To say ONLY $(a,f(a))$ presupposes
            if that $f(a)$.[16]

        b'. if that many   To say there exists only some
                               number of x such that $f(x)$
                               presupposes $f(x)$ for that
                               number of x.

        c. if any   To say FEW $(a,f(a))$ presupposes
                               there exists an x such that
                               $f(x)$ is true.

        d. if S used to   To say of an argument that it
                               stops at time t presupposes that
                               there exists a time t_1 before
                               t such that the argument
                               occurs at t_1.

-----

[16]We follow here Horn's (1969) presuppositional analysis of
only and his representation of only as a two place predicate taking
as first argument its scope and as second argument a predication
about its scope.

All of the presuppositions given in (5.20) are invariant under
assertion, questioning, and subjunctive assertion. The first one
however does not count as a presupposition under denial (the
others do). This need not concern us much, since invariance under
assertion, questioning, subjunctive assertion, and denial is not
for us a defining characteristic of presuppositions.[17] Presuppositions

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[17]That invariance under questioning and under subjunctive
assertion does not hold even for the presupposition that the
complement of factive verbs is true is shown by Karttunen (1970b).

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are those propositions which the speaker must believe to be true to
bring off a _propositional act_. We argued before that propositional
acts are embedded in illocutionary acts at least for the purposes
of presupposition qualification, so it is not surprising to find
some interaction between the illocutionary act and its associated
propositional act. In fact, we can hypothesize that the interaction
is all one-way, that is, we would be surprised to find that a
felicity condition on an illocutionary act need not hold if the
illocutionary act's associated propositional act was of a certain
form.

One of the claims implicit in (5.20b) and (5.20b') is that
whenever we find an utterance with a qualifying _if_ clause of the
form _if that_ or _if him_ or _if_ and a clause with a stressed definite
noun phrase, the noun phrase in the main clause which gave rise to
the presupposition being cancelled must be an argument of the
predicate _only_. There are obviously superficial counterexamples
to this, e.g. those in (5.21).

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(5.21)   a.   The fire is smoldering, if that.

          b.   Five people came, if that.

          c.   He likes her, if that.

(5.22)   a.   The fire is only smoldering, if it is doing that.

          b.   Only five people came, if that many people came.

          c.   He only likes her, if he feels that strongly about her.

However, not only are the sentences in (5.21) paraphrasable by the sentences in (5.22), but the same contrastive stress shows up on the noun phrases (perhaps underlying) in the examples of (5.21) that shows up on the noun phrases quantified by only in the corresponding examples of (5.22). As Wilson (1970) points out, it is difficult to begin discourses with sentences like those in (5.21). In fact, there are some like (5.23) which only seem possible in response to something like (5.24).

(5.23)   George came, if he did.

(5.24)   George, Harry, and Mike came.

In other words, sentences like those in (5.21) serve only to contradict either what someone else has just said or to contradict a shared assumption. This is a feature which utterances containing only have, since, following Horn (1969), the assertion of an utterance containing only amounts to the assertion that no argument in the domain of discourse other than the argument that is in the scope of only is characterizable by the predication of the assertion. That is:

(5.25)   SAY (ONLY (x=a, f(x))) → SAY (~∃y(y≠a & f(y)))

Another reason for assuming that there is an underlying <u>only</u>
in sentences like (5.21) is that the noun phrases in question show
the same scale of strength behavior that Horn (1969) showed existed
for the argument of <u>only</u>. Thus, just as (5.26a) is unacceptable,
so is (5.26b).

> (5.26)   a. *He only loves her, he doesn't like her.
>
>   b. *He loves her, if nat.

For these reasons, we can assume that utterances which have following
<u>if that</u> clauses have at least an underlying <u>only</u> taking the qualified
expression as its first argument and that this <u>only</u> is optionally
deletable.

Examples of non-qualifiable presuppositions are actually quite
difficult to come by. We have been able to find only two (although
there may well be others): 1) that the speaker believes that what
he is predicating a factive predicate of is true, and 2) that when
the speaker predicates <u>even</u> $(x=a, f(x))$, he believes that $\exists y(y \neq a, f(y))$
(using Horn's (1969) analysis).[18]

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[18]In a future work it will be shown that the presupposition of
<u>even</u> given here is more accurately that f is also true of more
likely arguments in the domain of discourse for it to be true of
than <u>a</u>, rather than simply that there exists another instantiation
of x such that $f(x)$ is true. This difference in analysis is not
crucial to the discussion here.

It might at first glance appear that these presuppositions are
actually qualifiable because of the existence of sentences like
those in (5.27).

(5.27)   a.   If John is upstairs, Harry realizes that he is.

      b.   If somebody else comes, even Irv will come.

However, as shown in (5.28), these sentences are actually normal conditionals with causal connection between antecedent and consequent, and, as (5.29) shows, they do not have the paraphrases we would expect for sentences containing qualifying _if_ clauses.

(5.28)   a.   John's being upstairs would cause Harry to realize that he is.

      b.   Somebody else's coming would cause me to believe that even Irv is coming.

(5.29)   a.   *Harry realizes that John is upstairs, or is he?

      b.   *Even Irv is coming, or perhaps nobody else is.

It is particularly interesting to examine a class of utterances which have _if_ clauses which are ambiguous between readings where they are antecedents of true conditionals and readings where they qualify a propositional act. An example of such an utterance is given in (5.30).

(5.30)   John left last night, if he was able to.

This utterance is ambiguous between the reading given in (5.31a) and the reading given in (5.31b).

(5.31)   a.   John's having been able to leave last night would cause me to believe that he did leave.

      b.   John left last night, or was he able to?

To delimit this class of utterances and to account for the (5.31b) reading of (5.30), we must consider in detail Karttunen's (1971) analysis of what he calls _implicative verbs_. For Karttunen, an implicative verb is one which when used in assertions implies

that its complement is true, as factive verbs do (Kiparsky and
Kiparsky, 1970), but which when negated implies that the negative
of its complement is true and which in questions amounts to a question
about whether its complement is true, unlike factive verbs. An
example will clarify this: the assertion of (5.32a) amounts to the
assertion of (5.32b), the assertion of (5.32c) amounts to the
assertion of (5.32d), and the question (5.32e) amounts to the
question (5.32f) (leaving aside cases with contrastive stress on
the main verb).

       (5.32) a.   John happened to see Mary.

                b.   John saw Mary.

                c.   John didn't happen to see Mary.

                d.   John didn't see Mary.

                e.   Did John happen to see Mary?

                f.   Did John see Mary?

Similarly, there are, according to Karttunen, _negative implica-
tive verbs_, which, when used in positive assertions, imply that
their complements are false, when used in negative assertions, imply
their complements are true, and when used in questions, amount to
a question about whether or not their complements are false. An
example of a negative implicative verb is _fail (to)_, whose behavior
is demonstrated in (5.33).

       (5.33) a.   Fred failed to button his fly. =

                b.   Fred didn't button his fly.

                c.   Fred didn't fail to button his fly. =

                d.   Fred buttoned his fly.

    e. Did Fred fail to button his fly? =

    f. Did Fred not button his fly?

Some of the verbs which are implicative are given in (5.34)

and some which are negative implicative are given in (5.35)

    (5.34) a. manage (to), get (to), succeed (in),
                happen (to)

            b. remember (to), choose (to), be able (to),
                dare (to), see fit (to)

    (5.35) a. fail (to), neglect (to), refrain (from)

            b. forget (to), decline (to), refuse (to),
                be too lazy, stupid, smart, etc., (to)

Karttunen explains the behavior of the above verbs by reference
to the fact that utterances containing the verbs in (5.34a)
constitute necessary and sufficient conditions for believing that
the complements of those verbs in such utterances are true, while
utterances containing the verbs in (5.35a) constitute necessary and
sufficient conditions for believing that the complements of those
verbs are false. Thus, it is impossible under all circumstances
for one to happen to do something and not do it or for one not to
happen to do something and do it. Similarly, it is impossible
to fail to do something and do it or not to fail to do something
and not do it. Thus, the propositions expressed with the verbs in
(5.34a) and (5.35a) are in some sense equivalent to the propositions
which they convey, although there is, to be sure, a meaning
difference between the explicit proposition and the conveyed
proposition not relevant to the stated equivalence.

In the case of the verbs in (5.34b) and (5.35b),[19] Karttunen

[19]Some of the verbs which Karttunen would have included in
the classes exemplified by our (5.34a) and (5.35a) we would
reclassify as belonging to the classes exemplified by (5.34a)
and (5.34b). Such verbs include remember, dare, forget, and
decline. This is necessary because we find these verbs to act
like those in (5.34b) and (5.35b) in our dialect. The fact that
dialects can differ in such judgments is noted by Karttunen and
will be discussed in the next chapter.

---

points out that they are ambiguously implicative or non-implicative

and that strictly speaking utterances containing them constitute

only necessary and not sufficient conditions for believing that

their complements in such utterances are true in the case of verbs

in (5.34b) or false in the case of verbs in (5.35b). Thus a

sentence like (5.36a) is ambiguous between a reading where it is

about John's ability and a reading where it is used to convey a

statement about what John did and is only secondarily about John's

ability.

(5.36) a. John was able to complete his collection.

        b. John was able to complete his collection, but
            he didn't because he had lost interest in it.

The sentence (5.36b), however, can only be interpreted as a statement

about John's ability because the continuation contradicts the

indirect assertion. Comparing (5.36) with (5.37), (and ignoring the

readings with heavy stress on able), we find that it is impossible

to avoid the indirect reading of (5.37a), where it is a statement

about what John didn't do as well as one about his abilities.

(5.37) a. John wasn't able to be present.

        b. *John wasn't able to be present, but he
            was present.

This is explained by the fact that being able to perform a volitional

act is a necessary, but not sufficient, condition on the actual

performance of that act.[20] However, as Karttunen argues, it is

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[20]It should be noticed that this condition is quite similar
to the ability intrinsic condition on illocutionary acts discussed
earlier. In fact, it would be better to say that there is one
condition on ability which applies to both illocutionary and
propositional acts, and that differences between the syntactic
reflexes of this condition in the qualification (and indirect
performance) of illocutionary acts and those syntactic reflexes
in the qualification (and indirect performance) of propositional
acts all result from general differences between illocutionary
and propositional acts. Thus for example in if clauses qualifying
illocutionary acts, be able and can can only have 1st or 2nd
person subjects, while in if clauses qualifying propositional
acts, they can have 3rd person subjects (as we shall see below),
obviously a consequence of the fact that it is the speakers
and addressees only who are participating in an illocutionary
act, while the agent in a propositional act may be anyone.

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sometimes taken also as a sufficient condition on the performance

of that act, in which case sentences like (5.36a) can be taken as

statements about what the agent of the volitional act actually did.

A similar argument would show that forgetting to perform a volitional

act, a sufficient condition on the non-performance of that act (or

rather not forgetting to perform a volitional act, a necessary

condition on the performance of that act), has the same behavior.

In the framework presented here, implicative verbs are simply

verbs which denote logically necessary conditions on the truth of

a predication of a volitional act __ someone. Thus to perform the

propositional act of predicating of an agent that he performs a

volitional act V, you must believe that that agent manages to,

remembers to, doesn't fail to, doesn't decline to perform V,

and so forth through the list of implicative verbs. When you predicate of an agent that he manages to, remembers to, doesn't fail to, or doesn't decline to perform V, you may indirectly perform the propositional act of predicating that the agent does V, of which more will be said when we discuss invited inferences in the next chapter.

We cannot analyze implicative verbs as verbs which denote predication which is presupposed by the predication of a volitional act because if they were so analyzed, we would be in effect claiming that before a predication of a volitional act V can be meaningful, it must be the case that one believes that the agent of V manages to, remembers to, etc., perform that act. But it would be nonsense to say the proposition that "John sucks eggs" is meaningless when John doesn't manage to suck eggs. The proposition is simply false, not meaningless.

What we have in implicative verbs is a denotation of truth conditions on the propositional act of predicating a volitional act, while presuppositions are meaningfulness conditions. Truth conditions and meaningfulness conditions are similar in that they may both be the basis for the qualification of propositional acts by if clauses. Consider the examples in (5.38).

(5.38) a. John played pool last night, if he
            managed to.

        b. chose to.

        c. didn't neglect to.

        d. didn't refuse to.

e. John didn't play pool last night, if he

f. $\left\{\begin{array}{l}\text{didn't manage to.} \\ \text{didn't choose to.} \\ \text{neglected to.} \\ \text{refused to.}\end{array}\right.$

g.

h.

These sentences as well as all having a causal interpretation all have an interpretation where the if clause is qualifying a truth condition on the main clause, as shown by the paraphrases in (5.39) - (5.42).

(5.39) a. John played pool last night, or perhaps he

b. $\left\{\begin{array}{l}\text{didn't manage to.} \\ \text{didn't choose to.} \\ \text{neglected to.} \\ \text{refused to.}\end{array}\right.$

c.

d.

(5.40) a. John didn't play pool last night, or perhaps he

b. $\left\{\begin{array}{l}\text{managed to.} \\ \text{chose to.} \\ \text{didn't neglect to.} \\ \text{didn't refuse to.}\end{array}\right.$

c.

d.

(5.41) a. John played pool last night, or

b. $\left\{\begin{array}{l}\text{did(n't) he manage to?} \\ \text{did(n't) he choose to?} \\ \text{did(n't) he not neglect to?} \\ \text{did(n't) he not refuse to?}\end{array}\right.$

c.

d.

(5.42) a. John didn't play pool last night, or did he

b. $\left\{\begin{array}{l}\text{manage to?} \\ \text{choose to?} \\ \text{not neglect to?} \\ \text{not refuse to?}\end{array}\right.$

c.

d.

It is no accident that (5.39), (5.40), (5.41), and (5.42) seem to have interpretations as (5.43), (5.44), (5.45), and (5.46) respectively.

> (5.43) John played pool last night, or perhaps he didn't.
>
> (5.44) John didn't play pool last night, or perhaps he did.
>
> (5.45) John played pool last night, or did(n't) he?
>
> (5.46) John didn't play pool last night, or did he?

There are two possible explanations for this. One would be that the implicative verbs in the continuations are all simply used implicatively and thus we don't have qualification of truth conditions here, but only an indirect conveyance of (5.43) - (5.46) by means of the use of implicative verbs. The problem with this explanation is that the continuation of a sentence like (5.39b) for example can be interpreted as a statement about what John <u>chose</u> to do, where <u>chose</u> is a nonimplicative. Thus (5.47) is perfectly acceptable with what is presumably a nonimplicative use of <u>choose</u>, in which case John's choosing to play pool would not imply that he played pool and the correspondence we are discussing would be unexplained.

> (5.47) John didn't play pool last night, or perhaps he chose to instead of choosing another pastime.

A more tenable explanation of the correspondence between (5.39) - (5.42) and (5.43) - (5.46) is that the qualification of propositional acts by reference to truth conditions amounts to bringing the <u>truth</u> of those propositions into question (while qualification by reference to presuppositions brings meaningfulness of propositions into question). Then the utterances in (5.39) - (5.42) and (5.43) - (5.46) are similar

to each other in that they all amount to the assertion of an utterance of qualified truth. However, (5.39) - (5.42) differ from (5.43) - (5.46) in that the former have indication of which truth condition causes the questionability of the truth of the proposition, while the latter do not.

It is tempting to draw a parallel between presuppositions of propositional acts and essential intrinsic conditions on illocutionary acts on the one hand and between truth conditions and non-essential intrinsic conditions on the other. It might be said, for example, that just as an illocutionary act will be void if an essential intrinsic condition is false, a propositional act will be void, that is meaningless or without truth value, if a presupposition is violated. Further, just as an assertion will count as an assertion and yet be insincere if an intrinsic condition on insincerity is violated, certain types of propositions (e.g. propositions predicating a volitional act) will count as propositions and yet be false if a truth condition is violated. However, this parallelism is not supported by our examination of qualification of illocutionary and propositional acts, since we have seen that illocutionary acts may only be qualified on the basis of non-essential intrinsic conditions, while propositional acts may be qualified on the basis of some presuppositions, as well as on the basis of truth conditions.

CHAPTER VI

INVITED INFERENCES

In this chapter, we attempt to show that invited inferences in the sense of Geis and Zwicky (1971) are indirect propositional acts. Our demonstration will consist of showing that most of the cases of invited inference discovered so far (by Geis and Zwicky (1971) and Horn (1971)) can be explained as arising from truth conditions on (i.e., logical inferences from) propositional acts, just as indirect illocutionary acts can be explained as arising from intrinsic conditions on those illocutionary acts.

The mechanism for generating a proposition P which invites the inference of another proposition Q, will be said to be as follows: Q is replaced with a logically necessary condition for the truth of Q, that is, a truth condition on Q. The resulting proposition P will then invite the inference Q.

The paradigm example of invited inferences discussed by Geis and Zwicky (1971), that of conditional perfection, is easily explained in the above terms. Conditional perfection is the process by which sentences like those given in (6.1) invite the inference of the propositions expressed by the corresponding sentences in (6.2). (Examples from Geis and Zwicky.)

> (6.1) a. If you mow the lawn, I'll give you five dollars.

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  b. I'll flunk you if you don't start coming
    to class.

(6.2) a. If you don't mow the lawn, I won't give
     you five dollars.

  b. I won't flunk you if you start coming to
    class.

The sentences in (6.2) are <u>suggested</u> by the sentences in (6.1). A
general statement of the principle behind such invited inferences
is (from Geis and Zwicky):

(6.3) A sentence of the form $X \supset Y$ invites an inference
    of the form $\sim X \supset \sim Y$.

Concerning this principle, it is pointed out that "it should be
understood that [the] principle and any other like it, has force
only when it is not contravened by other assertions or beliefs."

  In other words, the principle of conditional perfection
behaves in our terms like indirect illocutionary acts, which may
only be performed if nothing in the situation makes it clear that
the utterance used to perform the indirect act should be taken
literally.

  If we analyze the utterances of (6.1) as having the invited
inferences given in (6.4) below rather than those given in (6.2), we
will not do any violence to the notion of conditional perfection.

(6.4) a. If and only if you mow the lawn will I
     give you five dollars.

  b. If and only if you don't come to class will
    I flunk you.

In fact, since we are speaking of the <u>perfection</u> of conditionals,
it would seem better to formulate the principle of conditional
perfection as in (6.5) rather than as in (6.3).

(6.5) A sentence of the form $X \supset Y$ invites an
inference of the form $X \equiv Y$.

There does not seem to be much difference between the formulations
in (6.3) and (6.5) as far as their effect is concerned, since the
only change is that in (6.5) the invited inference is a conjunction
of the invited inference given in (6.3) and the proposition literally
expressed by a sentence of the form $X \supset Y$. However, we can now
explain conditional perfection as an example of the general process
of substituting a logically necessary condition on the truth of a
proposition for that proposition, since (6.6a) is a tautology.

(6.6) a. $(X \equiv Y) \supset (X \supset Y)$

b. $(X \equiv Y) \supset (\sim X \supset \sim Y)$

Since (6.5b) is also a tautology, our account makes the claim that
for example (6.7a) and (6.7b) both invite the same inference, that
of (6.7a).

(6.7) a. If you come here, I'll show you something.

b. If you don't come here, I won't show you
something.

c. If and only if you come here will I show
you something.

In Geis and Zwicky's account, (6.7a) invites the inference of (6.7b)
and vice versa. There seems to be no internal evidence which would
allow one account to be preferred over the other. However, by using
the approach taken here, we can provide a general account of some
other cases of invited inference which must be viewed by Geis and
Zwicky as processes different from conditional perfection.

Before continuing, however, it should be noted that not all
cases of tautologies based on logical implication can be the basis

for invited inferences. For example, (6.8) is a well-known

tautology, yet it cannot be said that asserting AvB invites the

inference of A (example from Arnold Zwicky, personal communication).

(6.8) $A \supset AvB$

This shows that we must restrict our use of the term 'logic' so as

not to encompass all of propositional calculus. We may do this

by stipulating that by _logic_ we mean _natural logic_ in the sense of

Lakoff (1970b). Thus we consider Lakoff's meaning postulates to be

examples of truth conditions on propositional acts which can be the

basis for invited inference. Two cf Lakoff's meaning postula·es

are given in (6.9) and examples of their use to invite inferences

are given in (6.10).

(6.9) a. CERTAIN(S) $\supset$ POSSIBLE(S)

      b. INTEND (X,S) $\supset$ BELIEVE(X,(POSSIBLE(S))

(6.10) a. I think it is possible that you are wrong. $\overset{i.i.}{\longrightarrow}$
        I think it is certain that you are wrong.

      b. I believe it is possible for me to talk
        Fred out of jumping. $\overset{i.i.}{\longrightarrow}$ I intend to
        talk Fred out of jumping.

We hypothesize then that all and only postulates and theorems of

natural logic involving implication may be the basis for invited

inferences.

Another case of invited inference according to Geis and Zwicky

is what they call inferred causation, in which sentences expressing

a temporal sequence of events invite the inference that the event

prior in time is a cause of the subsequent event. (Note that the

word _subsequent_ itself has causal implications, although it is

strictly speaking a predicate concerning temporal ordering.) Some

examples are:

> (6.11) a. After finishing his dissertation, Fred
> was ready for the nuthouse.
>
> b. Having eaten a whole goose, Wolfe was in
> a pleasant mood.
>
> c. I looked at her and realized how small
> her ears were.

To relate this phenomenon to that of conditional perfection, we
need only note that it is a necessary condition on the truth of a
predication that event A causes event B that A precede B temporally.
Thus again we have an example of the substitution of logically
necessary conditions on propositions for those propositions.

A third case of invited inference is pointed out by Horn (1971),
who observes that sentences containing optional implicative verbs
(like remember (to), choose (to), and be intelligent enough (to))
actually may be said to invite the inference of their complements,
rather than to optionally presuppose them, as Karttunen (1971)
would have it. We have already seen in the last chapter that
implicative verbs denote predicates which are logically necessary
conditions on the truth of a predication of a volitional act. Thus,
our general principle immediately accounts for the indirect proposi-
tions expressed by sentences like (6.12), and why these indirect
propositions are not always conveyed.

> (6.12) a. George remembered to shuffle.
>
> b. Mary chose to be anonymous.
>
> c. Max was intelligent enough to keep quiet.

To perform a volitional act, it is necessary to remember to perform

it, choose to perform it, and be intelligent enough to perform it.
However, these conditions are not logically _sufficient_ conditions
on performing a volitional act.[21] Therefore it is possible to

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[21]By this account, those speakers of English who find the
verb _remember (to)_ to be obligatorily rather than optionally
implicative in their dialect must have a different truth
condition on volitional acts, one which has it that remembering to
perform a volitional act is a logically necessary _and logically_
sufficient condition in the performance of that volitional act.
That is, such a speaker would not be able to imagine any situation
in which one could remember to do something and yet not do it.
This must ultimately be accounted for as a difference in meaning
of the verb _remember (to)_ since the logically necessary and
sufficient conditions we have been discussing must follow from
the meanings of the predicates involved. The same remarks apply
to several other of Karttunen's (1971) obligatory implicative
verbs which the writer finds to be optionally implicative in
his dialect.

---

imagine situations where one remembered to do something, chose to
do something, or was intelligent enough to do something and yet did
not do it. It is in just such situations that sentences like (6.12)
do not invite the usual inference.

We have been claiming that what we are concerned with here
are indirect _prepositional_ acts so far with no justification, since
we have only considered examples of assertions. However, as (6.13)
shows, we may make the substitution we have been examining in other
sorts of illocutionary acts without having any effect on the
illocutionary force involved.

(6.13) a. Will you kiss me if I'm good? $\xrightarrow{i.i.}$ Will
            you kiss me if and only if I'm good?

        b. Do you feel better after that? $\xrightarrow{i.i.}$ Do
            you feel better because of that?

c. Remember to write! $\xrightarrow{\text{i.i.}}$ Write!

While we can thus easily account for the behavior of optional

implicative verbs in various illocutionary acts, we as yet have

no way of explaining why optional implicative verbs may be, in

fact must be, implicative in negative assertions as in (6.14).

> (6.14) a. John didn't remember to duck. → John didn't duck.
>
> b. Warren didn't choose to answer. → Warren didn't answer.
>
> c. Mary wasn't intelligent enough to cope with her problems. → Mary didn't cope with her problems.

If we recall the correspondence between necessary and sufficient

conditions, that if A is a necessary condition for B, then ~A is

a sufficient condition for ~B, we see that the sentences in (6.14)

are examples of the substitution of a logically sufficient condition

for the truth of a proposition for that proposition. Since the

condition is a sufficient one, the inference is not merely invited;

it can't be avoided. However, in spite of this, these sentences still

seem to have an ambiguity in that either they may be construed as

primarily about remembering, choosing, or intelligence, or they

may be construed as being primarily about the non-performance of

the act indicated in the complement. In the cases of conditional

perfection and inferred causation, the same ambiguity seems to exist

(given our analysis of conditional perfection). That this is a real

ambiguity is shown by a comparison of (6.15a) and (6.15b).

> (6.15) a. *I helped Mary to be intelligent enough to be a genius.
>
> b. I helped Mary to be intelligent enough to cope with her own problems.

Verbs like help which normally require a pro-agentive complement

with an agentive interpretation (Lee, 1971), i.e., require a

complement denoting a volitional act, can take complements having

be intelligent enough as the main predicate but only when the

inference of the performance of the volitional act which is denoted

by the complement of be intelligent enough is invited.

Criticize is another verb like help, and, as we see in (6.15a)

and (6.16b), not be intelligent enough can act just like be intelligent

enough does in (6.15).

> (6.16) a. *I criticized Mary for not being intelligent
>   enough to be a genius.
>
>   b. I criticized Mary for not being intelligent
>   enough to cope with her problems.
>
>   c. *I helped Mary not to be intelligent enough
>   to frighten Max.
>
>   d. I helped Mary not frighten Max.

However, as (6.16c) shows, there are some cases where it is not

possible to substitute a sufficient condition on a proposition

for it and still maintain acceptability. Since (6.16d) is acceptable,

we would expect to find (6.16c) also acceptable, because we have

substituted a complement which gives the inference of the proposition

which is the complement of help in (6.16d). The most obvious

explanation for why (6.16c) is unacceptable is that in this context

the complement is being used with its literal rather than infer-

ential reading. This means however that sentences like (6.14c)

must be considered to be ambiguous as to a literal or inferential

reading even though the inference is strictly speaking not invited

but unavoidable.

A similar argument cannot show that obligatorily implicative verbs like _manage (to)_ and _happen to_, which denote predicates which are conditions both logically necessary and logically sufficient for the truth of a predication of a volitional act, also are ambiguous between a literal and an inferential reading, because all of these verbs apparently denote volitional acts in the literal sense. However, sentences like (6.17) do seem to be ambiguous in the same way the sentences in (6.14) seem to be.

    (6.17) John managed to arrive late.

That is, (6.17) can be construed as being about managing or about arriving late.

Because of the ambiguity of sentences with strict inferences, it appears necessary to abandon the term invited inference (as opposed to strict inference) and instead talk about the performance (or lack of performance) of an indirect propositional act. Such a performance would be carried out by substituting a logically necessary or a logically sufficient condition on the truth of a proposition for that proposition.

There is a problem, however, in admitting the performance of indirect propositional act with logically sufficient conditions in that the _left hand sides_ of all natural implications which are truth conditions on propositional acts should then be able to be used to convey the right hand sides. Thus (6.18), which was the basis for conditional perfection, should also constitute the basis for an indirect propositional act like that in (6.19).

    (6.18) $(X \equiv Y) \supset (\sim X \supset \sim Y)$

(6.19) I'll go if and only if John comes. $\xrightarrow{\text{i.i.}}$
I'll go if John comes.

However (6.19) is obviously not a case of invited inference, so
it cannot be said that we are generally able to perform propositional
acts by using logically sufficient conditions on those acts. In
fact the only cases we are aware of are those involving implicative
verbs. We have no explanation for this.

We next notice that indirect propositional acts cannot be based
on presuppositions. Thus neither (6.20b) or (6.20c) can be
considered to be an indirect propositional act performed by (6.20a),
and similarly for (6.20e) or (6.20f) from (6.20d). (6.20a) does
seem to suggest (6.20b) in a way, but this can probably be explained
by reference to Grice's (1968) maxim of conversational implicature
that one makes one's contributions to a conversation as informative
as necessary.

(6.20) a. John came.

b. Only John came.

c. Not only John came.

d. John used to beat his wife.

e. John has stopped beating his wife.

f. John hasn't stopped beating his wife.

This surely is not simply a matter of a condition on the proposition
expressed by (6.20a). Moreover, (6.21a) certainly cannot be
construed as (6.21b) without contrastive stress on John.

(6.21) a. Did John come?

b. Did only John come?

A simple explanation for why presuppositions cannot be the
basis for indirect propositional acts suggests itself when we
consider what would happen if such indirect acts were possible.
Namely, it would often be impossible for a hearer to decide whether
an act were being performed which was positive or negative. Thus,
for example, one might not be able to decide whether (6.20b) or
instead (6.20c) was the proposition conveyed by (6.20a). Thus we
may hypothesize that indirect propositional acts cannot be based
on presuppositions because presuppositions are presupposed by both
a proposition and its negative and thus there would be a fatal falling
together of indirect propositions and their negations if pre-
suppositions were so used.

We have not examined all known cases of invited inference but
perhaps enough to justify the treatment of them suggested here.
Given our hypothesis that it is natural truth conditions on
propositional acts which give rise to invited inferences, it should
be possible to examine a number of such truth conditions and arrive
at a much larger collection of invited inferences than now exists.

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Tipologiia kauzativnykh konstruktsii

N. Nedialkov and G. Silnitskii

The Typology of Causative Constructions

Translated from Russian by Richard H. Wojcik

0. Translator's Note

"Tipologiia kauzativnykh konstruktsii" serves as the first article in a collection of articles under the title Tipologiia kauzativnykh konstruktsii. Morfologicheskii kauzativ. ANSSSR, Institut IAzykoznaniia, Leningrad, 1969. The analysis of causation in this article is the basis for all the articles in the collection. Therefore, those who want to read the book may find this translation a useful place to start. I also hope that it will provide useful insights for linguists who are studying causation in general.

    In translating example sentences from Russian, I have chosen to give the Russian in Library of Congress transliteration, followed by a more or less literal translation. Occasionally, I have given the Russian word, as well as my English translation of it, for technical terms which seem most crucial in the text.

    I am particularly grateful to Arnold Zwicky, who found time to criticize the initial version of this translation.

1. The basic object of study in this section is the class of Causative Constructions (CC).[1] The size of the class CC is determined not by inner markers, but by outer markers, i.e. not by the formal-grammatical characteristics of its own elements,[2] but by their relationship with a specific class of units at the referential or ontological level--with the class of Causative Situations (CS). Any construction that expresses a CS will be considered "causative".

    The study procedes from the referential level to the grammatical. Therefore, the concept of CS is initial.

    In the majority of cases, CC are related to corresponding non-causative constructions (cf. ia zastavil ego uiti 'I caused him to leave'--on ushël 'He left'; ia ispugal ego 'I frightened him'--on ispugalsia 'He became frightened'. The latter are determined by more or less complicated semantic, syntactic, and morphological transformations (see, in part, 7 and 14). Constructions of this type will be called "noncausative correlates" of corresponding CC.

2. Reality can be conceived as a great number of events or situations. There are simple situations, which one may call "microsituations".

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This type of situation is expressed, for example, in the sentences Svetit solntse 'The sun shines' and Kukuet kukushka 'The cuckoo cuckooes'. Microsituations contain two terms [konstanty]: the topic [predmet] (which we shall signify by r) and its state [sostoianie] (s).[3] Thus, in the above examples, the topic is expressed by solntse 'sun' and kukushka 'cuckoo', and the state by svetit 'shines' and kukuet 'sings'.
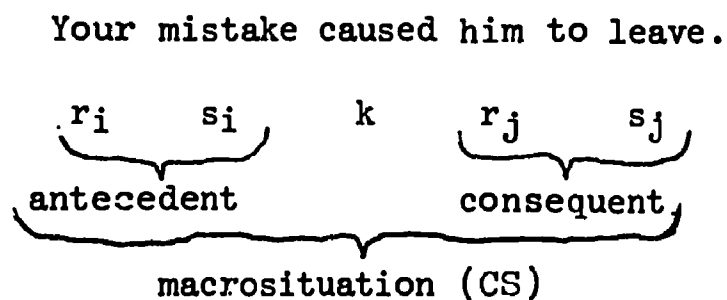
The term "state" does not retain here the meaning attributed to it in linguistics, for example, in the delineation of some subclasses of words (cf. verbs of state as opposed to verbs of action). Roughly speaking, a state is everything that can be expressed in language by some predicate form (on bezhit 'He runs', emu stydno 'he is shamed', on student 'he is a student', ona upala 'she fell', etc.).[4]

Besides simple situations, there are complex situations. These may be called "macrosituations". The following serve as examples of sentences that express macrosituations: On vidit, kak ona p'ët vodu 'He sees how she drinks water'; On znaet, shto ona prishla 'He knows that she came'; Kogda on vernulsia, my seli za uzhin 'When he returned, we sat down to supper'; My vernulis', tak kak isportilas' pogoda 'We returned, since the weather had worsened'. Macrosituations of the type expressed in the last example will be called causatives. CS are also expressed by the following examples: Tvoia bestaktnost' vynudila ego uiti 'Your tactlessness compelled him to leave'; My vernulis' iz-za dozhdia 'We returned because of the rain'; ego rasskaz vzvolnoval vsekh 'His story upset everyone', etc.

A spontaneously constructed CS comprises at least two microsituations, which are connected to each other by the relation of causation (k). In this work, we will consider causation to be synonymous with the cause-effect relationship.

A causing microsituation is called the "antecedent", and a caused microsituation is called the "consequent". Thus, in the first example of a CS given above, the sentence Isportilas' pogoda 'The weather had worsened' expresses the antecedent, and My vernulis' 'We returned' expresses the consequent.

The causal relation k is a term of the CS. This term is a determining factor in the causative macrosituation, since it organizes the macrosituation. Besides this organizing term, the CS has four other terms: the agent [agens], or the topic of the antecedent (r_i), the causing state (s_i), the patient [patiens], or the topic of the consequent (r_j), and the caused state (s_j).

Your mistake caused him to leave.

$$\underbrace{r_i \quad s_i}_{\text{antecedent}} \quad k \quad \underbrace{r_j \quad s_j}_{\text{consequent}}$$

$$\underbrace{\qquad\qquad\qquad\qquad\qquad\qquad}_{\text{macrosituation (CS)}}$$

The causative situation is described by the following string of symbols:

$$CS = [r_i s_i] \; k \; [r_j s_j]$$

If not all the terms of the CS have an expression in a CC. the CC will be called "semantically elliptical". By this, we do not mean the lack of a corresponding term in the CS. We are concerned with ellipsis at the semantic level, i.e. at the level where the speaker makes up the concept of the CS. Therefore, a semantically elliptical CC can be nonelliptic grammatically.

Regarding the two terms of state (s_i, s_j), the latter plays a much greater substantive role than the first. The caused state is the final goal of the CC, its final state "at output", and it usually represents the greatest interest for the speaker and the listener. However, the causing state (which one could also call "the means of the agent's action" or "the means of causation") represents an intermediate factor in the cause-effect chain described by the CC, and, therefore, it seldom finds a place in the first formulation. This term often does not have an expression in the CC; cf. ego (r_i) khod (s_i) zastavil (k) protivnika (r_j) sdat'sia (s_j) 'His move forced the opponent to concede' and On (r_i) zastavil (k) protivnika (r_j) sdat'sia (s_j) 'He forced the opponent to concede'. The second CC, where the s_i term has no expression, is semantically (but not grammatically) elliptical. In both examples, the verb zastavit' 'to force' fully realizes its necessary syntactic valence. Consider, also, the following syntactically complete CC: Druzhnymi zabastovkami (s_i) rabochie (r_i) zastavili (k) khoziaev kontserna (r_j) otstupit' (s_j) 'With friendly demonstrations, the workers forced the owners of the business to give in'. Of all the terms, the s_i term has the least short expression. The means of causation may include a great number of different components which are difficult to account for and which are determined by near or distant, preceding or following, contexts. Thus, for example, a full explanation of the means of causation in a CC of the type Oni zastavili eё uekhat' 'They caused her to leave' may require the perusal of several pages of text. Moreover, such an explanation may not even be present. In this work, we do not propose to give an exhaustive list of all the factors that make up the means of causation in all concrete cases: in each individual s_i only the factor of greatest importance is considered. Thus, in the CC On ugovoril menia uiti 'He persuaded me to go', the speech of the agent (he said that...) is understood under s_i. Additional semantic nuances (logical argument, length of influence on the object, etc.) are not considered.[5]

3. Since the organizing term of the CS is k, the CC is distinguished first of all in its ability to express causation.

In the suprasegmental expression of causation, k is not expressed in any discrete element of the CC, but in the whole grammatical structure related to the specific CS: My vernulis'; poshёl dozhd' 'We returned—it was raining'; Istrativ poslednie dengi, on sidel na khlebe i vode 'Having lost his remaining funds, he sat down to bread and water'. The causativity of this type of construction is optional

(This is the periphery of a CC), since it is determined by its actual lexical composition. Thus, for example, not every participial phrase has a causative meaning: <u>Prisëv</u> <u>na</u> <u>kortochki</u>, <u>on</u> <u>razduval</u> <u>kostër</u> 'Having squatted down, he stirred up the fire'.

In non-suprasegmental expressions, the causation of the term k finds expression in a specific, discrete element of the CC, which it would be appropriate to call the "causative link"[6] (so long as the causal relation designated by the link inter-connects two microsituations on the referential level). CC of this type will be called "linking" [sviazochnye] as opposed to "nonlinking" CC of the above type.

4. We distinguish <u>subordinate</u> [sluzhebnye] and <u>autonomous</u> [znamenatel'nye] links as a mark of the relatedness between causative links and subordinate or autonomous parts of speech. Some may be consequential [sledstvennymi] and some may be causal [prichinnymi].

Dependent causative links break down into 1) conjunctions (consequential: <u>Poshël</u> dozhd', <u>poetomu</u> <u>my</u> <u>vernulis'</u> 'It rained, therefore we returned'; causal: <u>My</u> <u>vernulis'</u>, <u>tak</u> <u>kak</u> <u>poshël</u> <u>dozhd'</u> 'We returned since it was raining') and 2) prepositions (also postpositions): <u>My</u> <u>vernulis'</u> <u>iz-za</u> <u>dozhdîa</u> 'We returned because of the rain.'

Autonomous links are categorized into 1) nouns (causal: <u>Tvoîa</u> <u>bestaktnost'--prichina</u> <u>ego</u> <u>ukhoda</u> 'Your lack of tact is the reason for his departure'; <u>Ty</u> <u>vinovat</u> <u>v</u> <u>ego</u> <u>ukhode</u> 'You are the guilty one in his departure'; <u>Ego</u> <u>ukhod--sledstvie</u> <u>tvoeî</u> <u>grubosti</u> 'His departure is the result of your impoliteness') and 2) verbs: <u>Ia</u> <u>zastavil</u> <u>ego</u> <u>uîti</u> 'I caused him to go'; <u>Ego</u> <u>oshibka</u> <u>privela</u> <u>k</u> <u>nashemu</u> <u>porazheniîu</u> 'His mistake led to our downfall.'

5. From a semantic point of view, causative links are categorized initially as to whether they express the term s_j (caused state) along with causation.

Causative links expressing s_j will be called "resultative". Links expressing s_i will be called "instrumental".

Resultative links are classified as 1) <u>three-term</u>, which express k, s_j and s_i (instrumental resultatives: <u>podozvat'</u> 'beckon over', <u>zastrelit'</u> 'to shoot') and 2) <u>two-term</u>, which express k and s_j, but not s_i (noninstrumental resultatives: <u>ubit'</u> 'to kill', <u>ispugat'</u> 'to frighten').

Resultative links are most often verbs. However, in some cases, they may be nouns. For example, in Chukcha: $ŋiŋkej_1$ $kimэw_2-kew_3-u$ $it-э-rkэn_4$ 'The boy$_1$ is the cause$_3$ of the absence$_2$ (of somebody who is clarified in the context)' (-<u>u</u> is the marker of the purposive [naznachitel'nogo] case of the noun). Consider also in German: <u>Er</u> <u>empfand</u> <u>Liebeskummer</u> 'He felt suffering from love'--<u>Seine</u> <u>Liebe</u> <u>brachte</u> <u>ihm</u> <u>viel</u> Kummer 'His love caused him much suffering'; <u>Er</u> <u>war</u> <u>zornrot</u> 'He was red with anger'--<u>Er</u> <u>war</u> <u>rot</u> <u>von</u> <u>Zorn</u>. In the Chukcha example, the nominal <u>kimэw-kew</u> represents a two-term noninstrumental nominal link; in the German examples, the nominal <u>Liebeskummer</u> represents a three-term instrumental noun link, as does the adjective <u>zornrot</u>.

Causative links not expressing s_j will be called "non-resultative". They are classified as[1]) two-term instrumentals (verbs: <u>velet'</u> 'to order', <u>prosit'</u> 'to request', <u>razreshit'</u> 'to allow'; nouns: <u>prikaz</u> 'order', <u>pros'ba</u> 'request', <u>razreshenie</u> 'permission') and 2) one-term noninstrumentals (all the dependent links--conjunctions and prepositions--belong here, and also the overwhelming majority of nominal links (for individual exceptions, see above) and a group of verbal links--verbs of the type <u>zastavit'</u> 'to cause', <u>vynudit'</u> 'to lead', etc.).[7]

We call attention here to those causative verbs which are usually considered dependent, i.e. verbs of the type Gm. <u>lassen</u>, Fr. <u>laisser</u>, Eng. <u>to make</u>, etc.[8]

6. Out of all the morphological causative links--conjunctions, prepositions, nouns, verbs--the last item is of special interest, since the verbal link is not only semantically, but also grammatically, the core of the sentence. In consequence of this, the verbal link is the basic object of study in this work. All verbs that can fill the role of links in the CC (i.e. that express causation by themselves or in combination with other terms) comprise the class of causative verbs (CV).

The semantic classification of CV can be represented by the following chart:

	Nonresultative	Resultative
Noninstrumental	One-term ("k") <u>zastavit'</u> 'to cause'	Two-term ("ks_j") <u>ispugat'</u> 'to frighten'
Instrumental	Two-term ("s_ik") <u>prikazat'</u> 'to order'	Three-term ("s_iks_j") <u>podozvat'</u> 'to beckon over'

Nonresultative CV (instrumental and noninstrumental) give rise to a whole semantic group that is in clear opposition to resultative CV. The semantic nearness of instrumental and noninstrumental CV (<u>prikazat'</u> 'to order'--<u>zastavit'</u> 'to cause') is aggravated by what we mentioned above--the term that expresses the instrument, but not the result, is the least specific of all terms. Therefore, it is not always possible to distinguish clearly instrumental from non-instrumental CV (nonresultative as well as resultative).

One should add that one and the same verb in its various meanings can refer to different semantic subclasses; cf. <u>ia vyzval ego</u> [na <u>ulitsu</u>] 'I called him out [onto the street]' (instrumental resultative CV ·<u>pozvat'</u>, <u>poprosiv vyiti</u> 'to call, having requested to come ·')--<u>ego prikhod vyzval vseobshchee udivlenie</u> 'His arrival evoked universal surprise' (noninstrumental nonresultative CV <u>vozbudit'</u> 'to arouse').

7. Two-term and three-term CV have complex lexical meanings which contain one or two additional terms as well as the basic term k. The additional terms may have an independent lexical realization in the same language as a rule. Any lexical unit (a word or combination of words) which expresses one of these additional terms in a "pure" sense, i.e. without the meaning of causation accompanying it, will be called a "non-causative correlate" of the corresponding CV--a CV that expresses the additional term in combination with the term k.

Since a CV in a structure of complex meaning is able to introduce two additional terms (s_i and s_j), which can also appear jointly, it is necessary to distinguish three types of noncausative correlates for the CV: 1) Resultative CV correspond to the resultative noncausative correlates: ispugat' 'to frighten' (ks_j)--ispugat'sia 'to be frightened' (s_j); 2) instrumental CV correspond to instrumental noncausative correlates: velet' 'to order' (ks_i)--skazat' 'to speak', napisat' 'to write', etc. (s_i)[9]; 3) three-term CV have noncausative correlates of both types simultaneously: podozvat' 'to call over' (ks_is_j)----skazat' 'to speak', kriknut' 'to shout', etc. (s_j).[10]

Two-term and three-term resultative CV differ in their relationships with the noncausative correlates.

Two-term CV (not expressing s_i) usually enter into a more direct one-to-one relationship with their noncausative correlates (e.g. ubit' 'to kill'--umeret' 'to die'). Three-term CV (expressing s_i) more often do not enter into a direct one-to-one relationship with their noncausative correlates. This is explained by the fact that one and the same s_j can usually be the result of different s_i, and, conversely, the same s_i can have various s_j as its result. Thus, the noncausative correlate umeret' 'to die', which has been extracted above, relates to a whole group of three-term CV (povesit' 'to hang', kaznit' 'to execute', zastrelit' 'to shoot', rasstreliat' 'to machine-gun', zadushit' 'to smother', zadavit' 'to run over', zarezat' 'to stab (to death)', zarubit' 'to slash (to death)', etc.). On the other hand, one and the same three-term CV vyteret' 'to wipe dry, clean' is related to two noncausative correlates (byt' sukhim 'to be dry', byt' chistym 'to be clean'), each of which has its own respective two-term CV (cf. byt' sukhim 'to be dry'--vysushit' 'to dry', byt' chistym 'to be clean'--vychistit' 'to clean').

8. Each word of the CC that expresses a term is a junction [uzlom]. Thus, the causative link is a junction. The link may express more than one term.

Non-linking junctions make up the environment of the link. This environment consists of two parts or segments which correspond to the two microsituations of a given CS in the referential schema.

If both terms of the microsituation find expression in a segment, then the segment is complete [polnyi] and consists of two junctions. In the following CC, both segments are complete: ego prikhod/zastavil/menia uiti 'His arrival caused me to leave'.

If only one of the terms of a microsituation finds expression in a segment, the segment is called "incomplete". Two cases are possible: 1) The second term of a microsituation, which has no

expression in the segment, may enter into composition with the lexical meaning of the link: such segments are called "implicational" since their unexpressed terms are implied by the link. In the CC ia/podozval/ego 'I called him over', both segments are implicational. Correspondingly, the link is three-term.

2) Sometimes the second term of a microsituation which is left unexpressed in the segment does not enter into construction with the lexical meaning of the link, nor does it have any expression in the CC at all. Such segments are called "nonimplicational". In the CC ia/ispugal/ego 'I frightened him', the first segment is nonimplicational, and the second is implicational. In the CC ia/prikazal/emu uiti 'I ordered him to leave', the first segment is implicational, and the second is complete.

Nonimplicational segments, of course, are indicative of semantic ellipsis.

9. Segments, as well as the verbal link, can be expanded [rasprostranennymi]. The expanded segment or link is understood to be an aggregate of non-junction elements in the CC (i.e. words that do not express terms) which have a direct syntactic relation with the junction elements of the segments or the verbal link. Thus, in the CC vysokii iunosha/vezhlivo priglasil/eë na tanets 'The tall youth gaily invited her to dance', the adjective vysokii and the adverb vezhlivo comprise, respectively, the expansion of the first segment and the verbal link.

Complete, as well as incomplete segments, may be expanded. It is a little difficult to tell the difference between expanded incomplete segments and nonexpanded complete segments whose junctions are connected by an attributive relationship. The referential connection of a particular word serves as the criterion for differentiating the two types of segments. A particular word may express the topic of the microsituation (vysokii iunosha/priglasil/eë na tanets 'The tall boy invited her to dance'--the first segment is complete and expanded). On the other hand, a particular word may express the state (ego prikhod/razveselil/vsekh 'His arrival cheered everyone'--the first segment is complete and nonexpanded).

The incomplete segment represented by a demonstrative pronoun may be expanded by a whole subordinate clause: to, shto on ne vernulsia/zastavilo/vsekh zavolnovat'sia 'That [fact], that he didn't return, caused everybody to get upset'; vse rasstroilis'/iz-za/togo, shto progulka ne sostoialas' 'Everyone broke up because of that [fact], that the trip did not take place.'

10. Segments (complete and incomplete) break down into two kinds according to their referential connections.

The segment which expresses (fully or partially) the antecedent of the CS will be called the "antecedent segment". That which expresses the consequent will be called the "consequent segment".

For example, in the CC ego poiavlenie/vyzvalo/obshchii smekh 'His appearance evoked general laughter', the first segment is the complete segment of the antecedent, and the second is the complete

segment of the consequent. In the CC <u>my</u> <u>vernulis'</u>/<u>iz-za</u>/<u>dozhdía</u>
'We returned because of the rain', the first segment is the complete
consequent segment, and the second is the incomplete antecedent
segment, etc.

11. According to their syntactic position in the CC, segments
are divided into <u>primary</u> (sg. 1) and <u>secondary</u> (sg. 2) segments.
The concept of primary and secondary segments is not at all determined
by the linear order of the elements in the CC.

The syntactic position of segments is determined relative to
that of the grammatical subject. Three basic types are possible:

If only one segment contains the junction which functions as
grammatical subject, that segment is primary and the others are
secondary:

```
tvoi prikhod  / zastavil / ego uĭti
your arrival    caused     him to go

    sg. 1       causative   sg. 2
                  link
```

If two (or more) segments contain junctions which function
as grammatical subject (i.e. if we consider complex sentences), the
segment that corresponds to the head of the sentence is primary:

```
my vernulis' /  tak kak / nachalsía dozhd'
we returned     since     it began   rain

    sg. 1       causative    sg. 2
                  link

nachalsía dozhd' /  poétomu  / my vernulis'
                    therefore

    sg. 1           causative   sg. 2
                      link
```

If no segment contains a junction that fulfills the subject
role, then the primary segment is the one that is located away
from the subject in the least number of syntactic steps. "Syntactic
step" refers to the distance between two directly related units.
Two cases are possible:

1) The CC is syntactically complete, i.e. represents a whole
sentence. The causative link plays the role of subject here:

```
prichina nashego ot"ezda   zakliúchilas'  v bolezni
cause    of our  departure   consisted    in sickness

         brata
         of brother
```

'The cause of our departure was the sickness of our brother.'

A clear positional difference in the segments is visible in this example: the segment <u>nashego ot"ezda</u> is one syntactic step from the subject and it is primary; the segment <u>bolezni brata</u> is two steps from the subject and it is secondary. The link <u>prichina zakliuchilas' v</u> is a nominal expansion.

2) If the CC is syntactically incomplete and represents only part of the sentence, the differentiation of segments by position is very indeterminate, regardless of whether the causative link is the subject or not. For example:

a) <u>prikaz</u> <u>komandira</u> <u>ob</u> <u>otstuplenii</u> <u>voisk</u>
order of commander about deployment of troops

<u>byl</u> <u>ochen'svoevremennym</u>
was very timely

'The commander's order for troop deployment was very timely.'

b) <u>on peredal</u> <u>prikaz komandira ob otstuplenii voisk</u>
he passed on...

'He passed on the commander's order for troop deployment.'

In both examples, the CC (<u>prikaz komandira ob otstuplenii voisk</u>) is syntactically incomplete. In both cases, the two segments (<u>komandira, otstuplenii voisk</u>) are the same syntactic distance from the grammatical subject: one step in (a), and three steps in (b).

Thus, the differentiation between primary and secondary segments in a CC, i.e. the specification of the positional syntactic structure of the CC, turns out to be impossible. Therefore, only syntactically complete CC will be examined in this work.

12. Primary and secondary segments are obligatory: in a syntactically complete CC, they constitute the necessary environment for the causative link.

Along with these two necessary types of segments, the CC can also contain a third, optional type of segment. This segment is not necessary to the environment of the causative link, and it may be left out. In such a case, grammatical ellipsis has not occurred: (<u>svoim krikom</u>) <u>on ispugal menia</u> '(By his cry), he frightened me'; (<u>Dokazav svoiu pravotu</u>), <u>on zastavil eë izvinit'sia</u> '(Having proved that he was right), he caused her to excuse herself'.

The optional segment often expresses the s_i term not expressed in the incomplete segment sg. 1 (see examples above).

Optional segments (to a much greater degree than obligatory ones) may undergo a shift in position, although such a shift in no way influences the syntactic function of the two obligatory segments and should not be taken as an inversion. Cf.: <u>On ispugal menia svoim krikom</u> 'He frightened me with his cry'; <u>On zastavil eë izvinit'sia, dokazav svoiu pravotu</u> 'He caused her to excuse herself, having shown that he was right'.

13. Let us now examine the relationship between positional types of segments and their semantic types.

When sg. 1 is the antecedent, the causative link is always consequential [sledstvennoi]. CC of this type will be called "non-inversive" [neinversivymi]: My zastavili ikh vernut'sia 'We caused them to return'.

When sg. 1 is the consequent, the link is always causal [prichinnoi]. CC of this type will be called "inversive": Oni vernulis' iz-za dozhdia 'They returned because of the rain'.

14. Now we will examine complete segment types that are determined by the kind of syntactic relation between their junctions. From this point of view, segments break down into the following types.

First of all, we make a distinction between segments that have mediated [oposredstvennymi] syntactic relations and those that have nonmediated syntactic relationships between their junctions.

We call a syntactic relationship nonmediated if it arises between two junctions without the use of a third junction. This type of relationship has two subclasses: subjectival (s)[11]--brat priekhal 'The brother arrived'--and attributive (a)--priezd brata 'the arrival of the brother, the brother's arrival'.

Note. Any segment with an attributive relationship can be replaced by an incomplete segment (x) within the boundaries of that CC (cf. Ego krik ispugal menia 'His cry frightened me'--On ispugal menia 'He frightened me'; My vernulis' iz-za bolezni brata 'We returned because of our brother's illness'--My vernulis' iz-za brata 'We returned because of our brother'). But not every incomplete segment can be replaced by an attributive one (On dobilsia moego solglasiia 'He obtained my agreement'; the incomplete sg. 1 cannot be replaced by an attributive segment). The symbol x in the following classifications will denote only those incomplete segments that cannot be replaced by an attributive segment; incomplete segments which are amenable to such a replacement will be considered functional variants of corresponding attributive segments. Thus, for example, sg. 1 in the CC Ego krik ispugal menia 'His cry frightened me' and On ispugal menia 'He frightened me' are functionally the same.

A demonstrative pronoun expanded by a subordinate clause often plays the role of an incomplete segment. To, shto my opozdali, rasserdilo ego 'That [fact], that we were late, angered him'; On rasserdilsia iz-za togo, shto my opozdali 'He got angry from that [fact], that we were late'; Ego bolezn' byla prichinoi togo, shto my vernulis' 'His illness was the cause of that [fact], that we returned'. An incomplete segment of this type can always be replaced within the confines of some construction by a full attributive segment. Cf. Nashe opozdanie rasserdilo ego 'Our lateness angered him'; Ego bolezn' byla prichinoi nashego vozvrashcheniia 'His illness was the case of our return', etc.

Mediated syntactic relationships are those that arise between two junctions by means of a third junction. Thus, in the CC Ia zastavil ego uekhat' 'I caused him to go', the relationship between the junctions ego 'him' and uekhat' 'to go' is mediated, since it is possible only because of a third junction—the link zastavil:

zastavil
↙ ↘
ego ← - -→ uekhat'
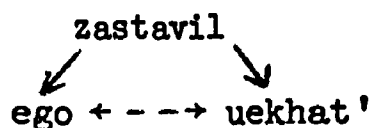
We will call the nonmediated relation nexus [neksusnyĭ] and it will be symbolized by n.

Nexus segments can be further subclassified into a) nexus verbal: sg. 2 in the CC On zastavil menia uĭti 'He caused me to go' and b) nexus nominal: sg. 2 in the CC Ego oshibka privela komandu k porazheniiu 'His mistake brought the team to defeat'; On dovël eë do slëz 'He brought her to tears', etc.

Both non-subjectival relationships can be turned into subjectival ones by one means or another. a → s: ego plach 'his crying' → on plachet 'He cries'; n → s: ego uĭti 'him to go' → on ushël 'He went'; komandu k porazheniiu 'the team to defeat' → Komanda poterpela porazhenie 'the team suffered defeat'; eë do slëz 'her to tears' → ona v slëzakh 'She is in tears', etc.

The subjectival operation on the resultative segment of a CC gives the noncausative correlate of the CC (see 1).

15. After the basic types of causative links and segments have been uncovered, there still remains the task of determining the basic types of relations between them, i.e. the types of CC themselves. The system of categories studied above was developed with Russian material as a basis. Its application to other languages may demand further study and specification.

The ability of each type of link to enter into construction with specific types of sg. 1 and sg. 2 is strictly limited. In the whole Russian language, there are 15 basic structural types of CC (T_1–T_{15} below).

Types of CC	sg.1	Causative link	sg.2	Types of CC	Causative link	sg.2
T_1	s	Preposition	a	T_9	$s_i k$	s
T_2	s	Conjunction	s	T_{10}	$s_i k$	a
T_3	x	Participle	a	T_{11}	$s_i k$	n
T_4	a	Noun	a	T_{12}	k	a
T_5	x	Noun	a	T_{13}	k	n
T_6	x	$s_i ks_j$ [12]	x	T_{14}	k	a
T_7	x	$s_i ks_j$	n	T_{15}	k	n
T_8	a	ks_j	x			

We will illustrate each of these types. T_1: My vernulis' iz-za bolezni brata 'We returned because of our brother's illness'; Ia

znaíu éto blagodaría ego soobshcheníiu 'I know this, thanks to his
communication'. T$_2$: Nachalsíа dozhd', poétomu my vernulis' 'It began
to rain, therefore we returned'; My vernulis' tak kak nachalsíа
dozhd' 'We returned, since it had begun to rain'; Poshël takoí
dozhd', shto my vernulis' 'There was such a rain that we returned';
Poshël dozhd', i my vernulis' 'It rained, and we returned'.
T$_3$: Ty vinovat v eë smerti 'You are guilty in her death'. T$_4$:
Tvoía oshibka--prichina nashego porazheníia 'Your mistake is the
reason for our defeat'. T$_5$: Ty vinovnik eë smertí 'You are the
guilty one in her death'. T$_6$: On podozval meníа 'He called me over'.
T$_7$: Oni izbrali ego sekretarem 'They chose him secretary'; Oni
nazvali syna ivanom 'They named their son Ivan'. T$_8$: Ego rasskaz
rassmeshil meníа 'His story made me laugh'. T$_9$: On prikazal (eí),
shtoby ona ushla 'He ordered (her) that she leave'. T$_{10}$: On
razreshil nash ot"ezd 'He allowed our departure'. T$_{11}$: Ia razreshil
emu uíti 'I allowed him to go'; Ia poprosil ego o pomoshchi 'I asked
him for help'. T$_{12}$: Ego poíavlenie vyzvalo vseobshchií perepolokh
'His ghost evoked universal fright'. T$_{13}$: Ego poíavlenie vynudilo
nas udalit'síа 'His ghost forced us to move away'; Ego slova tolknuli
eë na prestuplenie 'His words pushed her to crime'. T$_{15}$: On ostavil
meníа v pokoe 'He left me in peace'.

It is natural that some CV can serve to develop CC of different
types (cf. examples T$_{10}$ and T$_{11}$).

16. This work presents the first (and, in many respects, incomplete)
study of a universal classificatory schema which would allow one to
become oriented to the extraordinary panoply of CC in different
languages.[13] Moreover, some of the established oppositions may become
neutralized in some languages. For example, the opposition in sg. 2
between types s, a, and n neutralizes in Chinese. Only one Chinese
type, ta lai, corresponds to the three types of sg. 2 in the following
Russian examples: [Otets velel 'the father ordered] em priíti 'him
to come'; [Otets velel, shtoby 'the father ordered that'] on prishël
'he came'; [Otets razreshil 'the father allowed'] ego priezd 'his
arrival'.

On the other hand, an introduction to additional criteria that
do not contradict the above, but give it more concreteness, may be
required in order to include all the true varieties of CC in
different languages.

Using Russian, we shall examine a few cases in point.

Let us take, for example, T$_1$. According to the type of
preposition which functions as the link in a given type of CC, the
CC can be subclassified as follows:

1) CC with prepositions that always take a causative (and only
a causative) meaning. Blagodaría iskusstvu khudozhnikova potolok
kazalsíа beskonechno vysokim 'Thanks to the skill of the artist, the
ceiling seemed infinitely high'; Ostal'nye agregaty vvidu iznosa
uzhe neskol'ko raz meníalis' 'The remaining units, in view of their
wear, had already been changed several times'; Vsledstvie tumana
parokhod ne vyshel v more 'On account of the fog, the ship did not
go out to sea'; Po prichine neudachnoí okhoty, nashi koni ne byli
tak izmucheny 'Owing to the unsuccessful hunt, our horses were not so
exhausted'.

2) CC with prepositions that can take causative as well as noncausative meanings (cf.: On vernulsia iz-za dozhdia 'He returned because of the rain' and On vyglianul iz-za dereva 'He looked out from behind a tree'). These meanings are determined by specific, systematic factors (whose explanation is not a part of the present study): Otets Natashi goriachitsia iz-za docheri 'Natasha's father is angry because of his daughter'; Ona vyshla zamuzh iz pokornosti k materi 'She got married out of obediance to her mother'; Iz razgovorov so starikom ia uznal uzhasnuiu novost' 'From conversations with an old man, I came to know terrible news'; Za otsutstviem doktora bol'nykh prinimal fel'dsher 'For lack of a doctor, the doctor's assistant saw to the sick'; Ia likvidiroval svoi knigi za nenadobnostiu 'I destroyed my books for lack of wanting them'; On pokrasnel ot stydy 'He reddened from shame'; Ot etikh knig v dushe u menia slozhilos' stoikaia vera v cheloveka 'From these books, I formed in my soul an abiding faith in man'; Oni possorilis' po nedorazumeniiu 'They quarreled over a misunderstanding'; Pod deistviem parov natriia on nachal zadykhat'sia 'Under the action of the sodium vapor, he began to choke'; On zabolel s goria 'He was sick from grief'; S neprivychki nogi boliat 'His legs ache from disuse'; Mnogo slëz ia cherez etu babu prolil 'Many tears I shed over this old lady'; Ona menia za muki poliubila 'She loved me for my ugly face'.

3) CC with prepositions which don't usually have causative meaning but function as a causative link with a specific lexical filler in other places of the construction. In their normal usage, these prepositions most often denote static or dynamic space and time relationships: V ètom kostiume plechi ego kazalis' shire 'In this suit, his shoulders looked wider'; Na fotografii on vygliadel elegantnee 'In the photograph, he looked more elegant'; Pod ego tiazhëlymi sapogami skripel pol[14] 'Under his heavy shoes, the floor creaked'; Pod solntsem mets zasverkal 'Under the sun, the sword sparkled'; On sovershil ètot postupok pri ikh blagosklonnom molchanii 'He completed this crime in their approving silence'; Pri svete luny eë glaza kazalis' sinimi 'In the light of the moon, her eyes seemed blue'; Pri vzgliade na neë on vzdrognul 'At the sight of her, he trembled'; On soznalsia pod naporom ulik 'He confessed under the pressure of evidence'. The following types of CC represent special cases: On u menia zarabotaet 'He will begin to work at my place'; U neë sbezhalo moloko 'At her place, the milk would boil over'; On postrigsia [u khoroshego parikmakhera] 'He got his hair cut [at a good barbership]'; Ia sshil kostium [u khoroshego portnogo] 'I got a suit made [at a good tailor]'.[15] In all these CC, the preposition u 'at' contains a junction that expresses animate agency.

> Note. CC of this type are often implicational, i.e. those in which some of the terms do not have a direct expression, but are implied by expressed terms: On postrigsia 'He got a haircut', On sshil sebe kostium 'He got a suit made', etc. In these examples, the term rj is implied. (cf.: On poprosil parikmakhera postrich' ego po poslednei mode 'He asked the barber to cut his hair in the latest style'). As we said above

(see 1), implicational CC are not a topic of study in
this work; they will be examined in an independent
study.

In T_{11} there are two clear subtypes: with the verbal sg. 2
(on prikazal / ei uĭti 'he ordered her to leave') and with the nominal
sg. 2. Moreover, nouns in the nominal sg. 2 can take different cases.
For example: Ia poruchil emu eto delo 'I assigned him this matter
[Accusative]'; Ia razreshil emu osmotr pomoshcheniia 'I allowed him
an inspection [Accusative] of the premises'; Ia obratilsia k nemu za
sovetom 'I turned to him for advice [for + Instrumental]'; On
prizyval rabochikh k bor'be 'He called the workers to the struggle
[to + Dative]'; Ia poprosil ego o pomoshchi 'I asked him for help
[about + Prepositional]'; Ia potreboval u nego ob"iasnenii 'I demanded
explanations [Genitive] from him', etc.

T_{12} also differs in its nominal sg. 2 in a variety of ways,
especially in the morphological formation of the second nominal
junction. For example, Ia pomog emu v rabote 'I helped him in his
work [in + Prepositional]'; Opyt nauchil ego ostorozhnosti 'The
experiment taught him carefulness [Dative]'; Eë mol'by uderzhivaiut
ego ot zapoia 'Her supplications keep him away from drink [from +
Genitive]'; Ego primer spas eë ot unyniia 'His example saved her from
dejection [from + Genitive]'; Zhizn' v gorode priuchila ego k
odinochestvu 'Life in the city accustomed him to loneliness [to +
Dative]'; Ego sovety predokhranili eë ot oshibok 'His advice protected
her from mistakes [from + Genitive]'; On tolknul menia na etot
postupok 'He pushed me to this crime [to + Accusative]'; Novye
vpechatleniia otveli eë ot étoĭ mysli 'New feelings led her away from
this thought [from + Genitive]'; Eë bolezn' vozlozhila na menia
otvetstvennost' za deteĭ 'Her illness charged me with the responsi-
bility [Accusative] for the children'; Ego vid navodit na menia tosku
'His look shoots weariness [Accusative] in my direction'; Ego slova
pridali mne smelosti 'His words gave me courage [Genitive]'; Ego
energiia privela nas k pobede 'His energy led us to victory [to +
Dative]'; Gore dovela eë do samoubiĭstva 'Grief led her to suicide
[to + Dative]'; Tvoĭ uprek ne daët emu pokoia 'Your reproach does
not give him comfort [Genitive]'; Maleĭshiĭ pustiak vyzyval u neë
slëzy 'The smallest thing brought tears [Accusative] to her eyes';
Neznanie privelo ego k oshibke 'Ignorance led him to error [to +
Dative]'; Vashi slova vyveli ego iz terpeniia 'Your words led him to
lose patience [from + Genitive]'; Eto dovelo delo do skandala 'This
brought the matter to a scandal [to + Genitive]'; Tolchok privël
koleso v dvizhenie 'The jolt sent the wheel in motion [in + Accusative]';
etc. The above examples are enough to show the great productivity and
variety of this type of CC in the Russian language.

Footnotes

1. In this part of the research, various cases of ellipsis and implication (see e.g. 15) will not be examined. These are considered structural variants of initial causative verbs, which comprise the basic subject of the present preliminary study.

2. The term konstruktsiia is understood here in the broadest sense as any combination of grammatical forms directly connected to each other (not necessarily representing a full sentence).

3. In regard to the symbols, the first letters were selected from the Latin words res 'topic' and status 'state'. The symbol k used below replaces c (from Latin causa 'cause') in order to avoid confusion with a letter of the Russian alphabet.

4. See also U. R. Eshbi, Vvedenie v kibernetiku, Moscow, 1959, p. 44.

5. A componential analysis of causative verbs will be the subject of a special study being prepared by the authors.

6. Cf. Bally "... faire avoir 'cause to have' or faire être à 'cause to belong to' have been condensed to simple verbs that may be called causative links [copules causatives, tr.]. Just as one would expect, their lexicalization takes the most varied forms; ...faire avoir becomes pourvoir 'to provide', munir 'to furnish', etc., ...faire être à 'to cause to belong to' can become donner 'give', adresser 'apply', envoyer 'send', etc." (Ch. Bally, Obshchaia lingvistika i voprosy frantsuzskogo iazyka, tr. from French, Moscow, 1955, p. 125). [See also Linguistique Générale et Linguistique Française, Editions Francke Berne, 1965, p. 110, for original passage-- tr.]

7. In regard to one-term links (i.e. those not having the terms si and sj),such as zastavit' 'to cause', vynudit' 'to lead to', vyzvat' 'to compel', dat' (e.g. dat' ubezhat' 'to allow to run away'), etc., we naturally do not wish to say that there are no other semantic markers in their conceptual makeup besides k. However, for the time being, we are not concerned with other conceptual signs.

8. We note, in passing, that some languages have verbal causative links that cannot be one-term; in other words, the term k can have only an affixal, not a root, expression. Thus, for example, Nivkh has no verbs with the meaning to cause (and also to order and to allow), and it expresses these meanings with a special causative suffix: for example, ro-d' 'to help'--ro-gu-d' 'to order, to allow to help'. For the translation of one-term verbs of the type 'to cause' in such languages, one may use some kind of regular causative verb (often derived), which is close in meaning to the word being

translated; for example, in Chukcha, the causative verb rə-teg‚jen-ew-ək 'to cause' (lit. 'to cause (=rə ...-ew-) to want') is a derivative of the verb teg‚jeŋ-ək 'to want'.

9. In those cases where a CV expresses k only in specific constructions (in particular, with direct and prepositional objects), the instrumental noncausative correlate of the CV is the use of the CV outside this construction (i.e. without the direct or prepositional object); e.g. They (r_i) talked $(s_i k)$ him (r_j) into doing (s_j) something (i.e. in talking they caused him to do something) and They (r_i) talked (s_i).

10. In particular, many Chinese so-called resultative verbs have dual noncausative correlates of this type; e.g. 1) ts'a kan $(s_i ks_j)$ 'to wipe (dry)', i.e. in the course of wiping (s_i) to make (k) dry (s_j), and ts'a (s_i) 'to wipe', kan (s_j) 'dry'; 2) ts'a kanc'hing $(s_i ks_j)$ 'to wipe (clean)' and ts'a (s_i) 'to wipe', kanc'hing (s_j) 'clean' (see S. E. IAkhontov, Kategoriia glagola v kitaĭskom ĭazyke, Leningrad, 1957, pp. 83-91). Cf. also German verbs of the type totfahren $(s_i ks_j)$ 'to run over' (e.g. with a tram car)-- fahren (s_i) 'to go', tot (s_j) 'dead'.
In decomposed [privedёnnykh] verbs, the omission of the element denoting s_j has led simultaneously to the loss of the k term, i.e. to the liquidation of the CV. As is seen from the examples, the latter may not even take place. Cf., for example, in Dakota: 1) na-ksa $(s_i ks_j)$ 'to break something by striking with the foot' and ksa (ks_j) 'to strike'; 2) na-ćeya $(s_i ks_j)$ 'cause to yell by striking with the foot' and ćeya 'to yell' (s_j); the prefix na-denotes action connected with the foot. (see S. Riggs, Dakota Grammar. Texts and Ethnography, Washington, 1893, p. 20).

11. The symbols being used here and below (a, s, x, n) are introduced below in the table of structural types of CC.

12. For the four semantic types of CV represented by symbols here, see 6.

13. Moreover, this schema will help the reader to become oriented in the translation of several examples of CC based on morphologically derived CV (cited in the articles of this collective monograph) into Russian, which does not have a morphological causative (concerning morphological CV, see the next article ["Tipologiia morfologicheskogo i leksicheskogo kauzativov", tr.]).

14. Cf., for example, the corresponding German: Dieser Anzug liess seine Schultern breiter erscheinen; Das Photo liess ihn eleganter erscheinen; Seine schweren Stiefel liessen den Boden knarren, etc.

15. Cf., for example, the corresponding German: Ich bringe ihn schon zum Arbeiten; Sie liess die Milch überkochen; Er hat sich [bei einem guten Friseur] die Haare schneiden lassen; Ich habe mir [bei einem guten Schneider] einem Anzug machen lassen.

Why Sound Change is Gradual
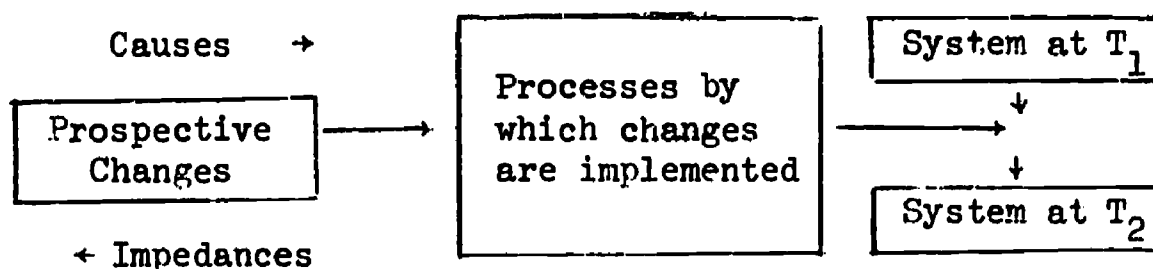
Lawrence C. Schourup

This is an attempt to determine the nature and causes of the gradualness of sound change by focusing attention on aspects of some causes and mechanisms of phonetic change.

1. A Note on Idiolects

It is not very interesting to say that a sound change has affected the idiolect of a speaker if his successive utterances of a given form are objectively different. Pronunciations which the speaker or even a phonetician may judge to be the same are never characterized by precisely identical acoustic signals or articulations. To define when an idiolectal sound change has occurred, it is therefore necessary to find a way to delimit "change" so that the term refers exclusively to variations which are in some sense directional. We can appeal to consistency and consider an idiolectal sound change to have occurred when a speaker's utterances of specific linguistic elements are consistently different, with respect to any feature of pronunciation, from utterances of the same elements spoken previously, but "consistency" clearly implies that sound change involves absolute progression, while evidence to be considered later suggests rather that there are periods of variation during which sound changes are inconsistently effected in idiolects. "Consistency" might therefore have to be replaced by a term that subsumes tendencies as well as absolute progressions. Changes in either the tendency or absolute consistency of production are the observable results of changes in neural linguistic programming.

2. Sound Change

Sound change seems to involve a multilateral interaction of causal and impeding factors.

Causes →

| Prospective Changes | → | Processes by which changes are implemented | System at T_1 → System at T_2 |

← Impedances

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As causal factors we may list:

    1. Adoption of a new linguistic reference group;
    2. The tendency toward easier articulation;
    3. The tendency toward intelligibility;[1]
    4. The tendency toward articulatory-perceptual stability;[2]
    5. Restructuring by children;
    6. Analogy to existing structures in the language;
    7. Linguistic interference.

As impedances:

    1-7 above;
    8. Inertial effects ("force of habit");
    9. Influence of competing changes.

Adoption of a new reference group can be a cause or an impedance, depending on whether or not a prospective change would render the speaker's idiolect more like the new reference dialect; similarly, the tendency toward ease of articulation is a cause or an impedance, depending on whether a prospective change would increase or decrease ease of articulation; etc.... It is not contradictory to list many of the same factors in both categories, but the fact that we must do so suggests that we have only listed cover terms for sets of richly diverse sub-factors whose complex local interaction is responsible for the favoring of particular changes. Notice also that if there are both causal and impeding factors, it is unnecessary to limit the class of "prospective changes;"[3] all conceivable changes are prospective, although all but a few are too heavily impeded to occur.

3. "Gradual"

Let us begin by considering the implications for gradualness of one of the ranges of causal forces mentioned in (2). But it will first be helpful to list here separately several possible meanings of "gradual" which can be applied to phonetic change, since these meanings are often consolidated in the literature without an accompanying explanation:

    1. Proceeding by "imperceptible" gradations;
    2. Arising gradually (over time) in the community;
    3. Proceeding by lexical diffusion;
    4. Characterized by periods of idiolectal variation;
    5. Characterized by periods of dialectal variation;
    6. Proceeding by clearly definable idiolectal stages
        (e.g., $a > a^{?} > a^{<} > a ...$);
    7. Proceeding by clearly definable dialectal stages;
    8. Carried forward slowly through the constant onset
        of generations:
    9. Not involving strictly binary values (cf. metathesis).

4. Social Factors

William Labov (1963, 1965) has experimentally studied thirteen on-going sound changes on the island of Martha's Vineyard and in New York City. He found a striking correlation between the advancement of particular sound changes and the incidence of certain social values. On Martha's Vineyard the increasing degree of centralization of the first member of /ay/ and /aw/ diphthongs proved to be closely associated with "positive orientation towards Martha's Vineyard."

According to Labov (1965), sound changes arise in one or two members of a subgroup of the speech community and are first generalized to all members of the subgroup. The point that will interest us here is that after a linguistic variable has become a "marker" of the subgroup, other groups which are in linguistic contact with the original group may adopt the change when they adopt the predominant social values of that group. On intuitive grounds alone we can predict that adoption of the original change by external groups is in some sense gradual because general changes in social value systems do not occur very rapidly at the community level. But to justify the premise that adaptive sound changes associated with changing social values occur gradually (sense 2), we must first show that there are not community-wide thresholds of social identification beyond which rather abrupt changes in community speaking habits occur. To do this, we could show that individuals tend to function independently in speech communities with regard to their adoption of speaking habits of external reference groups. As preliminary evidence for this claim, consider the case of speaker E. (Labov 1963, 300), whose mother remarked, "You know, E. didn't always speak that way... it's only since he came back from college. I guess he wanted to be more like the men on the docks..." For further evidence that idiolects adjust independently, we can turn to Labov's remark that "a marked contrast was observed between those who plan to leave the island and those who do not. The latter show strong centralization, while the former show little, if any" (see Labov (1963, 300) for the centralization values that justify this statement). If, as this evidence indicates, idiolects adjust independently to outside reference groups, there can be no rationale for community-wide thresholds of social identification in sound change, but it doesn't necessarily follow from this that such thresholds do not characterize the adjustment of individual speakers. However, it is very difficult to maintain that there are individual thresholds in light of Labov's evidence that the _degree_ of centralization is proportional to the _degree_ of positive orientation toward Martha's Vineyard (1963, 306). This strongly suggests that adaptive changes progress in individuals-- and also therefore in the speech community--hand in hand with gradual value changes.

> I. Adaptive sound changes which accompany changing
> social values occur gradually (sense 2).

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5. Age-Grading ·

Labov (1965) observed that when social pressures remain
constant, a linguistic variable which has become generalized to
the initial subgroup or adopted by another group progresses within
the group as a function of age and group membership. This observa-
tion has an interesting implication for the present question, for
regardless of how we account for it, the existence of progressive
age-grading seems to speak for the gradual (sense 2) advancement
of those sound changes which can be gradual (sense 1; cf. meta-
thesis). But King points out that:

> ...the age gradient showing that amount of central-
> ization varies inversely with age...does not
> constitute evidence for a gradual shift in the
> 'habit of articulating' /ay/ and /aw/ through
> generations. What it does demonstrate is that
> most older speakers do not centralize at all when
> producing most instances of /ay/ and /aw/, whereas
> younger speakers do.
>
> (King 1969, p. 118)

Although it is of course strictly true that the existence of
age-grading alone cannot be taken as evidence for a gradual shift,
it is important to notice that if there is in fact no gradual shift
associated with age-grading, the only way to account for age-grading
is to suppose that as young speakers get older, their speaking habits
become more like those of their elders; that is, King's distrust
of age-grading as a criterion for gradual change is only warranted
if it can be shown that there is a tendency for young people to
centralize more and for old people to centralize less. This follows
because, ceteris paribus, if there is no change on the part of
the younger people to a habit of less centralization, their central-
ization will cause a sound change, since younger people eventually
replace their elders in the speech community. There is no clear
evidence for changes that are purely a function of age. In fact,
Weinreich, Labov and Herzog (1968) remark that "all the empirical
evidence to date indicates that children...preserve the dialect
characteristics...of the peer group which dominates their pre-
adolescent years."

> II. Age-grading constitutes evidence for gradual
> change (senses 2 and 8).

6. Ease of Articulation

An interesting point arises in connection with the tendency
toward ease of articulation. It is not true that all changes which
make articulation easier--nor indeed that all those which do not--
are capable of abrupt implementation. The deletion of final
consonants ought to increase considerably the ease of articulation
of English words, but if a speaker attempts to implement this change,

he fails as soon as he begins to speak at his normal rate. In fact, the only way to drop final consonants consistently is to speak so slowly that each word can be rehearsed silently before it is spoken. Even then, unusual amounts of attention must be devoted to the change being made. Even if a sound change affects only a single word, it generally[4] happens that speakers cannot substitute the changed form for the unchanged one, except with an intervening period of inconsistency.

But here it is essential to draw a distinction between new consistencies of articulation which can be brought about by simply changing the basis of articulation, and those which require in-speech spot adjustments. Basis changes primarily involve tract settings. The fact that many people find it easy to imitate foreign accents can be attributed to their swift learning of a few invariant basis rules of the languages in question. Basis changes can be effected quite abruptly at the utterance level because they require only a single pre-utterance decision on the part of the speaker. The difficulty with in-speech spot adjustments can be attributed to what was called earlier "inertia." More concretely, we can say that frequent repetition of articulations of segments and segment sequences leads to the formation of linguistic habits which must be broken just like any other habits, with resulting periods of idiolectal fluctuation while these habits are being changed. Of course, force of habit must also have a retarding effect on basis-type changes, but in this case the resulting fluctuation is most likely to be at the utterance, rather than the word, level.

> III. It is possible for basis-type changes to be
>   enacted abruptly at the utterance level,
>   provided the speaker knows how the
>   necessary adjustments are to be made
>   and wishes to make them; but changes
>   involving in-speech spot adjustments
>   cannot in general be consistently enacted
>   at will in speech at normal speeds and
>   are therefore gradual (senses 2 and 4).

7. Restructuring by Children

If changes were carried out exclusively by the imperfect learning of language by children (in which case the assumption would have to be that this learning is systematically imperfect), changes would advance through the replacement of adult speakers by their progeny.

> IV. To whatever extent sound changes are the
>   product of imperfect learning, they
>   are gradual (senses 2 and 8).

8. Lexical Diffusion

Lexical diffusion is not a cause of sound change but, putatively,

a process by which changes are implemented. William S-Y. Wang (1969) summarizes his lexical diffusion hypothesis as follows: "phonological change may be implemented in a manner that is phonetically abrupt but lexically gradual." Although Wang tentatively extrapolates his findings to all kinds of sound change, the safe version just quoted (with "may") is primarily intended to characterize changes which could not progress incrementally (e.g., metathesis). This kind of change is thought to originate at one place in an individual's lexicon and spread conditionally across the lexicon through time ("gradual," senses 2 and 4), where "change" here means a class of similar changes affecting the pronunciation of one or more classes of words. At the level of single words sound change is thought to occur when a new pronunciation enters into competition with an old one and eventually becomes predominant in the language. As evidence for lexical diffusion, Wang points to the existence in all languages of large numbers of morphemes with dual pronunciations.

It seems reasonable to view this competition between two or more forms which are not incrementally derivable from one another as a special case of the idolectal variation observed by Labov to be characteristic of changes which <u>are</u> derivable by incrementation.

V. Sound changes characterized by lexical diffusion
are gradual (senses 3, 4 and 5).

9. Functionalism

A second account of the way in which sound changes proceed is offered by Martinet. Involved in his "functional" view of sound change is the assumption that, subject to systemic pressures, articulatory targets shift slowly, with the result that individual segment productions cluster about the slowly moving norm. This view entails the assertion that sound changes which <u>can</u> be gradual, <u>are</u> gradual (senses 1 and 2). But the only kind of evidence that could reinforce this aspect of Martinet's claim is lacking, namely evidence that targets shift slowly. Moreover, Labov's studies reveal extensive fluctuation in individual speakers' pronunciations of forms containing a linguistic variable, even when the same form is repeated with only a short interval between productions (Labov 1963, 287-89). For example, productions of single words containing /ay/ typically fluctuated between [aˇi], [aˆi], and [eˇi] in the speech of many speakers. King (p. 118) denies that such variations are of sufficient magnitude to indicate anything but fluctuations in performance, but his claim is not substantiated. In fact, it is difficult to see what kind of evidence could be used to justify this claim; and there are some arguments against the performance error hypothesis. The fluctuations observed on Martha's Vineyard are not completely arbitrary; speakers limit fluctuations so as to produce variations along some parameters, but not others. Finally, the performance error hypothesis is not consistent with the observation that some word classes exhibit no centralization at all (1963, 289); we would expect to find performance errors in all words containing /ay/ and /aw/.

VI. Evidence from Labov's studies on Martha's
     Vineyard suggests that some sound
     changes are gradual (sense 4) because
     they are characterized by periods of
     idiolectal variation.

10. Two Kinds of Change

     Sturtevant (1917) and many others have pointed out that there
are some changes for which it is inconceivable that they progressed
by incremental stages. Processes in this category are those
involving a change in the order of segments, probably also those
involving a change of articulators, some dissimilations, losses,
additions, etc. The word "abrupt" (King and Wang) or "sudden"
(Sturtevant) is used to refer to this kind of change; changes not
characterized by binary distinctions are considered potentially
gradual (sense 9). Labov's observation of intermediate centralization
values seems to indicate that the distinction is a viable one, but
the existence of extensive idiolectal fluctuation suggests that
idiolectal gradualness is more interestingly viewed as a consequence
of this fluctuation in itself than as a phenomenon associated with
progressive intermediate stages.

11. Staging

     The question of staging (see senses 6 and 7 of "gradual") is of
little interest in the present context. Talk of stages usually pre-
supposes that the endpoints of a change are known, but the grounds
for saying that one change has occurred and not two or three are
never very clear. To the extent that dialectal stages exist, they
might as well be viewed as separate changes. Idiolectal stages, if
they exist, either must be identified with individual instances of
articulation, in which case the notion of a stage becomes trivial,
or, if individuals do in fact demonstrate distinct levels of
consistency, would become meaningless in the context of community
normalization; on the other hand, if all idiolects manifested
identical stages at the same time, separate dialectal changes could
again be postulated.

12. Summary

     At the community level sound change is gradual. We may
attribute this fact variously and in different degrees to the
necessity for community normalization of individual variations, to
the close relation between sound change and the gradual adoption of
external values by communities of speakers, to age-grading which
appears to be partly a function of pre-adolescent peer group
identification, to systematic or normalized restructuring by
children, to the lexical diffusion process, and to psychophysical
properties of the organism which make it generally impossible for
changes to be implemented abruptly.

Idiolectal gradualness, on the other hand, is probably best associated with periods of fluctuation between different levels of consistency or tendency of production.

Footnotes

1. To say that intelligibility is a cause of sound change does not necessarily entail the prior assumption that speakers have registered that their own or someone else's speech is to some extent unintelligible. Speakers might favor a change without being aware of the reasons for their preference. The commonplace observation that people are not aware of changes in their speech has led to the belief that changes are "imperceptible"; but to say that speakers are in all senses unaware of sound changes is to attribute to linguistic systems a mystical mobility of their own. To the epithet "imperceptible" we must probably add "on reflection."

2. See K. N. Stevens "The quantal nature of speech" in Human Communication, A Unified View by Stevens, Denes and David. The speech parameters are not as continuous as they are said to be in many phonetics handbooks; the commonest places of articulation appear to be at those points where articulatory perturbations produce the most minimal variations in acoustic output.

3. "Prospective" and "possible" are not to be confused. The set of possible changes is the set of changes which actually occur—a subset of all prospective changes.

4. This will depend in part on the frequency of the word in question, of course. It would be fairly easy for most speakers to change their pronunciation of Pulitzer consistently from [pʊlɪtsr] to [pyulɪtsr], or vice versa, but very difficult to change and from [ænd] to [ʌnd].

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SOME CONTEXT-FREE PROCESSES AFFECTING VOWELS

Patricia Miller

CHAPTER I

INTRODUCTION

When Roman Jakobson proposed, in Child Language, Aphasia, and
Phonological Universals, his universal laws of implication, which
predict the presence of a more expected segment in a language which
admits the corresponding but less expected (i.e. more marked) segment,
he gave an explicit form to the notion that certain phonological
inventories or systems are more natural than others. The idea of
the naturalness of a phonological system has continued to motivate
students of language, and in The Sound Pattern of English, Chomsky
and Halle have proposed a set of "markedness conventions" to characterize
the degree of naturalness of phonological systems.

Both the implicational hierarchies and the markedness conventions,
however, are metalinguistic frameworks--they impose abstract constraints
on phonological systems from outside. A desire to derive the
constraints from within the phonological systems themselves has led
David Stampe to propose, instead, "an innate system of phonological
processes which resemble the implicational laws and markedness
conventions in content but have the same ontological status as the
natural processes (so-called "rules") of the phonological system of
any individual language" (Stampe, "On Chapter Nine," forthcoming).

There are several things that make such processes attractive.
They can account for the implicational hierarchies suggested by
Jakobson, and they can measure the complexity of systems, much as
the markedness conventions do. However, processes can also predict
the substitutions made by children and by other speakers borrowing
from one system into another.

According to Stampe's view, a process affects a class of segments
which share a feature that is inaccessible to the inborn capacity
for speech. For these segments, the speaker substitutes segments
from another class identical to the first except that the inaccessible
feature is eliminated. In general, then, segments with fewer
inaccessible features are substituted for those with more--in regular
fashion. Thus, the first segments acquired by children will be those
with fewest "unusual" or inaccessible features. In order for any
but the simplest segments to be acquired, the speaker must suppress
or limit the processes which simplify the more complex segments. In
view of this, the phonological inventory of a language may be described
in terms of the suppressions that the language requires of its

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speakers.[1] For instance, if a language admits a y vowel, it has

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[1]However, more than one set of suppressions may produce the same vowel inventory, so that only the actual substitutions will reveal the entire pattern of suppression. I will comment on this again later.

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suppressed the natural process which unrounds palatal vowels--i.e., which substitutes i for y.

The basic hypothesis of natural phonology, then, is that the restrictions on inventories of underlying phonological segments--in this case, on vowel systems--are due to processes, rather than abstract hierarchies or morpheme structure constraints. If such processes exist, they ought to be discoverable in two ways: one might look at the substitutions (in child language, historical change, synchronic alternation, or loan phonology) which manifest such processes, and then apply the processes discovered to the limitations on systems; or one could hypothesize the processes on the basis of the existent systems and then look for the substitutions. In practice, it is generally necessary to use both methods almost simultaneously, but if I have favored one, it is that of looking first at the systems.

In this paper, I will first describe the processes with which I am going to deal; then I will survey the possible systems which alternative suppressions of the processes will generate; and after that, I will examine a variety of child substitutions and historical changes which the processes describe.

I will base my comments regarding systems on my observation of a number of vowel systems (over two hundred) collected from various sources--notably, from Trubetzkoy's Principles of Phonology, from Hockett's Manual of Phonology, and from studies in the International Journal of American Linguistics.[2] The processes I suggest are based

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[2]For the majority of these IJAL systems, I'd like to thank Leslie Koster, who surveyed far more volumes than I did.

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on these systems and on substitutions--child substitutions from Jakobson, Velten and Leopold, and historical changes from assorted sources (some of them oral).

There are certain arbitrary limitations on the scope of this paper. First, I have limited my study to monophthongs. Second, I have confined my observations to the processes which determine the "space" features--the quality features--of vowels. Thus, there is relatively little attention paid to stress, tenseness, nasality, tone, etc.

This paper is essentially an attempt to provide a first approximation to the form the natural processes take. It is intended to explore the feasibility of the basic idea of natural phonology and to discover the problems that confront any attempt to refine the theory.

CHAPTER II

THE PROCESSES PROPOSED

A. The Nature of the Processes.

The processes are assumed to be innate, or intrinsic, and their
function is the simplification of the system: the more completely
the processes apply, the simpler the vowel system they generate will
be. Since the natural state of the processes is application, a cost
in terms of learner-effort is attached to the suppression or limita-
tion of any process.[3] The complete application of all processes

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[3]The term "limitation" refers to the suppression of a subpart
of a process--a decrease in the generality of its application. For
instance, if the process (i) is limited to application to non-high
vowels (ii), then a subpart of the process (i.e. (iii)) is suppressed
as a result of the efforts of the speaker.

$$(i) \quad \begin{bmatrix} V \\ +Pal \end{bmatrix} \rightarrow -Rnd$$

$$(ii) \quad \begin{bmatrix} V \\ +Pal \\ -High \end{bmatrix} \rightarrow -Rnd$$

$$(iii) \quad * \begin{bmatrix} V \\ +Pal \\ +High \end{bmatrix} \rightarrow -Rnd$$

Limitations of processes--or suppressions of subprocesses--will be
illustrated in the generation of vowel systems (in Chapter III).

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results in the single, maximally vocalic vowel, a. This is the
simplest possible system.

The input to the processes is the range of possible vowels
(assuming that there is a limit set on this range by a kind of
threshold of perceptual and/or articulatory distinctiveness), and
the rules serve to restrict and structure this range--i.e., to
produce a vowel system.

This restriction by innate processes produces certain implica-
tional effects, like the implicational hierarchies suggested by
Jakobson. Like these hierarchies, the processes can be discovered
not only through surveying existent synchronic vowel systems, but
also by studying child substitutions.

In the child learning language, all the processes apply,

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merging all vowels to a. Acquiring an opposition involves the suppression or limitation of one of the processes. The more of these natural processes the child learns to suppress, the more complex his vowel system becomes, until he finally has made enough suppressions to allow him the full set of oppositions present in his parents' language.

These processes do not appear in child language alone, however. They can also been seen at work in historical language change. If a generation or group of speakers, for example, fails for some reason to suppress a process that is suppressed in the language of their parents or "parent language community," then the language of this group will lack one of the oppositions that the parent language had. If, on the other hand, the younger generation should suppress or limit a process that was operative in the conservative form of the language, the new form will have an additional opposition.

Synchronically, too, the processes are observable in the morpheme structure rules, which limit, through substitutions, the forms available to a language. Loan phonology, the study of such substitutions, may reveal the processes operating in a language by noting the substitutions made when the language borrows from a language with a more complex system.

B. The Features Used Here.

Because the set of processes I am about to describe is meant to be suggestive rather than definitive, and because of the difficulty (cf. Ladefoged 1967, 67-72) of dealing with four-height vowel systems in terms of binary features, I have used features that will account for systems with a maximum of three heights. The tense-, lax distinction will account for some apparently four- or five-height systems, however, and the rules are easily adaptable to other height descriptions.

I have used a similar strategy regarding timbre, which will become clearer with a description of the features I am using.

The set of features used is small and fairly simple, but some explanations might be useful:

+Palatal (+Pal) applies to those vowels in which the tongue is
    thrust forward and/or somewhat upward (with reference to
    the mandible or lower jaw) toward the hard palate. It
    refers, in fact, to those vowels traditionally called
    "Front".

+Round (+Rnd) applies to those vowels for which the lips are
    rounded.

+Low applies to those vowels for which the jaw opening is
    larger and/or the tongue is somewhat lower than in the
    speech-ready position (cf. Chomsky and Halle, 1968).

+High applies to vowels for which the jaw opening is small and
    the tongue is raised from the speech-ready position.

In the processes as I have written them, I have had occasion
to refer to degrees of a feature. For example, "higher", in a

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structural change, is used to refer to the addition of one degree of
height to any vowel specified by the structural description.
"!lower" in a structural description, on the other hand, refers to
the increasing likelihood of application of a process as the vowel
the process affects is less and less high. The use of this "degree-
feature" notation has an important use: it indicates that the process
is asymmetrical in that it can be limited in one direction (e.g.,
for "!lower", to -High or +Low vowels) but not in the other (e.g.,
not to +High vowels).

Since there do not seem to be any languages with more than four
systematic or distinctive timbre classes, I refer to central vowels
simply as non-palatal. There do not seem to be any distinctions
within languages between central rounded and back rounded vowels,
or between central unrounded and back unrounded vowels.

The maximal system under these features, then, would be:

	+Pal		-Pal	
+High	y	i	ɨ	u
-High, -Low	ø	e	ʌ	o
+Low	œ	æ	a	ɔ
	+Rnd	-Rnd		+Rnd

In this set of features, there will be three that are considered
primary: ±Palatal, ±Round, and ±Low, and each of these may be
considered the principal characteristic of one of the three primary
vowels: i, u, and a. This implies a certain primacy of ±Low over
±High. This will be attributed to the fact that +Low denotes maximal
openness, and openness is the defining quality of vowels; +Low, then,
is maximally vocalic, and ±High may be considered a feature which
deals only with less-than-maximal vocalism. This priority of ±Low
can affect the formulation of a rule by occasionally determining
whether +Low or -High will be specified.

I have also used two less usual features to suit my purposes.
These features have an essentially abbreviatory function, and they
require explanation.

±Color is a cover term which includes ±Palatal and ±Round. It
is intended to express a privative opposition between
vowels which are either palatal or round or both and
vowels which are neither palatal nor round. The use of
this feature will be justified by the presence of some
processes that affect vowels that are +Color but not those
that are -Color, and other processes that affect -Color
but not +Color vowels.

The term is only intended for rule-writing and
expository purposes, however. No language seems to have
a distinction of color without specification as to whether

the +Color items are +Palatal or +Round. It is not, then, to be considered a particular timbre, or another name for timbre, but a division within the set of timbre classes.

Neutral here refers to a vowel which is negatively specified for all of the above features. Thus, the Neutral vowel is the -High, -Low, -Pal, -Rnd vowel, ʌ. However, as will be noted, a language may admit more than one neutral vowel, so "neutral" (small n) will denote the class of vowels which a language treats as neutral.

A ! notation is also used. It indicates ʹhat the most common, or least likely-to-be-suppressed form of the process is that which includes the !-marked condition, but that the process can, and in its original form does, apply more generally, without regard to the !-marked feature or condition. ! may be read "especially when...."

C. The Processes.

Based on these largely traditional feature descriptions, the following rules are suggested as describing the processes discovered. The rules will be loosely grouped and titled by function, and they are presented in unmarked order.

(1) Neutralization.

$$V \rightarrow \text{Neutral}$$
!-Stress
!-Tense

This process, then, describes a certain tendency for vowels to be negatively marked with regard to the features used here.

The full form of this process applies only in child language, but a limited form of the rule continues to operate in many adult languages. This limited form,

$$V \rightarrow \text{Neutral}$$
-Stress
-Tense

can be observed in the common phenomenon of vowel reduction.

Neutralization can be limited in a variety of ways. Evidence for this may be found in some of the different kinds of vowel reduction found in languages.

According to Bloomfield's description of Eastern Ojibwa (1956, 5-6), the structural change of the neutralization process is limited so that it lacks the -Round feature, since there are two reduced vowels, a schwa and an indistinct vowel, roughly ʊ or ɨʷ. The lax vowel system Bloomfield described is

i
    o
a

and the neutralization process (i.e., the vowel reduction process)
might, for this language, be written

$$
\begin{array}{ccl}
\text{V} & & \text{--Pal} \\
\text{--Stress} & \rightarrow & \text{--High} \\
\text{--Tense} & & \text{--Low}
\end{array}
$$

so that the reductions are:

$$
\frac{\text{i}}{\text{a}} \rightarrow \Lambda, \text{ and } \underline{\text{o}} \rightarrow \text{U.}
$$

The front and back jers of Slavic (Shevelov, 432-433) represent
a kind of reduction wherein -Palatal is the feature deleted from the
structural change. Thus <u>i</u> reduces to a front jer (a +Pal, -High, -Low,
-Rnd vowel), and <u>u</u> reduces to a back jer (a -Pal, -High, -Low, -Rnd
vowel), by

$$
\begin{array}{ccl}
\text{V} & & \\
\text{--Stress} & & \text{--High} \\
\text{+High} & \rightarrow & \text{--Low} \\
\text{--Long} & & \text{--Rnd} \quad .
\end{array}
$$

In English, neutralization applies to unstressed vowels, short
or long. In certain contexts, however, (before high consonants)
the structural change is limited so that the palatality specification
is not changed--i.e.,

$$
\begin{array}{ccl}
\text{V} & \rightarrow & \text{--Rnd} \\
\text{--Stress} & & \text{--Low} \quad .
\end{array}
$$

Thus, the final syllable of "comic" [kamɪk] remains distinct from
that of "havoc" [hævʌk].
In languages with certain rare vowel systems, a limited form
of neutralization may continue to affect stressed vowels even in the
adult language. The systems which result seem to lack distinctions
of timbre, though some admit distinctions of height; and they will
be mentioned again in the section dealing with timbre.
Neutralization, it seems, is (almost) always the first process
to be limited or suppressed by children, and it is almost universally
limited to unstressed or non-tense vowels in adult language. In its
most general form, then, neutralization is the weakest process.

    (2) Neutral-vowel Lowering.

$$
\begin{array}{ccl}
\text{V} & & \\
\text{Neutral} & \rightarrow & \text{+Low} \\
\text{! +Stress} & & \\
\text{! +Tense} & &
\end{array}
$$

Fed by the neutralization rule, this process lowers the
neutral vowels ɛ and ʌ to æ and a, especially when these neutral

vowels become stressed or tensed. Processes (1) and (2), then, may be viewed as the source of the "universal a" which appears to be present in all child language--Hellwag's "prince of vowels" (Jakobson 1962, 32)

The lowering process is parallel to the tendency toward maximal vocalism or sonority. This tendency, as noted by Jakobson (1968, 69 et passim) is extremely strong in child language, but correlates can also be found in adult substitutions (as in [bat] for English "but" by speakers whose native language includes no ʌ vowel), or in historical change.

In adult systems where neutralization has been limited or suppressed so that colored and high vowels may occur, such vowels do not undergo this lowering, but the process may continue to affect the neutral vowels.

Unless this process is limited or suppressed, the ʌ vowel does not appear in a language system. Since this vowel is neither rare nor universal, the process cannot be considered either extremely strong or extremely weak. Its operation appears to be independent of the operation of any other rule.

This rule may be related to Jakobson's principle of maximal distinction (Jakobson and Halle 1956, 37 et passim). The tendency for -Color vowels is to lower to a, and the raising of the +Color vowels then maximizes the articulatory and perceptual difference between these sets. Furthermore, higher vowels maximize the color features: i is fronter (more palatal) than e, and u rounder than o. This can be seen in their greater tendency to palatalize or round adjacent consonants.

The Color Rules

I have grouped these rules together because of their similar functions, and also because of their similar forms. They appear, however, to be descriptive of separate and largely independent processes.

(3)　　V
　　+Pal　→　-Rnd
　　!lower

(4)　　V
　　+Rnd　→　-Pal
　　!lower

(5)　　V
　　-Pal
　　!more back　→　+Rnd
　　!-Low

(6)　　V
　　-Rnd　→　+Pal
　　!lower
　　!-Low

The processes which determine vowel color conspire to provide
that vowels with a single positive color marking are preferred over
vowels with two positive color markings or two negative ones. In
effect, i̱, e̱, u̱, and o̱ are to be preferred over y, ǿ, i̱, and ʌ.

Processes (5) and (6) rarely apply to low vowels; apparently
the neutralization rules, which remove positive color-markings from
low vowels, are far stronger than these rules, which provide a positive
marking. Application of processes (3) and (4) to low vowels coincides
with the operation of the unrounding and depalatalization rules.

With respect to possible systems, processes (3) and (4) are
functionally equivalent: both eliminate y, ǿ, and œ. By the same
token, (5) and (6) are equivalent in eliminating i̱, ʌ and (rarely) a̱.

In each of the processes, one color specification is given, and
the other results from the operation of the process. Operation of
(3) and (5) as opposed to (4) and (6) implies that ±Palatal is the
given--the dominant--feature; operation of (4) and (6) makes ±Round
more basic. This may be a way of accounting for systems that are
essentially ±Palatal or ±Round, as Trubetzkoy (1969, 100-101)
characterized many of the two-timbre systems he described.

It is worth noting here, however, that (3) and (5) seem to
operate in appreciably more cases than (4) and (6). Thus i̱ and e̱
are more likely substitutions for y and ǿ than are u̱ and o̱; and u̱
and o̱ are more probable substitutions for i̱ and ʌ than are i̱ and e̱.

The "!lower" and "!more back" labels are intended to indicate
that the process so marked is increasingly likely to apply as the input
vowel becomes less high or more retracted. The results of these
varying scales of likelihood are that mid vowels (and sometimes low
vowels) are more likely to be changed by these processes than are the
corresponding high vowels.

There is an apparent problem here in that this might lead one
to believe that the presence of ʌ in a system implies the presence of
i̱, in the same way that ǿ may be said to imply y. Yet systems with
ʌ but no i̱ are quite common among the world's languages. It is possible,
however, to limit the input of the neutralization process to vowels
that are -Rnd, -Pal, and -Low, so that i̱ → ʌ. There is no parallel
possibility involving y and ǿ.

The mutual independence of rules (3) and (6) will be seen later
in this paper, in looking at the systems generated by suppression of
one or more of these processes. Certain relationships among these
processes do obtain, however. The pairs (3) and (4), and (5) and (6)
are mutually bleeding; if the height specification is the same for
both processes in a pair, operation of one of the processes allows
the other to apply only vacuously. If the height specifications
within a pair are different, unnatural results are noted. For example,
if the input of (3) is limited to -High, œ → æ and ǿ → e̱. If, in the
same system, (4) applies to all heights, y → u̱. The unlikelihood of
such substitutions lends some credibility to Trubetzkoy's descriptions
in terms of one color distinction or another; for our purposes, it
requires the specification that (3) - (4) and (5) - (6) are unlikely
combinations in an adult system.

There are also processes which have a neutralizing effect on low
vowels. These may eradicate the effects on low vowels of rules such

as (5) and (6).

> (7) Unrounding.
>
> $$\begin{matrix} V \\ +Low \end{matrix} \rightarrow -Round$$
>
> (8) Depalatalization.
>
> $$\begin{matrix} V \\ +Low \end{matrix} \rightarrow -Palatal$$

The unrounding rule provides that œ → æ and ɔ → a̱, and the depalatalization rule, that œ̱ → ɔ̱ and æ̱ → a̱. If both of these processes operate, the result is a single low vowel, a̱.

Although these rules look similar, and although they frequently both apply in a given language, the processes they represent appear to be independent of each other, in that the application of one does not imply the application of the other.

> (9) The Raising Rule.
>
> $$\begin{matrix} V \\ +Color \\ -High \\ !+Tense \\ !+Low \end{matrix} \rightarrow higher$$

This rule, difficult to state in any conventional notation, describes the process by which colored non-high vowels add one degree of height: the mid vowels become high and the low vowels become mid. In its most general form, the process raises all Palatal and all Round vowels, but it may be limited to one series or the other, as, historically, in Sao Miguel Portuguese (King 1969a, 17), where only the round vowels were raised. It can also be limited to the inter-section of these two sets, the +Round, +Palatal vowels, as in Middle Scots ø̸ → y (Wright 1923, 28), or French œ → ø̸ (Morin 1971, 104-105).

As indicated by the !+Low condition, the process is stronger for low vowels than for mid vowels. Thus, the process may have its input limited to low vowels only, but not to mid vowels only; that is, if the process is suppressed for +Low vowels, it will also be suppressed for -Low vowels. It follows that for any one timbre class, a low vowel in that class implies a mid vowel in that class.

This is not the case for -Color vowels, but the raising process does not seem to apply to such vowels, a fact which has been noted in discussions of vowel shifts.

The !+Tense feature reflects the fact that tenseness is favorable to vowel raising,[4] possibly because tenseness involves greater

---

[4]It might be possible to state a distinct, but at least logically related process affecting lax vowels, such as

$$\begin{array}{c}\text{V}\\ \text{-Tense}\end{array} \rightarrow \text{lower,}$$

which would account for such occurrences as I → e, but the lack of such occurrences as ε → æ inclines me, instead, to account for such facts in terms of a limitation of the neutralization rule.

---

deviation from the neutral position. In English, for example, only stressed tense vowels underwent the Great Vowel Shift (Chomsky and Halle 1968, 256).

The following table summarizes the preceding sections by listing the processes:

TABLE I

SUMMARY OF THE PROCESSES

(1) Neutralization

$$\begin{array}{c}\text{V}\\ \text{!-Stress}\\ \text{!-Tense}\end{array} \rightarrow \text{Neutral}$$

(2) Neutral-vowel Lowering

$$\begin{array}{c}\text{V}\\ \text{Neutral}\\ \text{!+Stress}\\ \text{!+Tense}\end{array} \rightarrow \text{+Low}$$

(3) Palatal-vowel Unrounding

$$\begin{array}{c}\text{V}\\ \text{+Pal}\\ \text{!lower}\end{array} \rightarrow \text{-Rnd.}$$

(4) Round-vowel Depalatalization

$$\begin{array}{c}\text{V}\\ \text{+Rnd}\\ \text{!lower}\end{array} \rightarrow \text{-Pal}$$

(5) Nonpalatal-vowel Rounding

$$\begin{array}{c}\text{V}\\ \text{-Pal}\\ \text{!more back}\\ \text{!-Low}\end{array} \rightarrow \text{+Rnd}$$

(6) Nonround-vowel Palatalization

$$\begin{array}{c}\text{V}\\ \text{-Rnd}\\ \text{!lower}\\ \text{!-Low}\end{array} \rightarrow \text{+Pal}$$

(7) Low-vowel Unrounding

$$\begin{array}{c}\text{V}\\ \text{+Low}\end{array} \rightarrow \text{-Rnd}$$

(8) Low-vowel Depalatalization

$$\begin{array}{c}\text{V}\\ \text{+Low}\end{array} \rightarrow \text{-Pal}$$

(9) Raising

$$\begin{array}{c}\text{V}\\ \text{+Color}\\ \text{-High}\\ \text{!+Tense}\\ \text{!+Low}\end{array} \rightarrow \text{higher}$$

D. How the Processes Operate.

The generation of a few simple systems should be enough to show

how the processes operate. A tentative ordering, set up here by the criterion of maximal feeding (or, considering the nature of the processes, minimal bleeding) order, will follow the order in which the processes were just listed.

The most elementary situation--that of the child just beginning to talk--produces the one-vowel system consisting of the maximally open and sonorant a. Such a system requires operation of all of the natural processes.

If the neutralization rule is suppressed or is limited to unstressed vowels, a three-vowel system will result. Depalatalization and unrounding will change the low vowels to a, the raising rule will eliminate the mid vowels, and the color rules will leave only i and u in the high series. The resulting

        i   u
           a

system is probably the simplest system found in adult languages. The neutralization rule is extremely weak with respect to stressed vowels; stressed vowels seem to neutralize only in child language, and there they are nearly always lowered to a precisely because they _are_ stressed.

It should be noted here that, even with this solitary limitation of a rule, there is more than one way for the system to be generated. If raising occurred before depalatalization and unrounding, the +Low vowels might be raised to ø, e, and o, and, if rules may reapply, thence to y, i, and u. Low-vowel unrounding and depalatalization would reduce the vowel inventory to i, u, and a as above. While this account is perfectly credible as a set of historical processes, I am inclined to reject it as a synchronic description for two reasons. First, it seems unnecessary to assume that one of the processes applies twice and another applies vacuously. More important than this "economy-based" reason, however, is that such an analysis would require the prediction that any +Low, +Color vowel in a word borrowed into the system would become a +High vowel of the appropriate timbre class, rather than a. I have never seen any evidence of such occurrences as child substitutions of i for æ, or for adult borrowings of this nature.

Generation of the extremely common five-vowel triangular system

        i   u
         e o
          a

follows the same pattern as generation of

        i   u
          a

but the five-vowel system requires an additional suppression: the raising rule is limited to +Low vowels. Thus e and o are no longer eliminated.

Here the possibility of more than one use of the processes to generate the system seems a bit more probable. Since the raising

rule must be limited to +Low vowels, the +Low, +Color vowels may either be raised to merge with the mid vowels, or unrounded and depalatalized to merge with a̲. In such a system, substitutions for æ and ɔ will be e̲ and o̲ if raising applies to them, or a̲ (for both) if depalatalization and rounding apply. Unlike the i̲-for-æ and u̲-for-ɔ substitutions required by the generation rejected above, substitutions of this kind (e̲ for æ and o̲ for ɔ) are not unexpected.[5]

---

[5]Mieko Ohso has pointed out to me that Japanese, which has a five-vowel system of this type, borrows æ and ɔ as a̲ and o̲ respectively. Thus æ apparently undergoes low-vowel depalatalization, but ɔ is raised rather than unrounded.

E. Complexity of Systems.

Some systems, of course, can be generated with fewer suppressions or limitations than others. The above are among the simplest and most common systems. (The a̲-only system is common only in child-language, of course.)

Simplicity will be measured here in terms of the freedom with which the processes are allowed to operate: the greater the number and scope of the limitations and suppressions, the more complex the system will be. Thus, simplicity is not always directly related to the number of vowels in the system. The

$$\begin{matrix} ɨ \\ ʌ \\ a \end{matrix}$$

of certain Caucasian languages (Trubetzkoy 1969, 97-98), generated with limitation of the neutralization rule to

$$V \rightarrow \begin{matrix} -Rnd \\ -Pal \end{matrix}$$

and the suppression of lowering, raising, and the color rules (6) through (9) is far more complex than the

$$\begin{matrix} i \quad u \\ a \end{matrix}$$

system of Arabic and many other languages (Trubetzkoy 1969, 106), although both have the same number of vowels, since only neutralization need be suppressed to generate the latter system.

In order for the processes suggested here to be flexible enough to generate such systems as the rare

$$\begin{matrix} ɨ \\ ʌ \\ a \end{matrix}$$

type, they must also be capable of generating, through further limitations, systems that look even more "unnatural." For example, if the neutralization rule can be limited to

$$V \rightarrow \begin{matrix} -Pal \\ -Rnd \end{matrix}$$

in producing the system above, there is at least no _logical_ reason for it to be unable to be limited to

$$\begin{matrix} V \\ -Pal \end{matrix} \rightarrow -Rnd$$

which, with identical suppression of all the other processes, would generate the system

$$\begin{matrix} i & y & \text{ɨ} \\ e & \text{ø} & \wedge \\ & a & . \end{matrix}$$

Obviously, an evaluation system is needed to measure the complexity of vowel inventories.

One possible way of measuring the complexity of the systems would be to count the features of the processes that are blocked out. Such feature-counting might require that there be a certain cost to the grammar for each addition to the structural description of a rule and a like cost for each deletion from the structural change. Deletion of the entire structural change, the most extreme form of such deletion, would be equivalent to suppression of the process.

Some form of feature-counting of this sort must be a part of the evaluation system, and yet if feature-counting is not supplemented by some weighting device, limitation of the neutralization process (which is universal in adult language) will be no more probable than, say, suppression of the low-vowel unrounding rule. Feature-counting alone does not take into account the relative strengths of rules.

Each feature added to the structural description or deleted from the structural change of a process could be counted, and the total number (of the changed features) could be multiplied by the assigned "weight" of the process. The results would then be totaled and the final figure would represent the complexity of the vowel system.

To reflect the likelihood of a rule's being limited to a !-marked value, removal of an ! could be assigned a cost one-half that of adding or deleting a feature.

In order to weight the processes, a scale of strength based statistically on frequency of application might be desirable, but it is hardly possible within the scope of this paper.

CHAPTER III

SOME EVIDENCE FOR THE PROCESSES

With a variety of suppressions or limitations, this relatively small set of processes may thus generate a large number of vowel systems, which should correspond to the vowel systems which actually do occur. Then, if the occurring systems are results of actual processes, one could expect to find independent evidence of these processes in the context-free processes affecting vowels in the developing phonological systems of children, and in the historical development of vowel systems.

A. Evidence from the limitations on systems.

First, the rules here are designed for generating a large proportion of the vowel systems of the world. They do so by producing the possible height and timbre combinations and distinctions.

1. Height

It seems that all--or almost all--languages have more than one vowel. Among the great proportion that must be viewed as having vowel distinctions, there do not seem to be any systems that lack a distinction of height. Languages may lack timbre distinctions entirely, but they do not seem to be able to do without height distinctions.

The above processes seem to reflect this. Only when the neutralization and lowering rules apply in their most complete form does a system lacking height distinctions result, and the neutralization rule is the weakest rule of all. As soon as this weakest process is limited, a height contrast is unavoidable.

2. Timbre

Distinctions of timbre, though apparently secondary to distinctions of height, are, of course, extremely common in languages. They are also, it seems, more complex; there are more variables associated with timbre.

The timbre distinctions used here, ±Palatal and ±Round, are simplifications in the same sense that all ±valued articulatory features are simplifications: they divide the "vowel space" into categories rather than treating it as a continuum. In general, the processes can be described in terms of these featural categories, but sub-featural variations can affect the strengths of various forms of the rule. In these cases, indicators such as "lower" have been included in the rules. This may not be a particularly attractive choice in terms of notation, but it seems that the various vowels should be able to be assigned relative degrees of these physical

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qualities in fairly straightforward ways, and the terms allow for greater accuracy of description of the processes that do occur.

The principal use of these indicators occurs in the color rules, where the degree of lowness seems to affect the strength of the process. The meaning of the "!lower" indicator is fairly obvious: application of a process thus marked to +High vowels implies application to -High, -Low vowels, which in turn implies application to +Low vowels. Conversely, blocking the process for a lower vowel implies blocking it for any higher vowel, since the process is strongest for the lowest vowels and weaker for the higher ones.

The rules (7) and (8)--unrounding and depalatalization--and the !-Low markings on the color rules seem to conspire to eliminate low vowels other than a, and thus to produce a triangular system (i.e., one with no timbre distinctions in the low vowel series). In the systems generated so far, these processes were allowed to operate.

Obviously, not all systems are triangular; the suppression of (7) or (8), with the optional elimination of the !-Low marking of the appropriate color rule, can produce a quadrangular system.[6]

---

[6]The distinction triangular vs. quadrangular, however, is not really a very interesting one, since it amounts to no more than any other expression of the tendency toward fewer timbre distinctions among the more open vowels. Such a distinction apparently has favored some rather inappropriate vowel arrangements (such as (i) for the system (ii) or (iii)).

(i) i y u
     e ø o
        a

(ii) y i   u
     ø e   o
           a

(iii) i y   u
      e ø   o
         a

I am trying to avoid such arrangements here; this accounts for my less-than symmetrical arrangements of some perfectly "natural" systems.

In the suggested set of processes, the "!lower" indicators on the color rules (and the depalatalization and rounding rules for low vowels) reflect the fact that there may be more timbre distinctions in the higher vowel series than in the lower ones, but usually not more distinctions in the lower than in the higher series.

Probably the most logical way of dealing with the variety of timbre systems is to break down the possible systems in terms of the number of distinctions within the language or system.

a.   Languages without distinctive timbre classes

In a few languages (which appear to be concentrated in the West Caucasus), the timbre qualities of the vowels appear to be phonologically conditioned, and only vowel height seems distinctive. In such languages, it appears that some form of the neutralization rule must continue to apply to stressed vowels in the adult language, as perhaps

$$V \rightarrow \begin{array}{l} -Pal \\ -Rnd \end{array}$$

and neutral-vowel lowering and the context-free color processes must be suppressed. The retention of any form of the neutralization rule for stressed vowels is extremely unusual, and the combination of this retention and the suppressions noted above is even more unlikely. The

ɨ

ʌ

a

system of these languages is correspondingly rare.

b.   Languages with two timbre classes

If there is a single timbre distinction in a language, it is often based on the overlap of the two colors. In such cases, the +Palatal vowels are -Round, and the -Palatal vowels are +Round. This is the case with the familiar

i   u
 e   o
    a

system of such languages as Spanish (Hockett 1955, 85), Fijian (Hockett 1955, 86), and Lake Miwok (Broadbent and Callaghan 1960, 301).

Other languages, however, give reason to believe that either ±Palatal or ±Round is the essential distinction of timbre, with the other distinction having secondary status, so that this other feature-value may be changed by various context-sensitive rules. Trubetzkoy (1969, 99 et passim) suggests that certain Montenegran dialects have an essentially ±Palatal timbre division, and that Russian has an essentially ±Round distinction.

Such possibilities may be described within the set of processes suggested by the choice of the color rules used to generate the system. A system with a basically ±Palatal distinction would be generated by the processes

$$\begin{array}{l} V \\ +Pal \\ !Lower \end{array} \rightarrow -Rnd \qquad and \qquad \begin{array}{l} V \\ -Pal \\ !lower \\ !-Low \end{array} \rightarrow +Rnd$$

while a basically ±Round system would be set up by the processes

$$
\begin{array}{ll}
V & V \\
\text{+Rnd} \quad \rightarrow \quad \text{-Pal} \quad \text{and} & \text{-Rnd} \quad \rightarrow \quad \text{+Pal} \\
\text{!Lower} & \text{!lower} \\
& \text{!-Low}
\end{array}
$$

c. Languages with more than two timbre classes

In systems with more than two timbre classes, the question of whether only one color feature is distinctive does not arise; obviously, both features are distinctive. These systems involve the suppression of one or more of the color processes.

By various suppressions and limitations, the set of processes proposed here does seem to be able to generate the occurrent three- and four-timbre systems.

(1) Systems with three classes.

$$
\begin{array}{lll}
\text{(a)} \quad \text{+Pal} & \text{-Pal} & \text{-Pal} \\
\text{-Rnd} & \text{-Rnd} & \text{+Rnd}
\end{array}
$$

A vowel system that includes these three classes might be one like that found in Bororo (Huestis 1963, 231) and Maidu (Hockett 1955, 84):

```
i  ɨ  u
e  ʌ  o
   a
```

Here the neutralization, lowering, and raising processes are suppressed, but depalatalization and unrounding affect the low vowels. Characteristic of this set of timbre classes is the suppression of all the color processes except

$$
\begin{array}{l}
V \\
\text{+Pal} \quad \rightarrow \quad \text{-Rnd} \\
\text{!lower}
\end{array}
$$

If raising and lowering are allowed to operate, the simpler, two-height system of Amahuaca (Hockett 1955, 84) results:

```
i  ɨ  u
   a
```

If, instead, depalatalization and unrounding are also suppressed, the system

```
i  ɨ  u
e  ʌ  o
æ  a  ɔ
```

is generated. This system, according to Hockett (1955, 87) is the system of Trukese and Thai.

A "hollow" system, the

```
i  ɨ  u
e     o
   a
```

of languages like Tübutulabal (Trubetzkoy 1969, 112) and Choco (Loewen 1963, 358) may also be achieved.[7] Neutralization and

---

[7]Hockett (1955, 87) lists Bulgarian among the languages with this vowel system, but Trubetzkoy's (1969, 114) more complete description indicates that Hockett may simply have classed as an ɨ what is really an ʌ.

---

raising are suppressed (or raising is limited to +Low vowels), but lowering operates, eliminating the ʌ. The only unsuppressed color rule is still

```
   V
+Pal   →  -Rnd
!lower
```

Alternatively, this system could be achieved by allowing the -Low, -High, -Pal vowels to be rounded by (5) (i.e., by limiting (5) instead of suppressing it).

```
(b)  +Pal    +Pal    -Pal
     -Rnd    +Rnd    +Rnd
```

If the color processes are limited differently, it is possible to generate systems with this different set of three timbres. An example of this kind of system is the

```
i  y  u
e  ø  o
   a
```

of German (Hockett 1955, 87), of some French dialects (ibid.), and of certain dialects of Tibetan (C. and F. Voegelin 1965, 32). The characteristic difference between this system and systems of the Bororo type can be attributed to a different limitation of the color rules: instead of allowing

```
   V
+Pal   →  -Rnd
!lower
```

to operate and suppressing the others, these systems require that all the color rules except

```
    V
   -Pal   → +Rnd
   !lower
   !-Low
```

be suppressed.

　　　Additional systems may be generated by varying the limitations
and suppressions of the other processes. The

```
   i   y   u
   e       o   .
          a
```

of Middle Greek (Trubetzkoy 1969, 112) and Taki-Taki (Hockett 1955,
87) differs from the above system in that raising is limited to the
+Pal, +Rnd vowels, at least in the non-low degrees of height.
　　　The Middle High German long vowels (Wright 1955, 4-5),

```
   i   y   u
   e   ø   o
   æ       a
```

form a similar system, except that the low-vowel depalatalization
process is suppressed. (Also, it seems that raising does not
operate here, unless it is limited to +Rnd vowels; I am more inclined
to think that it is suppressed.)

(2) Systems with four classes.

　　　Suppression of all of the color processes results in a four-
timbre system; this is the maximal set of distinctions. Turkish, with its

```
   i   y   ɨ   u
   e   ø       o
          a
```

system (Trubetzkoy 1969, 107) is probably the best-known example.
Here neutralization is suppressed, and raising is at least limited
to +Low vowels.
　　　The color rules need not be entirely suppressed to produce a
four-timbre system. In some cases, there are four timbres in the
+High series only. (Eastern Cheremis (Trubetzkoy 1969, 104) is an
example.) In such cases, the color rules may be limited to application
to -High vowels and thus eliminate the non-high vowels of some timbres
by changing a roundness or palatality marking, or the raising rule
applies to certain timbre classes only, merging the non-high vowel
with the high vowel of the same timbre.
　　　From these examples, it is easy to see that a large proportion of
the world's vowel systems can be accounted for by the processes
suggested. Some systems, especially a number of those found in

American Indian languages, remain, but the processes work in most situations, and they strongly favor the same vowels favored by Jakobson's implicational laws and Chomsky and Halle's marking conventions. In order to produce a less-favored vowel, more processes have to be suppressed, and the less-favored vowel occurs only in opposition to a more-favored one.

B. Evidence from substitutions.

In order to see the processes in action, however, it is necessary to look at them through the more dynamic aspects of language study—through language acquisition and language change.

1. Child language.

It is in language acquisition, perhaps, that the operation of the processes is most obvious. The child acquiring language has a vowel system, however rudimentary, into which he must fit any word he chooses to say. If the adult form of the word contains a vowel not included in his system, the vowel form must be changed into one that he can use, and it is so changed by means of these innate or intrinsic natural processes. Thus, when the child has not suppressed any of the processes, all of his vowels are ordinarily pronounced as a no matter what the vowel is in the original word. (The phonetic environment may alter the quality of the vowel to a certain extent, but there is no distinctiveness to separate two vocalic segments in the system.)

Even when he has begun to limit at least one process and can therefore maintain a distinction, the child's system is still smaller (and simpler) than the adult's; when he uses a word containing a vowel he does not have, he must still make substitutions, and his substitutions are still governed by the processes that remain active.

a. Jakobson's predictions.

To a great degree, this progressive limitation can parallel the order of acquisition of distinctions predicted by Jakobson in <u>Child Language, Aphasia and Phonological Universals</u> and by Jakobson and Halle in <u>Fundamentals of Language</u>. According to Jakobson, the first vowel is the maximally open and therefore maximally vocalic a. The first vowel distinction acquired is one of height—the one distinction that seems to be universally present in vowel systems. The next distinction acquired is usually that of "palatal vs. velar" in the high vowels, generally expressed as i and u. in accordance with the principle of maximal distinctiveness.

This third system, the

            i   u
             a

system, is in a sense the optimal one, since it maintains at least two distinctions within each pair of two vowels. The distinction

maintained here between palatal and velar high vowels must precede
the distinction between palatal and velar low vowels (æ/a), between
rounded and unrounded narrow palatal vowels (y/i), or between rounded
and unrounded velar vowels (u/ɨ). The y/i distinction must
precede that between rounded and unrounded wide palatal vowels (œ/æ).

Jakobson also cites a common fourth vowel system:

```
i   u
e
  a        .
```

This system can also be described using the suggested processes. Just
as it is for the

```
i   u
  a
```

system, neutralization is suppressed. The color rules, the lowering
rule, and the depalatalization and unrounding rules may apply, but
the raising rule is limited to

```
    V
-High    →  higher
+Rnd             .
```

Tracing the phonological development of a child, and suggesting
how the processes might account for the substitutions made is another
way of establishing the appropriateness of the rules proposed. The
speech of two children will be observed here.

b. Joan Velten's speech..

Joan Velten's first words (Velten 1962, 25 et passim)--from the
end of her eleventh month through her fourteenth month--contained
only one vowel, a. This situation represents the operat'.on of all
the processes.

Joan's first distinction is the high- vs. -low distinction
separating u from a. This is apparently accomplished by a limitation
of the neutralization rule from

```
     V                              V
!-Stress  →  Neutral      to     !-Stress  →  -Pal
!-Tense                          !-Tense              .
```

The effect of the weakening of the structural change of this process
is that the process now leaves the output

```
ɨ   u
ʌ   o
a   ɔ
```

instead of ʌ alone. The neutral vowel, ʌ,is still lowered to a; the
color rules provide that ɨ → u; and low-vowel unrounding substitutes

a for ɔ. Raising makes o → u, and the system is reduced to the two vowels, u and a.

Joan's substitutions give substance to this conjecture. The English low vowels and ʌ are articulated as a (as is ai by monophthongization), and the mid and high vowels become u. Allowing for some lack of fit between Velten's notation and that used here, the situation is, it seems: æ, a, ai, ɔ, ʌ, and ɛ (before liquids and nasals) → a; and ɪ, i, e, o, ə (possibly ɨ?), ʉ, u, iu, ɔi, ɔr, and ɔl (these last three labials), and ɛ (before obstruents) → u.

Acquisition of i may be due to limitation of the neutralization rule to unstressed syllables or to its complete suppression. Either way, the result is the three-vowel system

        i   u
          a   .

The high front vowel is substituted for English i and e, and the rest of the substitutions are as before. In both the two- and three-vowel systems, it seems that the color rules operating are the stronger (6) and (8). Velten does tell us that Joan used a lax variant, ɪ, for the i vowel.

The rest of Joan's vowels were acquired after a considerable time, and all within the space of seven weeks. Her father says that their chronological order was e, ɛ, o, ɔ, æ, which seems to be approachable from the point of view of the suggested rules. Since he does not list these acquisitions as they were substituted for the English vowels, however, we can no longer trace the exact suppressions the child made.

c. Hildegard Leopold's speech.

A brief view of Hildegard Leopold's acquisition of vowels (Leopold 1953-54, 353 et passim) can also be described within the system of processes suggested, although the exact phonetic values would have to be examined to determine which substitutions made by the child were really context-free and which were allophonic variations conditioned by the context. Hildegard's first vowel was also a, and, like Joan's a, it replaced æ, ʌ, and a. Her second vowel was i (as opposed to Joan's u), with ɪ and y as allophones (y followed bilabials, with obvious assimilatory rounding).

The i suggests that Hildegard limited the neutralization rule to

        V
        !-Stress → -Round.
        !-Tense   .

Lowering, the color rule,

        V
        -Rnd → +Pal

depalatalization and unrounding, and raising provide that æ, ʌ, and ɔ be replaced by a, and that other mid vowels and high vowels be replaced by i.

Then u̱ was acquired, "briefly and experimentally," according
to Leopold; the father thinks of e̱ as Hildegard's third stable
vowel. If u̱ really was acquired before e̱, the development of the

    i   u
      a

system would be similar to Joan Velten's. If, instead, e̱ was indeed
the third vowel and Hildegard's three-vowel system was

    i
    e
      a

one could explain that raising was limited to +Round vowels before
neutralization was entirely suppressed for stressed vowels. When
this limitation of neutralization does occur, u̱ appears, and the common

    i   u
    e
      a

system is achieved.

        Hildegard substituted u̱ for "all standard high and mid back
vowels," although a̱ or even a̱u̱ was occasionally used to replace o̱.
Her next acquisition was o̱--a result of the complete suppression of
the raising rule. (The fact that o̱ did not appear simultaneously
with u̱ indicates that raising had previously been limited only, not
suppressed.) The ʌ̱ vowel was not acquired until quite late, apparently
because of the strength of the lowering rule, and because suppression
of this rule forces a change from an essentially two-timbre to a
three-timbre system.

        There are some obvious flaws in the above tracing of the vocalic
development of these two children. First, neither is complete, and
the final systems described are not even identical, although both
children were learning the same language. Second, no attempt is
made here to deal with any variations in the representations to
determine what forms are the results of context-free processes and
what forms have been changed by their environments.

        These two troublesome problems could probably be resolved, but
a precise analysis would be a problem sufficient for another paper
of this size, especially for Leopold's highly detailed description.
My intention here has been to give a brief sketch which would
illustrate how the rules suggested here can account for the systems
of child language, and to show that implicational hierarchies like
Jakobson's might be seen--considering that the child is actually
making substitutions--as processes that are active in the child's
phonological system.

2. Historical change.

        If these observations are considered to be processes, then it
is not surprising that they would turn up in the historical develop-
ment of a language. It can be somewhat difficult to find evidence
in historical language study for context-free vowel changes because

such changes often fail to leave internal evidence. Nevertheless,
a good number of context-free changes have been reconstructed.
These changes parallel the context-free processes described here,
and they too may be seen as evidence that the implicational hier-
archies might be described as actual processes.

In the view put forth by natural phonology, "rule addition"
may be the failure of a generation or a group of speakers to
suppress a process that is suppressed in the standard language.
For example, in order for a language to admit an æ vowel, the low-vowel
depalatalization process must be suppressed. The context-free historical
change of æ to a, then, may represent the failure of a language group
to suppress this depalatalization process. This change actually
occurred in Middle English, when Old English æppel, for instance,
became appel (Wright 1923, 19).

In Early Modern English this change was reversed (a far less
usual circumstance), and a > æ, so that ME appel became our "apple"
(Wright 1924, 38). This change could be described in terms of the
suppression of low-vowel unrounding, with the consequent application of

$$\begin{array}{c} \text{V} \\ \text{-Rnd} \\ \text{!lower} \end{array} \rightarrow \text{+Palatal}$$

I would assume that this palatalizing process had been overridden
(for low vowels), in the system with a, by low-vowel depalatalization,
which is ordered after palatalization. Suppression of the later
depalatalization process allows palatalization to appear.

The parallel changes of ɔ to a and a to ɔ are also represented
historically. English "not" ([nɔt]) has become American [nat],
and the set of processes which generate the Yiddish system has
produced such forms as [nɔx] from Middle High German nach (Sapir
1915, 257). As the æ/a changes represented operation or suppression
of low-vowel depalatalization, these ɔ/a changes represent the
operation and suppression (respectively) of low-vowel unrounding.
(Suppression of low-vowel unrounding in Yiddish was accompanied by
rounding of the non-palatal low vowels, which the unrounding process
had previously overridden.)

The Color processes may be operated and their operations may
vary to change in various ways the uncolored vowels and the doubly-
colored vowels in the world's languages. The +High, -Palatal, -Round
vowel, ɨ, for instance, may become either i or u in the course of an
historical change. In order for ɨ to exist in a language, both

$$\begin{array}{c} \text{V} \\ \text{-Pal} \end{array} \rightarrow \text{+Rnd} \quad \text{and} \quad \begin{array}{c} \text{V} \\ \text{-Rnd} \end{array} \rightarrow \text{+Pal}$$

must be suppressed. The pattern of the change which eliminates ɨ
depends on which of the two is no longer suppressed (and thus
operates on ɨ).

In Southern Welsh (Bowen and Jones 1960, 12), for example, the
innate process

$$\begin{array}{c} \text{V} \\ \text{-Rnd} \end{array} \rightarrow \text{+Pal}$$

was not suppressed and thus *ɨ > i. In the Mundlipada dialect of
Remo, a Munda language (personal communication, David L. Stampe), on
the other hand,

$$\begin{array}{c} \text{V} \\ \text{-Pal} \end{array} \rightarrow \text{+Rnd}$$

was not suppressed and *i > u.
      There are numerous examples of the unrounding of palatal vowels:

$$\begin{array}{c} \text{V} \\ \text{+Pal} \end{array} \rightarrow \text{-Rnd} \quad .$$

Yiddish, with

$$y \rightarrow i$$
$$ø \rightarrow e$$

is one of the most familiar instances (Sapir 1915, 259-260). Here MHG
mul > Yid, mil, "mill;" and MHG hörner > Yid. herner, "horns."
      A good example of the kind of subprocess hierarchy denoted by
the degree-feature "lower," is a comparison of this Yiddish change
with one that occurred in Old English (Wright 1923, 32), where ø >
e but not y > i. In Yiddish, the change followed the most general
form of the process,

$$\begin{array}{c} \text{V} \\ \text{+Pal} \end{array} \rightarrow \text{-Rnd}$$

In Old English, the process was limited to

$$\begin{array}{c} \text{V} \\ \text{+Pal} \\ \text{-High} \end{array} \rightarrow \text{-Rnd}$$

as favored by the "!lower" specification in the process as originally
presented.[8] This subprocess operation is parallel to the operation

---

[8]It might be noted here that English later underwent a
generalized form of this unrounding when Middle English ǿ (< eo) >
e and the original y > i (Wright 1923, 29-30).

---

of subprocesses in the generation of systems with high front rounded
vowels but no mid or low front rounded ones.

CHAPTER IV

PROBLEM AREAS: SOME OBSERVATIONS

A.   Diphthongization, Monophthongization and Vowel Shifts.

1.   Diphthongization and monophthongization.

Strictly speaking, the processes suggested here do not attempt
to account for diphthongization and monophthongization. Such
occurrences may be controlled by natural processes, and these
processes may be related to the ones suggested here for simple
vowels, but I have not examined diphthongs sufficiently to state
what their controlling processes may be.

Such a study might be interesting, though, because it is possible
that diphthongization and monophthongization are responsible for
some of the changes which cannot be accounted for by the processes
suggested here. A change like $\underline{u} \rightarrow \underline{y}$ might actually be the result of
a series of processes involving diphthongization and monophthongization:
$\underline{u} \rightarrow \underline{uw} \rightarrow \underline{iw} \rightarrow \underline{iw} \rightarrow \underline{y}$. Similarly, in a diphthongization without mono-
phthongization, $\underline{i} \rightarrow \underline{ai}$ might be the result of $\underline{i} - \underline{ii} \rightarrow \underline{ii} \rightarrow \underline{\Lambda i} \rightarrow \underline{ai}$.
This is not meant to suggest that such historical changes are
necessarily gradual, but simply that they may be accounted for by a
series of processes that need not be directly counter to the ones
suggested here.

2.   Vowel shifts.

Conspicuous by their absence from the above material, perhaps,
are vowel shifts. I have left these for a separate section because
they are not entirely accounted for by the processes as suggested.

Frequently these chain-reaction changes in vowel systems are
"set off" by an occurrence, such as diphthongization, that does not
fall within the province of these processes, or by a process which,
though it may be accounted for by these rules, is marked as extremely
weak, or even by a change (e.g., $\underline{u} \rightarrow \underline{y}$) that completely controverts
the processes as written.

For example, in the Sao Miguel dialect of Portuguese, a vowel
shift involving raising of the non-palatal vowels and rounding of $\underline{a}$
was begun, according to King (1969a, 17) with the change $\underline{u} > \underline{y}$, a
change not accounted for in the suggested framework. The changes
that followed can be described by the rules, however. Raising provides
that $\underline{o} > \underline{u}$ and $\underline{\mathfrak{I}} > \underline{o}$. Low-vowel unrounding, which was already
suppressed in the language (as evidenced by the presence of $\underline{\mathfrak{I}}$)
remained suppressed, and the color rule

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$$
\begin{array}{c}
V \\
-Pal \\
!-Low
\end{array}
\rightarrow +Rnd
$$

was allowed to operate on low vowels, so that a > ɔ.

The English vowel shift, under a similar interpretation, would have been touched off by the diphthongization of i to ei (through ii) and u to ow (through uw).

B. Counter-examples.

An instance of the kind of apparent counter-example which can be accounted for fairly easily within the suggested system is the lowering, in Sanskrit, of e and o to a (T. Burrow 1965, 103 et passim). This may be described in terms of the neutralization and lowering processes, which might be limited to

$$
\begin{array}{c}
V \\
-High
\end{array}
\rightarrow
\begin{array}{c}
-Rnd \\
-Pal
\end{array}
$$

(This is to some extent supported by the fact that a had the quality of an ʌ), and

$$
\begin{array}{c}
V \\
Neutral
\end{array}
\rightarrow +Low \qquad .
$$

More threatening counter-examples exist, however. A great number of American Indian languages have a solitary non-low back vowel represented as o, without having an u. The o may vary--freely or under stated conditions--with u or ʋ, but the nonlow back vowel is named o so frequently in studies of these languages that such naming can hardly be attributed to accident, or to perversity on the part of the people who describe them.

Several suggestions could be made as to the nature of such systems. One--that is many of these languages, the vowels are articulated with a peculiarly lax quality which may have something to do with the lowering of the highest possible back vowels--may, in fact, be in some way applicable to systems such as the

$$
\begin{array}{ccc}
e & ə & o \\
 & a &
\end{array}
$$

of Upper Chehalis (Kinkade 1963, 181), but it does not explain the lowering of o when the vowel system still contains an i. Trubetzkoy notes (1969, 107) that in certain systems "the vowels of the back class are realized more openly than the corresponding front vowels," but he makes no generalizations about such asymmetrical systems.

In an article on Swedish vowel production, Lindblom and Sundberg (1969, 17) distinguish the u tongue position, which involves a humping-up of the tongue toward the soft palate or velum, from both the palatal and the retracted articulations of the other vowels.

This articulatory gesture might for some reason be disfavored in certain languages, so that a lowering u → o takes place and the raising o → u is suppressed.

Admittedly, the processes suggested here offer no real explanation for such systems (which have been largely ignored in studies of vowels and the constraints on vowel systems). There seems to be an as-yet-undiscovered process (perhaps a general lowering, especially of non-palatal vowels) at work, which is in some sense peculiar to this fairly large group of languages.

Finally, there are other occurrences, exemplified by some historical changes, which cannot be described precisely in terms of these processes. In some languages, the processes suggested here can be controverted, but here the suggested inventory can help to characterize the cost to the learner of these controversions. In others, the processes can operate in a kind of tangential manner which requires that, in a stronger-than-usual way, the vowel space must be regarded as a continuum.

Examples of such "tangential" operation are the unrounding of ȳ to ē as occurred in Kentish (Wright 1923, 22) rather than to i, and the fronting or rounding of ɨ to e or o rather than to i or u as occurred in two different dialects of Sora (personal communication, David Stampe). Such occurrences may be related to an articulatory or auditory difference in height between i and y or ɨ, such that if y and ɨ are lower than i, it becomes possible for them to unround, to palatalize, or to round to become vowels lower than i.

It seems, then, that the processes are somehow sensitive to the precise phonetic shape that a segment takes in a language. This may seem strange because, in another sense, the processes control the shapes of segments, but the occurrences noted seem to indicate that it is true to some extent.

CHAPTER V

CONCLUSION

The conclusions to be drawn from the above discussion seem, at this point, to be fairly straightforward and to require little more than a brief summary. The preceding section has made all too obvious the intractability of certain systems and changes under the set of rules suggested. Perhaps some adjustments in the processes as described here are necessary, or perhaps the intractable systems and changes require certain language-particular context-free rules ('learned rules) in addition to the natural processes suggested here. It is also possible that some of these problems could be resolved with the addition of processes (such as those affecting length or tenseness) that I have not dealt with here.

Nevertheless, the processes retain their appeal. They do characterize implications, both for vowels in a system (as $\phi \supset y$) and for changes operating in a language (as $\underline{y} \rightarrow \underline{i} \supset \underline{\phi} \rightarrow \underline{e}$). Finally, they do have the ability to account for substitutions made by children and by borrowing adults.

Supported by the evidence presented in Chapter III, then, these processes may well be part of a natural phonological system which represents certain intrinsic limitations of the speech capacity. Undoubtedly, the content and perhaps also the form of the processes, as formulated here, will require revision in the light of further study. What should emerge from this paper, at least, is that the principles governing possible phonological inventories can be identified with the processes themselves, and thus, ultimately, with the intrinsic character of the human speech capacity.

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