PAPER 6 (DESCRIPTIVE LINGUISTICS)
ENDOCENTRIC AND EXOCENTRIC CONSTRUCTIONS

The complete specification of a construction involves (1) designation of the form-class from which each constituent is selected, and (2) designation of the form-class to which the resulting constituent belongs. Thus the construction of old/dog may be described (1) as involving a descriptive adjective (new, old, young, big, friendly, etc.) as first IC and a singular noun (dog, cat, boy, table, etc.) as second; and (2) as yielding constituent which also belongs to the class of singular nouns. A form-class, in its turn is defined in terms of a range of privileges of occurrence in larger forms.

Some constructions are such that the form-class of the constituents is similar to the form-class of at least one of the ICs. Here "similar" means that the two ranges of privileges of occurrence largely overlap. The grammarian would prefer to speak of identity rather than similarity. But language habits are not completely tight-knit, and greater precision would be spurious.

The construction of old/dog is of the sort just described. "Old dog" is a singular noun just as is dog: the privilege of occurrence in larger forms of old dog are much the same as those of dog. Thus "the dog" (or old dog) ran away; I saw the (old dog); a big (old) dog; one (old) dog; and so on.

The construction of "lay/ in the corner" is also of this sort. He lay there (or there in the corner) yesterday; He lay (or lay in the corner) motionless; and so on.

Even the construction of "men and women" is of the same sort, with the difference in this case the form-class of the constitute is that of both of the ICs: I saw the men (or women, or men and women); the men (or women, or men and women) have their hats; men (or women, or men and women) and children.

Any construction which shows the property just described and illustrated is endocentric. The constituent whose privileges of occurrence are marked by those of the constitute is the head or center; the other constituent is the attribute.

In "old dog", old is attribute and dog is head. In "lay in the corner", "lay" is head and "in the corner" is attribute. In "men and women" both ICs are heads and there is no attribute. An endocentric construction involving an attribute is "attributive" or "sub-ordinate"; one with no attribute is "co-ordinate".

A construction which is not endocentric is exocentric. The latter term is defined negatively, and does not imply that such a construction has a center "outside itself". An example is the construction of "visit/Bill": the range of privileges of occurrence of visit Bill does not resemble that either of visit or of Bill.

Our definition does not preclude boundary line cases. "Blackbird" /bla ck + b- rd/ is clearly endocentric, with head "bird", but redcap /red + ka p/ 'porter' is in doubt. A redcap is not a kind of cap, as a blackbird is a kind of bird, but a kind of person who wears a cap of the specified color. However, redcap is a singular noun as in cap, and we can find many common privileges of occurrence. I saw the cap, I saw the red cap: The cap sat on the table, the red cap sat on the table; and so on. On these formal grounds, it seems preferable to class the construction of red cap as endocentric.

All languages have both endocentric and exocentric construction.

"A Course in Modern Linguistics" Charles F. Hockett

Describe the concepts of cardinal vowels and classification of vowels.

Vowels are defined as "the modifications of the voiced sound that involves no closure, friction, or contact of the tongue or lips". They can be classified in articulatory terms on the basis of three dimensions:
1. highest point of the tongue on the vertical axis.
2. highest point of the tongue on horizontal axis. and
3. posture of the lips.

Another method of identifying vowels is provided by the system of cardinal vowel. A cardinal vowel is "a fixed and unchanging reference point, established within the total range of vowel quality, to which any other vowel sound can be directly related." A number of such references points constitutes a system of cardinal vowel, and any vowel in any language can be identified by being 'placed' within the system. The idea of this system was first put forward by A. J. Ellis in 1844, but the term "cardinal" was first used by A. M. Bell in 1867. Daniel Jones was the first among the linguists who developed the theory of cardinal vowel and brought it to a perfection. The "cardinal vowels" are arbitrarily selected. So they are not based on the vowels of any existing language. The system is a general phonetic one.

In order to describe vowels, Daniel Jones presented a diagram that demonstrated the "placing" of vowels and is in a 'trapezium' shape.

In the figure given above the two angles on the right hand side are right angles and two of its sides are parallel. The bottom line, the right hand vertical line, and the top line, are in proportions 2:3:4 respectively.

This form of diagram is popularly known as the "cardinal vowel diagram". The description of the vowels is made in terms of the two axis:
1. horizontal
and 2. vertical
The horizontal axis is divided into three parts as:
1. front
2. central
and 3. back.
These three parts refer to the part of the vowel which is the highest. So on this axis we have
1. front vowels
2. central vowels
and 3. back vowels

FRONT VOWELS: The front vowels are those in the production of which the (1) front part of the tongue is raised towards the hard palate. For example, /i:, I, e:, a/ in Hindi, /I, i:, e, a / in English as in pin, seen, met and mat respectively.
CENTRAL VOWELS: These vowels are called central vowels during the production of which the central part of the tongue (the part between the front and the back) is raised. For example / / in Hindi, and / , :, / in English as in around, earn and shut respectively.
BACK VOWELS: The vowels during the production of which the back of the tongue is raised towards the soft palate are called back vowels. For example /o:, u, u:/ in Hindi and /a:, , : u, u:/ in English as in dark, dot, caught, look, and foot respectively.

On vertical axis we usually draw four points. These points refer to
1. close
2. half-close
3. half-open
and 4. open

A close vowel is one in the production of which the tongue is kept extremely close to the roof of the mouth. For example, /i/ in bee and /u:/ in zoo.

An open vowel is one in the production of which the tongue is kept as low as possible and the jaws are wide open. For example /a:/ in bard, and / / in pot.

The two intermediate points - half-close and half-open are obtained by dividing the distance between the two extreme positions into three equal points. These are conventionally represented in the following way:

	front	central	back
close [i]	1		8 [u]
half -close [e]	2		7 [o]
half-open [ ]	3		6 [ ]
open [a]	4	5	[a]

These are eight primary cardinal vowels which are not found in or based on any specific language. They are only phonetic hypothesis that facilitate the description of vowels of all languages.

Another criteria for identifying vowels depends upon the lip postures:
(1) rounding
and (2) unrounding
On this basis we have two kinds of vowels:
(1) rounded vowels
and (2) unrounded vowels.
But this basis is not under consideration in this diagram.

As regards "lip-rounding" in British R.P., front and central vowels are automatically unrounded and back vowels (except /a:/) are automatically rounded. So this distinction has been omitted by the phoneticians.

N.B. - The most important points concerning the cardinal vowels of Daniel Jones's systems are as follows:

1. They are arbitrarily selected; a cardinal vowel is descriptive device, not something that occurs in a language.
2. They are of exactly determined and invariable quality.
3. They are peripheral vowels: the highest point of the tongue for each of them lies on the extreme outside limits of the vowel area.
4. They are auditorily equidistant.
5. They are eight in number.

SECONDARY CARDINAL VOWELS

The cardinal vowel technique is based on the eight 'primary' cardinal vowels, which are in themselves sufficient for descriptive purposes. A number of secondary cardinal vowels, however, has been established. Like the primary cardinal vowels, they are of fixed and unvarying quality. But unlike the primary cardinals, they are not 'peripheral vowels'. There are fourteen of them, of which ten are peripheral and four are not.

The first eight of the secondary cardinals are directly derived from the primary ones. They have exactly the same tongue positions, but have different lip postures. Where the primary cardinals are rounded, the corresponding secondary cardinals are not rounded, and vice-versa. Thus the five secondary cardinal are rounded vowels, and the next three are unrounded vowels. The degree of rounding of the rounded secondary cardinals is correlated with the amount of jaw opening, as is the case with primary cardinals. The two most open secondary cardinals, with tongue positions corresponding to C.V. four and C.V. five, have the least amount of rounding, less than for any primary cardinal: while those with tongue positions corresponding to CVs three, two and one have the same degree of rounding as CVs six, seven and eight respectively.

These eight secondary cardinals have been given numbers which continue the numbering of the primary cardinals, i.e. they are numbered from nine to sixteen, starting with the highest front vowel, and they have been given symbols as follows:

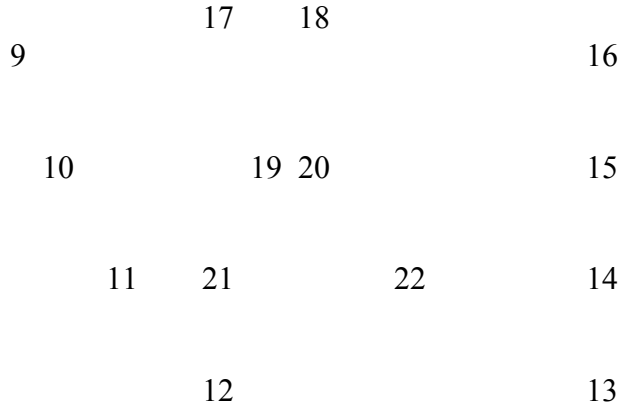
C.V. nine	y	C.V. thirteen	
C.V. ten	O	C.V. fourteen	^
C.V. eleven	O	C.V. fifteen	
C.V. twelve		C.V. sixteen	

There are six more cardinals. They consist of three pairs of vowels; the vowels in each pair having the same tongue posture but one being unrounded the other rounded. All are central vowels, and two pairs are not peripheral. The first pair lies on the periphery half-way between C.V. one and C.V. eight; they are numbered C.V. seventeen (unrounded) and C.V. eighteen (rounded). The next pair lies half way between C.V. two and C.V. seven, and they are numbered C.V. nineteen (unrounded) and C.V. twenty (rounded); and the vowels of the remaining pair lie half-way between C.V. three and C.V. six, and are numbered C.V. twenty one and C.V. twenty two. The symbols of these six secondary cardinals are as follows:

C.V. seventeen: C.V. eighteen:

C.V. nineteen: C.V. twenty:
C.V. twenty one: C.V. twenty two:

The fourteen secondary cardinals have the following places on the cardinal vowel diagram.



PROBLEMS WITH THE CARDINAL SYSTEM

The cardinal vowel system has been extensively used by phoneticians in the description of a wide variety of languages. There are, however, a number of difficulties in this respect. First, as Daniel Jones said in "An Outline of English Phonetics", "the values of the cardinal vowels cannot be learned from written descriptions; they should be learned by oral instruction from a teacher who knows them". It is for this reason that a learner cannot get accuracy or perfection, unless he is entrained by a phonetician.

A major problem with the cardinal vowel system is that none has been able to show how acoustic analysis of the cardinal vowels recorded by Daniel Jones himself can be reconciled with his definitions of auditory 'equidistant' between the vowels. There seems to be no way of plotting a complete set of cardinal vowels on a formant chart without making cardinal vowels (5), (6), (7) and (8) much closer together than (1), (2), (3) and (4). It seems as if the auditory distances between these reference points do in fact correspond to the distances between the points in the chart given earlier. The line on the left hand side of the figure slants because the degree of frontness (the distance between formant two and formant one) decreases in going from [i] to [a]. Because of the slope of this line, the auditory distance between each of the cardinal vowels is greater than that between each of the back vowels.

Another problem with the cardinal vowel system is that there has been a great deal of confusion over whether vowels are being described in terms of tongue height or in terms of acoustic properties. Many phoneticians and most text books on 'phonetics' talk about the C.V. diagram as if they specified the highest point of the tongue. The distance between the points representing the back vowels is therefore said to be less because the movements of the tongue are said to be less.

The difference in auditory quality are presumed to be the same in both front and back vowels, because back vowels also have increasing lip rounding. But unfortunately the highest point of the tongue is not specified in the diagram. So the position of the

highest point of the tongue is not a valid indicator of vowel quality. So Peter Ladefoged in the book "A Course in Phonetics" describes vowels not in terms of tongue height but in terms of vowel height - meaning an auditory quality that can be specified in acoustic terms rather than in articulatory terms.

Despite all these problems, the cardinal vowel system works fairly successfully. It has allowed the vowels of a large number of languages and dialects to be described with far greater precision than has any other method. The descriptions may have been said in the past to be descriptions of tongue height, but phoneticians, in fact, had all along been making very accurate judgments of the frequency of the first formant and the distance between the frequencies of the second and first formants.