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赵元任　著

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Notes on Chinese Grammar and Logic*

This paper is not concerned with Chinese logic as a part of technical Chinese philosophy, but, rather, with the ways in which some elementary logical notions find expression in the Chinese language. Therefore, I shall not touch upon the numerous paradoxes found in the *Canon of the Way and Virtue* (*Taotê Ching*) of Lao Tzŭ, or such questions as to whether the whiteness of a white horse is the same as the whiteness of white snow, as raised by Mencius,① or the series of problems with which the school of Mo Tzŭ was much concerned. On the contrary, I shall consider such universal logical constants —apparently universal constants for all human thought—as "and," "or," "all," "if... then," "not," etc., and ask what forms, especially grammatical forms, they take in Chinese thought and speech. To put it in another way: instead of negation, I shall consider "not"; instead of implication, I shall consider "if... then"; instead of existence, I shall consider "there is." In short, instead of metalogic and Chinese grammatics, I am primarily concerned here with logical notions and grammatical forms. Terms like *foouding*,②"negation"; *minqtyi*, "proposition"; *chyantyi*, "premise"; *tueiluenn*, "infer-(ence)"; etc., are not very well known to many Chinese—not even to those who read and write. On the other hand, all Chinese, whether literate or illiterate, will argue and reason in prose without realizing that they have been doing so all their lives.

I must first delimit the scope of this short paper on such a large subject and try

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* Read before the XXIIIrd International Congress of Orientalists, Cambridge, England, August 23, 1954. From *Philosophy East and West*, 9:1, 1955.

① *Mencius* IVA. 3, 4.

② For typographical convenience citations are given in National Romanization, a brief description of which can be found in Y. R. Chao and L. S. Yang, *Concise Dictionary of Spoken Chinese* (Cambridge, Mass.: Harvard University Press, 1947), pp. xx-xxi.

to bring it within manageable proportions. In the first place, I have called it "Notes on" to indicate that I am far from giving a systematic account of the subject. Second, obviously it will be too great an undertaking here to deal with all phases of the Chinese language, including all the dialects, all periods of its history, and all styles, and I must limit my field of view to that of modern spoken Chinese. However, as far as the logical aspects of grammar are concerned, there is, as I hope it will become clear, relatively little divergence among the dialects, through different periods of history, and between the literary and the colloquial styles of the language. This is, in fact, a partial justification for the common practice among Chinese grammarians, who usually give a composite picture of Chinese in general without specifying what form of the language they are describing. I shall make a note of important divergences, of course, wherever they are relevant.

1. "Not" —A statement is denied by putting the general negative adverb *bu*[①] before the predicate. Thus, if a proposition takes the form *S P*, or in the usual logistic notation, $\phi(a)$, then its contradictory, $\sim\phi(a)$, will read: *S bu P*. For example, *Ta chy* "He eats": *Ta bu chy*, "He does not eat." Logicians have found it conducive to systematic simplicity to put the sign of the negative before the whole sentence. But neither Chinese nor any other natural language I know of does this systematically. The nearest to that in Chinese is the impersonal introductory predicate *Bush . . . (sh)* "Not that. . . (but)," which is the form used for contrast or for forestalling an assertion to the contrary.

The position of *bu* in the sentence follows the general rule that the modifier precedes the modified. Thus, *bu idinq*, "not necessarily"; *idinq bu*, "certainly not"; *bu neng lai*, "not able to come"; *neng bu lai*, "able not to come"; *bu neng bu lai*, "cannot but come." (On "all not" and "not all," see § 5 below on "all.")

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① This word takes phonetically conditioned variant forms in standard Mandarin, but since they are grammatically irrelevant and the alternations are not generally reflected in other dialects, I shall give it an invariant form *bu*. Before the verb *yeou*, "have," however, there is in most dialects a special form, *mei* (or an equivalent dialectal form), which is a relic form of another negative, but is of no significance for our purposes. There is, in fact, one dialect, that of Kunming, in which "have not" is *bu yeou* instead of *mei yeou*.

There is no adjective in Chinese corresponding to "no." "No one comes" takes the form *Mei ren lai*, "There is not a person (or persons) who comes." It is difficult, therefore, to translate into Chinese Western philosophical problems or verbal jokes about "nothing," "nobody," etc., since the adjective "no" takes the adverb-verb form, "there is not" or "have not" in Chinese. (See § 6 below on "there is.")

2. "If... then" —The commonest way to express "if... then" in Chinese is to insert the adverb *jiow*①, "then," in the consequent clause. There are words for "if," to be sure, the commonest being *yawsh* (alternating with *ruohsh*, of which *yawsh* is a phonetic modification), literally, "like being (the case of)," but if both the word for "if" and the word for "then" are not used, it is usually only the word for "then" that is retained. For example, *Tial hao woo jiow chi-uh*, "Weather fine I then go," i.e., "If it is fine, I will go." If there is another adverb, it often takes the place of the word for "then." For example, *Nii lai woo (jiow) idinq lai*, "You come I (then) certainly come," i.e., "If you come I will certainly come," where *jiow* before *idinq* is optional.

Those who have followed recent developments in formal logic will be familiar with the paradoxes of so-called material implication, according to which a true proposition is implied by any proposition and a false proposition implies any proposition. To resolve the paradoxes, C. I. Lewis developed a conception of "strict implication," which was designed to agree with the usages of the ordinary language of inference.② In ordinary language the difference between material and strict implication does not always appear. But the apparently par-

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① The normal position of a Chinese adverb is between the subject and the verb. The literary equivalent of *jiow*, which is *tzer*, can occur, however, either before or after the subject.

② C. I. Lewis and C. H. Langford, *Symbolic Logic* (New York and London: The Century Co., 1932), pp. 122 ff. A proposition p strictly implies q means that it is not possible for both p and not-q to be true, or, in Lewis's notation:

$p \dashv q \blacksquare = \blacksquare \sim \Diamond (p \sim q)$ Df.

where $\dashv$ stands for "strictly implies,"

$\Diamond$ " " "it is possible that,"

$\ldots = -$ Df. " " "... is by definition equal to —,"

and the square dots set off immediate constituents.

adoxical forms of material implication are not without their popular expressions in Chinese (and sometimes in English, too). Thus, if a Mr. Wang insists that *p* is false, he will say: "If *p* is true, my name is not Wang." That is to say, a (to him) false proposition (*p*) implies anything (such as that his name is not Wang). Another common Chinese saying is: "Only if the sun rises in the west, will such and such (impossible) things happen." (Compare "I will eat my hat" as a safe bet.) Here, "only if *q*, will *p* be so" takes the form in Chinese *Chwufei q, tsair p*, where *chwufei* introduces a necessary condition for what is introduced by *tsair*, "only then." Hence, the happening of the impossible implies anything (such as the sun's rising in the west). On the other hand, when men swear to be brothers, they will say: "No matter if the mountains collapse or the sea dries up, our loyalty to each other will remain." In other words, a true proposition (about their mutual loyalty) is implied by any proposition (such as that mountains collapse or that the sea dries up). (Compare "in sickness or health," etc., in a marriage vow.) The paradoxes of material implication are, therefore, sometimes not so paradoxical to Chinese logic.

3. "Or" —Whitehead and Russell take "not" and "or" (symbolized v) as primitives, and define "if—, then ..." (symbolized—⊃...) in terms of them as a derived concept, thus:

$p \supset q \quad \blacksquare = \blacksquare \quad \sim pvq \quad \text{Df.} \quad (1)$[①]

In Chinese grammar one does exactly the reverse. Instead of saying *p* or *q*, the preferred way (that is, the most frequent way) of saying the same thing is: If not *p*, then *q*. Example: *Nii bu lai woo jiow chiuh*, "If you don't come, I then go," i.e., "Either you come or I go." Or, *Bush nii lai jiowsh woo chiuh*, "If it is not a case of your coming, then it is a case of my going."

Not that there is no word for "or" in Chinese. The word is *huohsh* or *huohjee* (often abbreviated to *hesh* or *heje*), or simply *huoh* in the literary style.

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① Alfred North Whitehead and Bertrand Russell, *Principia Mathematica* (2nd ed., Cambridge: Cambridge University Press, 1925), Vol. I, pp. 7, 11.

Now, *huoh* has the root meaning, still alive in the literary style, of "someone," "somebody," and *huohsh* or *huohjee* means "some cases," so that *Huohsh nii lai huohsh woo chiuh* means, literally, "In some cases you come, in some cases I go," the two presumably covering all the possibilities—nothing being understood as to whether they overlap. (The question as to whether *huohsh* in inclusive or exclusive has, like that about the English "or," the same ambiguity in common Chinese usage.) But by far the preferred way of saying "or" is to turn it into its "if... then" equivalent, so that, in the spirit of Chinese grammar, if "v" denotes *huohsh*, "⊃" denotes *jiow* (apart from word order) and "~" denotes *bu*, we can turn Whitehead and Russell's definition around and make it read:

$$pvq \quad \blacksquare = \blacksquare \quad \sim p \supset q \qquad \text{Df.} \qquad (2)$$

There is here a slight twist in the sign for p. But if we had written p for $\sim p$ and put it in equation (2), it would have taken exactly the same form as equation (1) reversed.

So much for "or" in statements. As for "or" in questions, we shall take it up after discussing "and" in the next section.

4. "And" —There is no true co-ordinate conjunction "and" in Chinese.① Between nouns we use the words *gen*, "following," *torng*, "together with," *hann* (also pronounced *hay*, *her*), "mixed with," and in the literary style we have *jyi*, "reaching (the next item)," *yeu*, "giving." Joining predicates or statements there are adverbs *yow*... *yow*, "moreover... moreover," *binq-chiee* "moreover," *erlchiee*, moreover, *yee*, "also," and the literary style has the frequent *erl*, commonly translated as "and," "and yet," "but," etc., but actually a

① Morris Swadesh once compiled a "culture-free vocabulary" of two hundred words, intended for use in eliciting native equivalents when recording the languages of all cultures. In alphabetic (and, therefore, semantically quite arbitrary) order, the first group of five words were "all," "and," "animal," "ashes," and "at." Except for "animal" and "ashes" it would be very difficult to find word-for-word Chinese equivalents for these words. That is, three of the first five words were not at all culture-free, but were features of the English language, or at least of the Indo-European languages.

resumptive word for the most part.① Those words are all logically equivalent, as far as truth values are concerned.

The upshot of all this is that co-ordination in Chinese consists of mere juxtaposition, all "and"-like words being structurally either verbs or modifiers. Thus, *Shiansheng taytay bu tzay jia*, "Mr. (and) Mrs. are not at home." Compare the French (*monsieur-dame*). *Ta lao daa ren mah ren*, "He all the time beats people (and) scolds people." None of the "and"-like words is needed here or affects the truth value, whether put in or left out. This usage happens to agree with the usual abbreviated logistic notation, which makes simple juxtaposition represent conjunction.

Having disposed of "and" by juxtaposition, we are now ready to deal with "or" in questions. It is well known that a question in English such as "Will you eat rice or noodles ?" is ambiguous without an indication as to the intonation with which it is asked.② With a rising intonation it means "Will you eat one of these things ?" and the expected answer will be "Yes" or "No." This is the "or" of logical disjunction, and the Chinese equivalent will be: *Nii chy fann huosh chy miann ma*? or *Nii bush chy fann jiowsh chy miann ma*? which were the two forms discussed in the preceding section. But if the English question is asked with a rising intonation on "rice" and a falling intonation on "noodles," then a choice is requested, and the Chinese way of asking such a question is to treat it as a grammatical *con*junction of two co-ordinate terms, offered to the listener for him to make a choice. The simplest way to ask such a question is to use co-ordination by juxtaposition: *Nii chy fann chy miann*? or, more politely from a waiter, *Nin chy fann chy miann a*? It is, in fact, simply a part of the menu read aloud.

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① Walter Simon, *Der Erl Jiann* and *Der Jiann* in *Luenyeu*, *Asia Major*, Vol. II (1951), Pt. I, pp. 46-67; Functions and Meanings of *Erl*, *Asia Major*, Vol. II (1952), Pt. II, pp. 179-202; Vol. III (1952), Pt. I, pp. 7-18; Vol. III (1952), Pt. II, pp. 117-131; Vol. IV (1954), Pt. I, pp. 20-35.

② This is true as a rule; in special cases, however, either the linguistic or the situational context may resolve the ambiguity and make intonation informationally redundant.

Now, the common assumption made by English-speaking teachers and students of Chinese that the "or" in a disjunctive question is to be equated to *hairsh* is all right as a rule of thumb for translation purposes, but quite misleading as grammatical analysis. The fact of the case is that before the terms of the grammatical conjunction one can add optionally *sh*, "is (a case of)" or *hairsh*, "after all, is (a case of)." Thus, all the following forms occur:

(a) Nii	chy fann	chy miann?
(b) Nii	chy fann	sh chy miann?
(c) Nii	chy fann	hairsh chy miann?
(d) Nii	sh chy fann	sh chy miann?
(e) Nii	sh chy fann	hairsh chy miann?
(f) Nii	hairsh chy fann	hairsh chy miann?①

Form (c), with zero preceding *hairsh*, achieves the strongest effect with a minimum of effort, and has thus become the favorite (most frequent) among all the possible forms. Hence the common practice of equating *hairsh* to "or." It should be repeated, however, that a disjuctive question in Chinese is grammatically a conjunction, which usually takes the form of simple juxtaposition.

5. "All" —There is no common adjective or pronoun for "all" in Chinese. To say something about every member of a class, an adverb *dou*, "in all instances," or *chyuan*, "completely," or their equivalent in literary Chinese, *jie*, is inserted between the subject and the verb, the usual position for adverbs. Teachers of elementary Chinese will recall the common error of putting *dou* before the subject. The trouble is, of course, that *dou* is an adverb and not an adjective.

There is an apparent adjective, *farn* or *farnsh*, usually equated to "all" by

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① The remaining three of the nine possible permutations (*sh*-zero, *hairsh*-zero, and *hairsh*-sh) are rare, because a stronger form followed by a weaker form would make something of an anticlimax. They are, however, not completely unheard. As a matter of historical fact, I was typing this section of the paper when my wife called from the kitchen "*Yuan Renn, Niihairsh chy fann chy miann*?" which was of the form of *hairsh*-zero. For a longer list including the rarer forms, see p. 258.

translators. For example, in translating John Stuart Mill's *Logic*, Yan Fuh (Yowling) used such forms as: *Farn ren jie yeou syy* for the universal proposition "All men are mortal."① In the colloquial language one can say: *Farnsh falianq de doush jintz*, "All glittering things are gold." But these are really hypothetical propositions in disguise. We noted that the "if" in "if... then" constructions is usually omitted and that even the "then" can be omitted if there is another adverb. This is precisely what happens here. Instead of a possible *tzer*, "then," we have *jie*, "in all cases," or, in the second example, instead of *jiow* we have *dou*. A structural translation of the second sentence should therefore read: "Generally being ▪glittering ▪things▪▪in all cases ▪ are▪ gold."

As for the usual form which the adage about glittering things takes in Western languages, a good deal of discussion is usually given to it in textbooks of logic.② Logical-minded persons make a point of avoiding the form "all... not" altogether, and of always saying unambiguously either "Nothing that glitters is gold" or "Not all that glitters is gold." Since, as we have seen, the "all"-notion, like the "not"-notion, is expressed in Chinese by an adverb, and, since in Chinese syntax the modifier precedes the modified, it becomes a rather simple matter to decide the logical force of *bu dou*, "not all," and *dou bu*, "universally not," i.e., "without exception, not (so)." The ambiguity of "All that glitters is not gold" would never enter into a Chinese book on logic, therefore, as it never did in old texts, were it not a part of school logic in Western languages. The problem is, therefore, not one that should be described as "culture-free."

An alternative form for "all" as applied to individuals of a class is to repeat

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① Yan Fuh, *Muhle Mingshyue* 穆勒名学 (2nd ed., Shanghai: Commercial Press, 1923), Vol. II, p. 24. For a longer list including some rarer terms, see my "How Chinese Logic Operates" (chapter 19 in this volume).

② For a discussion of the question as regards French, and incidentally also German, see Adolf Tobler, "Tou ce qui reluit n'est pas or," *Vermischte Beitrage zur Französische Grammatik*, Erste Reihe, 2te aufl., 1902, 190-196.

the auxiliary noun ("classifier"), or in the case of the noun *ren*, "person," to repeat the noun, followed later by *dou*, "in all cases." The usual translational equivalent for this is the adjective "every." Thus *Beenbeen shu dou shaule*, "Every volume of the books has been burnt." *Renren dou bu shinn ta*, "Every person, without exception, does not believe him," i.e., "Nobody believes him." If it is the universality that is to be denied, the negative *bu* or *bush* is placed before the reduplicated auxiliary noun (or the noun in the case of *ren*). *Bush renren dou deei chiuh*, "Not everybody needs to go," which in idiomatic English sometimes takes the form: "Everybody does not need to go." Since the *dou*, or some other adverb in its place, is always used with such reduplicated forms, nothing of additional logical import is involved here.

6. "There is"—There is no "there is"; there is only "has." "There is a man" is rendered by *Yeou ren*, literally, "Has man."① But who has? What has? I must postpone the answer to this question to a later section (§ 10). Suffice it to say here that frequently a Chinese sentence begins with an impersonal verb, which needs no subject. If the speaker is pressed for an answer as to *what* has, he is apt to give the place, time, or circumstance as the subject. In the most general form he may say *tianshiah yeou*, "the world has," as in: *Tianshiah mei yeou jehjoong shyh*, "The world has no such thing," i.e., "There is no such thing in the world." Incidentally, because both "there is" and "has" are covered by the same word, *yeou*, which has nothing to do with the word *sh*, "is," in the sense of "is a," the consequence is that "the problem of being" in Western philosophy is very difficult to make intelligible Chinese sense unless it is specially dissociated from *sh* and associated with *yeou*.

7. "Some"—With "there is" identified with "has," I am now in a position to deal with "some" in Chinese. As is well known, Aristotelian logic took no cognizance of the existential nature of the so-called particular propositions.

① It is true that the French form *il y a* comes pretty close to the idea of *yeou*. But the important difference is that while *a* still needs the grammatical subject *il*, *yeou* does not need even a grammatical subject.

Modern logic makes the existence explicit by symbolizing "Some *x's* ø" as:

$$(\exists x) \blacksquare \phi(x) \qquad (3)$$

that is, "There exist some *x* or at least one *x*, such that ø is so of *x*."① Now, there is no adjective "some," just as there is no adjective "all" in Chinese. The normal way of saying, "Some men tell the truth" is *Yeou de ren shuo jen huah*. Now, we have just seen that *yeou* means "has" or "there is"; *de* is the general subordinative suffix. Therefore, *yeou de ren* means "men that there are." In other words "Some men tell the truth" is expressed in Chinese in the form: "There are men who tell the truth," which is what formula (3) says.

8. "Such that"—Formula (3) is usually read in English as "There is an *x* such that," etc. Since Chinese grammar requires that the modifier must precede the modified, it would seem that to render a construction involving "such that" would need some very complicated recasting. But actually there is nothing simpler. As we have just seen (§7), all one does is to go right on as if one were reading formula(3) in Chinese. "There are men such that they tell the truth" becomes *Yeou de ren shuo jen huah*, "Men that there are tell the truth." A slightly different construction is *Yeou ren shuo jen huah*, "There are men [*or* is a man] who tell[s] the truth." This form is even more explicit as regards existence. That this word order and sentence construction is possible in Chinese is because of the pivotal position of *ren*, which can serve at once as the object of the preceding verb and as the subject of the following verb;② and since the predicate, *shuo jen huah*, "speak the truth," regularly follows the subject, this is in complete consonance with Chinese construction.

9. Topic and Comment — The grammatical meaning of subject-predicate in a Chinese sentence is not that of actor-action, as in most Indo-European languages, but topic-comment, which includes actor-action as a special case. The

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① I say "so of *x*" rather than "true of *x*" in order to avoid certain technical complications which need not concern us here.

② See Otto Jespersen's treatment of *him run* in *saw him run* as subject-predicate in his *Analytic Syntax* (Copenhagen: Levin and Munksgaard, 1937), p. 53.

logical import of this generality of the subject-predicate relation is that it is much nearer the form used in the symbolism ø (a), where *a* need not represent the actor of some action ø but so long as ø is so of *a*, then one can say ø (a). Furthermore, if more terms than one, say *a*, *b*, *c*, . . . are involved in a predicate *R* about them, so that the statement takes the form *R* (a, b, c, . . .), then the Chinese sentence can take the form of a set of multiple subjects with the predicate *R*. For example, *Jiannchyau bayueh ellshyrsanryh Gwojih Dongfangshyuejee Hueyyih shiuandwu luennwen*, "Cambridge August twenty-third International Orientalists Congress read papers." This sentence could be made more like English by adding preposition-like words such as *tzay*, "is at" or "is on," or words for actors such as *hueyyuan*, "members," but the point is that the form as given is just as normal Chinese without those additional words. Two points are to be noted here. First, note that neither "Cambridge" nor "August twenty-third" nor the "Congress" performs the action of reading the papers, and yet the construction is correct Chinese. Secondly, although a Chinese sentence can have multiple subjects, these subjects, limited as they are by certain formal features of pause, particle, and word order, are not quite of the same degree of generality as the terms *a*, *b*, *c*, . . . *in R* (*a*, *b*, *c*, . . .). In this particular sentence, for example, the word *luennwen*, "papers," because of its position, among other factors, is a grammatical object to the verb *shiuan-dwu*, "read," and cannot be a grammatical subject in Chinese, though it can very well be one of the "arguments" in the parentheses. It should be remarked in passing that a very common type of multiple subjects (to which the preceding example belongs) is in the form of a "Chinese puzzle," in which *S-P* is used as *P′* to *S′*, *S′-P′* in turn is used as *P″* to *S″*, and so on. This, however, does not conflict with treating the same sentence, by another analysis, as *R*(a, b, c, . . .).

10. "Has man," "Downs rain," etc. —Finally, there is a fairly frequent sentence-type which consists of a predicate only, with no subject expressed or understood. We have already met with an example of this in the sentence *Yeou ren*, "There is a man," literally "Has man." Natural phenomena are often ex-

pressed in this form. Examples are: *Shiah yeu le*, "downs rain, —it is raining"; *Chii wuh le*, "Rises fog, —there is a fog"; *Tzooule shoei le*!, "Runs (away) water!," euphemism for "There is a fire!"; *Tuey shau le*, "Subsides fever, —the fever subsides." These English translations are somewhat misleading because they seem to be cases of inverted subject-verb order. But such a grammatical analysis is not available for the Chinese examples; a form like *tzooule shoei le* is a typical verb-object construction, and the subject-predicate word order, in the grammatical sense, has no exception in Chinese.

Sentences consisting of such impersonal predicates cannot be treated in terms of Aristotelian logic, even when generalized to predicates not confined to those containing a copula. Though modern Western logic takes no explicit account of impersonal sentences, they should present no special difficulty. If the impersonal verb has no object, the sentence need not be logically analyzed further; they are just p, q, etc. If there is an object considered as a variable, we have the usual form $\phi(x)$ for propositional functions. In other words what in Chinese grammar is the object of an impersonal verb becomes the subject —the "argument" —of a function. If, for instance, I want to say: "I will come, no matter if it rains (*shiah*) rain, snow, hail, cats, or dogs," it will take the form:

$$(x) \quad \blacksquare \quad s(x) \supset c \qquad (4)$$

where (x) stands for "for all values of x,"

s( ) *shiah*, "to rain" (with its grammatical object as its argument),

c "I will come."

So far as the function s is concerned, the truth value is unaffected whether x is the grammatical subject (in "Rain falls") or the grammatical object (*Shiah yeu*).

A very interesting issue has been raised① as to the significance of the absence in Chinese of an abstract "it," to serve as the substantive subject in the

① In a recent letter from Nelson T. Johnson, former United States Ambassador to China.

English "It rains," the German "*Es regnet*," the French "*Il pleut*," etc. Since —I am paraphrasing the question —scientific thought presupposes an objective consideration of neutral matter, would not, then, the lack of a grammatical "it," and the consequent lack of the ability to consider objective, neutral matter, be the real explanation of the failure on the part of the Chinese to develop a system of natural science before the advent of Occidental science?

On this question I have two points to make. In the first place, modern Western science is only a matter of the last three or four hundred years, which is a very small fraction of recorded history and even a more minute fraction of the history of human culture. Any set of fortuitous circumstances —fortuitous in the sense of being non-racial and non-linguistic —would have been enough to lead to such a relatively small difference in the starting time of the scientific phase of history. It would indeed be of the greatest interest if research should bring out what those fortuitous circumstances were. That is one of the things which will come out of such research as has been carried on by Joseph Needham and Wang Ling.① But a full explanation will probably not be given tomorrow or even next year.

The second point is that the conception of substantive matter is only one phase in the development of scientific thought in the West. It is no more universally basic than the subject or the substantive is universal in human language. It happens that in the physical theories of today it is possible to have fields (of force) without matter to produce such fields. It is possible to have waves without matter to vibrate. As a native speaker of the Chinese language, I feel tempted to say: Ha! here is proof that the Chinese language is much superior to Western languages for science, not for old-fashioned Newtonian science, but for twentieth-century modern science, for in what Western language can one say, without distinction of person or number, simply "Moves" instead

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① Joseph Needham, *History of Chinese Science and Civilization*, Vol. I. (Cambridge: Cambridge University Press, 1954.)

of "It moves," or "Vibrates" instead of "It vibrates" ? Since, however, I consider myself to be also a student of the language, I must try to be more impartial, for, according to de Broglie's theory of equivalence, the same phonomenon can be described either as a moving particle or as a train of waves; one is as true a description of the matter, or, for that matter, of matter, as is the other. The only generalization to make about language and science is, therefore, to make no generalizations. And with apologies to Bertrand Russell on the "Theory of Types," even the last remark, the generalization that no generalization should be made, is an untenable generalization. And so was the preceding statement, and so on ad infinitum.

Chinese Terms of Address*

Under the general heading *terms of address* I propose to describe (1) *vocatives*, or terms of direct address to call persons by, and (2) *designatives*, or mentioning terms, which one uses as part of connected discourse in speaking of persons. In the order of approximately increasing complexity, I shall discuss pronouns, proper names, titles, and kinship terms. The scope of the present account will include only current usage in colloquial Mandarin. But, unless otherwise qualified, what I have to say will in fact be valid for large sections of China.

Excellent descriptive and historical studies of Chinese kinship terms have been made by numerous writers.① The present study is chiefly concerned with the conditions of actual use in various interpersonal relations, the grammatical status of the terms of address, and the formal conditions for their occurrence.

1. Pronouns. Pronouns are practically always designatives. Occasionally one hears *Uai*, *nii*!② as one occasionally does the approximate English equivalent *Hey*, *you*!. But the vocative status of *nii* here is somewhat doubtful, since it can be regarded, in Chinese syntax, as a nominal predicate in a predicate sen-

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* From *Language*, 32:1, 1956.

① C. C. Wu, The Chinese family, *AA* 29. 316-25 (1927); T. S. Chen and J. K. Shryock, Chinese relationship terms, *AA* 34. 623-69 (1932); Alfred L. Kroeber, Process in the Chinese kinship system, *AA* 35. 151-7 (1933); H. Y. Feng, Teknonymy as a formative factor in the Chinese kinship system, *AA* 38. 59-66 (1936); id., The Chinese kinship system, *HJAS* 2. 141-275 (1937); Paul K. Benedict, Tibetan and Chinese kinship terms, *HJAS* 6.313-37 (1942); Joseph H. Greenberg, The logical analysis of kinship, *Philosophy of science* 16.58-64 (1949). Though the last article does not deal specifically with Chinese kinship systems, it opens up possibilities for reducing complicated kinship relations to a rigorous postulational treatment.

② For a brief statement about the National Romanization used here, see *Lg*. 29. 381 (1953). A dot before a syllable indicates a neutral tone, or atonicity; a circle indicates optional neutral tone.