INTRODUCTION TO MORPHOLOGY

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Draft – for class use

Supplement to chapter 6 - Inflection

6 FEATURES, TYPOLOGY AND EXPLANATION

In this discussion we will examine the role that a restrictive formalism plays in explaining morphological universals. The discussion will touch on various issues of methodology, most notably those having to do with the construction of a *restrictive* theory via application of the *scientific method* of hypothesis formation and testing.

6.1 Introduction

Two important considerations in the formulation of a theory are the criteria of *descriptive adequacy* and *explanatory adequacy*. A theory is descriptively adequate to the extent that the tools of the theory are rich enough to state all relevant empirical observations. For example, in a system based on features, there must be sufficient features to encode all the differences that arise in natural languages. But descriptive adequacy is only a piece of the puzzle. In addition to describing what we see, linguistic theory is deeply concerned with explaining what we don't find. A theory satisfies the criterion of *explanatory adequacy* if it correctly excludes impossible languages.

An important related concept is that of *falsifiability*. For a theory to be explanatory, it must be falsifiable. That is, the theory must make predictions that in principle could be found to be false. The most straightforward way for a theory to meet this condition is for it to make predictions that certain thing (in our case patterns in language) should never arise. Such claims would be bold, and easily falsifiable by showing that some natural language has the hypothetically impossible pattern. If the data are correctly described, and cannot be analysed in some other manner consistent with the theory, then the theory has been refuted and must be refined or abandoned.

Below, we will illustrate the development of some such claims in the investigation of systems of person features. In particular, we will show one domain in which minimally different theoretical assumptions can be directly contrasted with respect to both descriptive and explanatory adequacy; a fundamental tool in choosing among competing theories.

Systems of person features (as realized in pronouns, clitics and agreement) are a useful basis for this illustrating these criteria, because a great deal is known about them from a vast array of languages. The fact that these questions have been investigated over an extremely large sample of languages makes it very unlikely that the unattested systems proposed below are simply

accidental gaps—possible, but not attested in the sample. Considerations of probability are such that after looking at thousands of languages, had these systems been possible, they would have occurred.

6.2 Preliminaries to a theory of person

Every natural language grammatically encodes a three-way distinction among the speaker "first person", the hearer "second person", and others, i.e., non-participants in the speech act "third person". The distinction is not signaled everywhere it could be (for example, English present tense verbal agreement distinguishes only third person singular from all others), but the distinction is marked somewhere in every language. In English, the three-way distinction is clearly marked in the pronouns, as seen for example in the nominative (subject) paradigm presented in (1). Note that in addition to the three-way person contrast, English marks a number distinction between singular and plural, and in the third person singular, the pronouns mark a further three-way gender/animacy contrast.

(1) English personal pronouns:

			singular	plural
1	"speaker"		I	we
2	"hearer"		you	you
3	"other"	masculine	he	they
		feminine	she	
		inanimate	it	

Before we proceed any further, it is important to observe that the English pronouns are monomorphemic—they cannot be segmented into smaller units. Thus we recognize seven distinct vocabulary items in (1), that the English learner must simply memorize (i.e., we might have expected eight, but second person *you* shows *syncretism* for number).

The criteria of **morphological simplicity** will be crucial in the discussion that follows and in the statement of the universals below. Many languages have ways of combining pronouns, with the result that the expressive power of the basic system is increased.

We can illustrate this with an English example. We noted above that English makes a familiar contrast in number between singular and plural. Some languages have more complex number systems. For example, some languages have a category *dual* in their pronoun inventory, used to express reference to exactly two individuals. A language in which *dual* is distinguished in the pronominal inventory is XX, as illustrated in (2).

(2) DUAL (**fully suppletive**)

In languages with a dual, the plural is more restricted in its usage than it is in English. For example, whereas in English, since this book has exactly two authors, you might complain about

the contents by saying "*They* are concerned with esoteric topics", while you would use the same pronoun to refer to all the professors in the Arts faculty, saying likewise "*They* are concerned with esoteric topics". The relevant distinction is not alien to us, and can be easily formulated by adding additional words: *the two of them* versus *they all*, or for example in a sentence like *We **both** need to do this*. By contrast, a speaker of XX would have to make the distinction between the two authors and the many professors by using the appropriate pronoun, and the mono-morphemic pronoun alone would be sufficient to signal the distinction.

The theory we will discuss below is a theory of morphologically simple or *grammaticalized* categories, that is, those that are reflected in morphemes that allow no further decomposition. According to this criterion, dual is a morphological category in XX. In English, the dual is certainly a plausible conceptual category in English, and indeed we have specialized vocabulary for this number, such as *pair, twin, both, either, dual* (and for some speakers: *between* [vs. *among*]), but the category *dual* is not grammaticalized in the English number system.

Based on the discussion thus far, one might be tempted to construct a toy theory of person systems with the following properties:

(3) The toy theory

a. UG has three person categories {1,2,3}

b. these have the meanings "refers to speaker", "refers to hearer" and "refers to other" respectively;

c. UG recognizes three number categories {singular, dual, and plural}
[subject to parametric variation]

d. the 'paradigm space' of person systems is defined by combining person features with number features

This is certainly a useful starting point, but as we proceed in what follows, we will see that the theory based on assumptions (a) and (b) will fail to meet the criteria of descriptive and explanatory adequacy, and we will show how this theory comes to be replaced by a theory that is more restrictive and more explanatory. In section XX, we will introduce an apparent counter-example to the more restrictive theory, and use that to illustrate one way in which the theory has helped us to refine our understanding of cross-linguistic data. In this particular case, it appears that that the theory is correct and the initial description of the data was inaccurate.

6.3 Inclusive pronouns

The anthropologist Franz Boas was perhaps the first to note explicitly that the English first plural pronoun *we* has at least four conceptually distinct uses, all of which can be said to be first person plural in some sense. See also Quirk et al, p.340?

> One use, which we may call the *inclusive* is used to refer to the speaker and the hearer together. For example, if I say to a friend *Why don't we go see a movie*? a natural interpretation is that I am suggesting that both the friend (the hearer) and I (speaker) go.

The inclusive use may be contrasted with the *exclusive* use, in which the pronoun is used to refer to the speaker and some non-participant in the speech act, but excluding the hearer. For example, if I say to a babysitter *We are going to a movie, please put the kids to bed at 9*, the context most naturally favours a meaning in which the hearer (the babysitter) is not included in the reference of the pronoun *we*.

The third use identified by Boas is the *complete* we. This would be a usage that includes the speaker, the hearer and a third party. If I am meeting two friends at 8pm to go to a movie, I could say to one on the phone *Why don't we meet at the Rialto theatre?* Here the suggestion is clearly that all three of us (myself, the friend I am speaking to, and the other friend not in the conversation) all meet at the designated place.

The fourth, and least obvious usage is what Boas called the "true first person plural." This would be used to refer to a plurality of speakers, for example, a chorus speaking in unison (as in the Monty Python film *Life of Brian* when the crowd chants in unison *We are all individuals*), or perhaps when football fans chant *We are the Champions* (ex. due to Cysouw). We'll call this the *groupspeak* usage; it is also called the *collective* usage.

Although English uses the same pronoun (*we*) for all four of these senses, (plus some special ones such as the "royal we", such as Queen Victoria's *We are not amused*, or the "we" used when talking to cute things such as babies *Oh my, aren't we cute?*), some languages mark distinctions that English does not. A rather common distinction is between the first two, the *inclusive* and *exclusive* first person plural.

This is seen, for example, in Kayardild, an Australian Aboriginal language:

(4) Some languages make additional distinctions in the plural, not made in English or French:

Kayardild (S. Wellesley Islands, Northern Australia)

		singular	dual	plural
	1	ŋada	ŋara	ŋalta
"inclusive"	1+2	*	ŋakura	ŋakulta
	2	ɲiŋka	kira	kilta
	3	nija	pira	pilta

(Note that there is no "inclusive" singular pronoun in Kayardild. What would it mean? If it could ever be used at all it would be specifically for talking to oneself: a single individual who is both the speaker and the hearer. See also Ilocano section, below)

As with the dual, English speakers can readily conceive of the distinction between inclusive and exclusive *we*, and we can use extra qualifying expressions to make our intentions clear when it is not clear from context, but the distinction is not grammaticalized in English.

A grammaticalized inclusive/exclusive distinction presents our toy theory with its first challenge of descriptive adequacy.

6.4 Formalizing person

The question has to do with how we conceive of the interpretations of the features we have posited (1,2,3). Our toy theory in (3), specifically assumption (3b), is what we might call the *referential hypothesis*. That is, applied to pronouns, the assumption is that the feature [1] means that the pronoun bearing that feature "refers to" or "denotes" the speaker, the feature [2] refers to the hearer, etc.

An alternative assumption, which we will call the *inclusion hypothesis*, might say that the feature 1 means rather that the pronoun bearing that feature refers to a group (or in the singular, a group of one) that includes the speaker, etc.

Only one of these theories is descriptively adequate as regards the inclusive pronouns, as presented. The fact is that an inclusive plural pronoun refers to a group that *includes* both the speaker and the hearer. It does not refer to some entity that *is* simultaneously the speaker and the hearer (and likewise not to some other notion such as the union or intersection of the speaker and hearer).

Upon reflection, Boas's observations alone might have made this clear. The first person plural in English must mean "a group of people that includes the speaker", rather than (just) "a plurality of speakers". All four uses of the English pronoun *we* identified above share the property that they refer to a group that includes the speaker, but only the *chorus*/*groupspeak* use is truly a plurality of speakers.

Only the *inclusion* theory is descriptively adequate with regard to the plural pronouns, and we must therefore modify assumption (3b) accordingly.

(3) b' 1 means includes the speaker
2 means includes the hearer
3 means includes an other (i.e., a non-participant)

Note that (3b') yields the correct interpretation for the singular pronouns, although the formalization comes out somewhat awkward-sounding. The pronoun *I* must mean (formally) a group with one member that includes the speaker. Given that the singular makes this a one-membered group, this is for all intents and purposes equivalent to saying it is the speaker.

<For more on this topic, see the section on Ilocano, below>

Thus far, we have been discussing questions of descriptive adequacy, i.e., forming a theory of person features that will allow us to describe all the known systems (though we have seen only a few representative examples). We are now at a point, though, where we can ask questions of explanatory adequacy, and it is to these that we now turn.

6.5 Why there is no third person

The classical feature inventory {1, 2, 3} (understood as inclusion), when combined with number, yields a possible inventory of 7 feature combinations in the plural. These are:

(5)	a.	1	groupspeak "we"
	b.	1 + 2	inclusive "we"
	c.	1 + 3	exclusive "we"
	d.	1 + 2 + 3	complete "we"
	e.	2	exclusive "you"
	f.	2 + 3	inclusive "you"
	g.	3	"they"

The first four combinations in (5) are the four uses of *we* identified by Boas. Kayardild uses *xx* for the meanings in (5b) and (5d), and *xx* for (5a) and (5c). The differences between (5e) and (5f) is fairly easy to conceive of. In the plural, (5e) would consists of a group made up only of hearers (i.e., as when a teacher addresses a class, or when a story-teller addresses the audience); this contrasts with (5f) which has a sense that includes not only the hearer but others not present.

Thus, we see that our nascent theory predicts a maximal seven-way distinction in the plural pronouns. As it happens, Kayardild instantiates the actual attested maximum. Various of the distinctions in (5) are never made in any language. These universal patterns of syncretism are:

(6)	a.	(5a) = (5c)
	b.	(5e) = (5f)
	c.	(5b) = (5d)

That is, in all known languages, if there is a morphologically simple pronoun used to refer to a plural group consisting only of hearers (2pl = (5e)), then that same pronoun will be used for reference to a plural group including the hearer and others (2+3 = (5f)). This is expressed as the syncretism in (6b). Discussion of this ambiguity in English *you* in Lyons 1968: p.277. Similarly, (6a) asserts that no language has a morphologically simple pronoun with the sole function of the "groupspeak" we, used specifically for speaking in unison, and (6c) asserts that no language has a morphologically simple "complete" *we* distinct from an inclusive plural.

[The syncretism in (6c) is the only one that is controversial, we will discuss one potential counter-example in the section on Ilocano, below.]

In this case, our toy theory in (3), incorporating (3b), is descriptively adequate—it certainly allows us to describe all the attested systems, and it is therefore not falsified. Nevertheless, because this theory incorporates the three person features {1,2,3} it is too *powerful*—it can readily describe distinctions (and thus systems incorporating those distinctions) that never occur. Importantly, we have reliable data in this area on a vast number of languages, literally thousands. The chances that the unattested systems are accidental gaps are therefore remarkably slim. If these systems had been possible, we should have come across them by now. (Indeed, occasionally it has been proposed that languages do exist marking one of the putatively impossible distinctions, but these have been susceptible to alternative analyses, we will discuss

one such apparent counter-example in section xx below). Thus, while the classic inventory of {1,2,3} is sufficient for descriptive purposes, it fails to shed any light as such on why various possible distinctions are unattested in any language.

There is an alternative theory, however, which is more explanatory than the classic theory. Consider the combinatorial possibilities if we replace the classic {1,2,3} feature system with the binary system [±speaker] and [±hearer] (where of course, these are interpreted as "does or does not include the speaker and hearer", respectively). This system has no feature corresponding to the third person. Free combination of the features yields only four possibilities, rather than seven; the column on the right indicates the corresponding feature combinations in (5). (Speaker is sometimes called "Author" and hearer is sometimes called "Addressee".)

(7) a. [+ speaker, + hearer] = "first person inclusive" (5b), (5d)

b. [+ speaker, - hearer] = "first person exclusive" (5a), (5c)

c. [- speaker, + hearer] = "second person" (5e), (5f)

d. [- speaker, - hearer] = "third person" (5g)

The theory in (7) formalizes an intuition expressed, for example, by the French linguist Émile Benveniste (1956), namely, that "third person is non-person", the absence of reference to a participant in the speech act.

Inspection of the category combinations in the right-hand column of (7) will show that the categories here accurately describe the Kayardild case, drawing the correct distinction between first person inclusive and exclusive. More importantly, the feature system in (7) forces the universal syncretisms identified in (6). The "missing" distinctions simply cannot be made with simple categories.

Note that combining elements allows for the formulation of more complex categories. Thus the complex expression *you and she* is described as the complex expression [[- speaker, + hearer] & [- speaker, - hearer]], but not as some category that is simultaneously [+ hearer]and [– hearer]—a contradiction.

Note that the logic of underspecification, introduced in previous chapters, allows for a simple characterization of the difference between English and Kayardild. All four meanings of the first person plural pronoun in English are correctly captured by the feature specification [+speaker], with no reference to hearer. Indeed, the English plural nominative paradigm is accurately described as in (8).

(8) a. [+speaker] ➔ *we* = (5a)-(5d)

b. [+hearer] ➔ *you* = (5e)-(5f)

c. elsewhere ➔ *they* = (5g)

Note that the ordering between (8a) and (8b) is important. If the underspecified entries were given in the opposite order, then the pronoun *you* would incorrectly overgeneralize to environments corresponding to inclusive pronouns in languages like Kayardild, e.g., (5b), (5d).

EXERCISE: Write out the vocabulary insertion rules for Kayardild pronouns given in (4), using the feature system in (8) and the logic of the elsewhere ordering to eliminate redundant features.

EXERCISE: Give data from a language that appears to make the three-way distinction between (5b), (5c) and (5d) < Cysouw; but where this is because there is a dual (hence (5b) = (5d) holds in the plural). QUESTION: The pattern in XX appears to be a counter-example to the putative universal syncretism in (6c); there are distinct pronoun in each of the cells corresponding to (5b), (5c) and (5d). Nevertheless, this does not counter-exemplify the theory, indeed, it is the "exception that proves the rule" in that exactly this pattern is admitted. Why? Hint: look at the "missing" category of inclusive singular in Kayardild – why is the inclusive exclusive distinction not marked in the singular?

6.6 Summary

The discussion above illustrates some important methodological points. For one thing, it illustrates that a careful formalization of the features we choose to use in morphology will allow us to make testable predictions both about the possible contexts of use of our pronouns, and about the range of cross-linguistic variation.

Regarding the first case, we compared two theories of the interpretation of person features. On one theory, person features were held to indicate reference, i.e., a pronoun bearing the feature "2" would "refer to the hearer". This (referential) theory was shown to make the wrong predictions for plural pronouns, for example, in failing to predict that the pronoun "you-pl" can be used not only to refer to a group of hearers, but also to refer to a group that includes the hearer, together with others not present. The correct predictions are made by the *inclusion* theory, which takes a feature such as "2" (or [+hearer]) to mean only that the hearer is included in the group referred to.

Regarding the bounds of possible cross-linguistic variation, we saw that the classical three-valued person system fails the criterion of explanatory adequacy. That is, though it allows for an accurate description of the existing person systems, it overgenerates, admitting of distinctions (and systems making use of those distinctions) that are unattested and likely impossible. The theory with only two binary features in (8) is thus superior as it allows for a description of *all and only* the attested systems of person marking.

The criterion of explanatory adequacy is a central consideration in all areas of generative linguistic theory.

Discussion of falsifiability

6.7 Advanced Section – Minimal/Augmented Number

The theory of person marking involving binary features predicts the syncretisms in (6). Of these, the syncretisms in (6a-b) are uncontroversial. Once again, we must bear in mind that the distinctions are not only conceivable, but also can be expressed by means of circumlocutions (*you and I, and noone else)*, or in some languages, by morphologically complex pronouns. However, these conceivable distinctions are never marked by simple morphological contrasts. The syncretism in (6c) amounts to the claim that no language will have a simple morphological pronoun that specifically refers to a group that includes (at least one) speaker, (at least one) hearer, and (at least one) other person. The Philipine language Ilocano is sometimes claimed to have exactly such a pronoun. The paradigm in (9) illustrates one presentation of the Ilocano pronoun system, with the five-way distinction in the plural.

(9)

SINGULAR		PLURAL	
		1 + 2	ta
1	co	1 + 2 + 3	tayo
		1 + 3	mi
2	mo	2	yo
3	na	3	da

Note that the problematic special pronoun *tayo* is transparently morphologically complex, consisting of the pieces *ta* (1+2) and *yo* (1+3), and hence by rights does not constitute a counter-example. Nevertheless, the example is often discussed in the literature and we must ignore the segmentation of the pronoun for the moment.

The presentation in (9) is misleading in at least two important ways. First, while the last four forms in the 'plural' column are all true plurals, that is, they are used in any context in which the referent of the pronoun is a group of 2 or more individuals, the pronoun *ta* is restricted to a context of one speaker and one hearer.

One could elect to treat this formally as an inclusive dual, but it would then be surprisingly the only dual element in the language (contrast Kayardild, in which all categories have a corresponding dual). Other pronouns, such as *mi*, are not restricted to a dual context. Note, though, that the presentation is in fact misleading.

In a context in which a single speaker addresses a group of hearers, for example, a mother telling her children 'we will go now', the pronoun that is used in *tayo*. That is, *tayo* does not in fact require the presence of a third person. It is not truly a 1+2+3 pronoun.

Instead, the way to think about the Ilocano system is that it exemplifies what is called a *minimal versus augmented* number system. For the pronouns *co, mo,* and *na*, the minimal number of

individuals that these can refer to is one, so the minimal forms are singular. But for the pronoun *ta*, the minimal number of people that this can refer to is two, since it must include both a speaker and a hearer. The pronouns in the right-hand column are augmented—that is, they refer to any number that is larger than the corresponding minimal pronouns. Again, for all but *tayo*, these pronouns thus refer to 'more than one', but exactly in the case of the inclusive, this pronoun means "more than two". Importantly, though, it does not specifically make reference to a group that includes a non-participant.

(10)

	MINIMAL	AUGMENTED
1+2	ta	tayo
1	co	mi
2	mo	yo
3	na	da

Once again, we see that a perfectly plausible category, and indeed one that has often been claimed to exist, namely the special [1+2+3] pronoun, can easily be described by the classical apparatus. The more restrictive theory involving only binary features does not admit of this type. The more restrictive theory is more readily falsifiable, and it is exactly this property which makes it more explanatory (if it is not falsified).

6.8 extra info

6.8.1

Some languages mark fewer distinctions than English, while others mark more. An example with fewer distinctions is (Spoken) Mandarin Chinese, which does not make any gender or animacy distinctions in the third person. In addition, unlike English, the Mandarin plural pronouns are transparently bi-morphemic, formed by adding the plural suffix *–men* to the singular pronouns. The Mandarin system thus consists of only four vocabulary items.

(11) Mandarin (Chinese) personal pronouns: ADD TONES

		singular	plural
1	"speaker"	wo	wo-men
2	"hearer"	ni	ni-men
3	"other"	ta	ta-men