Pronoun Acquisition and the Morphological Feature Geometry

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Abstract

The acquisition of pronouns has received limited attention in the literature, and there are few studies which deal with this topic in detail. From the data available, clear and sometimes surprising patterns of uniformity and variability emerge. Previous attempts to account for these patterns have all faced similar problems, specifically in explaining the heterogeneous initial set of pronouns (first person singular, and third person singular inanimate), and in accounting for the variation that is found. In this paper I find that these previously problematic areas are readily accounted for using the hierarchy of morphological features proposed by Ritter and Harley (1998).

1. Introduction

The hierarchical arrangement of both the phonological and the syntactic components of language have been extensively studied, but only recently have there been attempts to determine whether or not the morphology is likewise hierarchically arranged. Ritter and Harley (1998) provide a detailed proposal for a morphological feature hierarchy, based on the crosslinguistic interaction and behavior of phi-features in adult languages. In this paper, I test Ritter and Harley's model against acquisition data, and find that, with minor modifications, it successfully accounts for both the uniformity and the variability found in the acquisition of pronouns.

The organization of the paper is as follows. I begin by outlining the theoretical assumptions which form the backbone of my analyses, followed by a survey of the relevant material from the literature. In response to the consistent patterns I find in the recorded acquisition data, I step back from the analysis to consider the advantages of proposing default interpretations within the Ritter and Harley model. Based on child and adult data, I incorporate the notion of underspecification into the geometry and return to the acquisition data. Examining in detail the acquisition paths of two English-learning children, I find that all the observed patterns there are neatly accounted for. I conclude with a brief summary of the paper followed by suggestions of several morphological and syntactic areas where the feature geometry could be a valuable resource.

2. Background

2.1.1 Feature Geometry

The analyses in this paper begin with the assumption, argued by Noyer (1992) and Ritter and Harley (1998), that morphological features are hierarchically arranged in a

UG-constrained structure. This hierarchy, or feature geometry, is responsible for all existing systems of phi-features, though it is unlikely that any one language will exploit the entire structure. The morpho-syntactic feature geometry assumed here is that proposed by Ritter and Harley (hereafter R&H). As discussed there (p.5), it has formal properties similar to those found in phonological geometries: the hierarchy is composed of a Root node dominating Organizing nodes[1], which in turn dominate terminal features. Features are monovalent and contrasts are represented via the presence or absence of a feature rather than through 'plus' and 'minus' values. Markedness is reflected in the complexity of a given tree.

The full structure of the R&H feature geometry is supplied in (1). Throughout this paper, Organizing nodes will be in small caps in the diagrams.

(1)
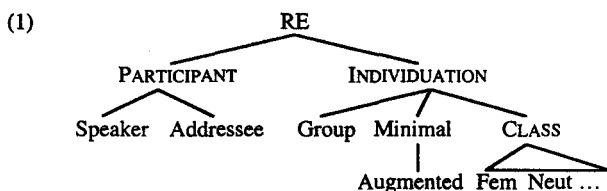
Within the hierarchy, lower nodes are said to be dependent on those which dominate them; for example, in (1) the CLASS node is a dependent of the INDIVIDUATION node, and [Augmented] is a dependent of [Minimal]. The referential purpose of these phi-features is reflected by the designation of the Root node as R(eferring) E(xpression), and the dependents of the Root node serve the following purposes:

(2) a. PARTICIPANT: encodes person features; active for first and second person, inactive for third person.
    i) Speaker: first person
    ii) Addressee: second person
  b. INDIVIDUATION: organizes discourse-independent features (number and gender).
    i) Minimal: singular
    ii) Group, Augmented: non-singular
    iii) CLASS: encodes gender features

A full discussion of (1) is given in R&H, along with analyses of various (adult) pronominal systems. In the course of this paper I will propose some minor modifications and revisions of the geometry above, regarding feature underspecification and the CLASS node.

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[1] I make a small departure here from the terminology in R&H, where the term "(major) class node" is used instead of "organizing node." I use the latter in order to avoid confusion between the class/organizing nodes and the CLASS node (which is itself an organizing node).

2.2 Morphological Underspecification

Phonological theory has made extensive use of the notion of underspecification in both developing and developed languages (eg. Archangeli, 1988; Avery and Rice, 1989; Rice and Avery, 1995; Ingram, 1996). There are several versions of this theory, but in general the claim is that universal markedness is encoded in the feature geometry: the unmarked dependent of a given node is not specified underlyingly, and may be filled in later on by default fill-in rule. Underspecification has been used to account for phenomena such as consonant harmony, transparency effects, assimilation, and segmental acquisition patterns (see for example the papers in Paradis and Prunet, eds. (1991)).

As alluded to earlier, phonological feature geometries to some extent find a ready parallel in the morphosyntactic geometry in (1): in both, contrasts are encoded by a hierarchy of distinctive features which are themselves minimal units of that area of the grammar. At least for theoretical reasons, then, there should be evidence of "phonological" principles applying on the morphological level. A claim of this sort has widespread consequences, of course, but for the purposes of this paper I will focus only on one: that underspecification is found with morphological as well as phonological features. Specifically, I assume Avery and Rice's (1989) modified version of contrastive specification: a default feature may be specified underlyingly, but only if it dominates a secondary feature which is contrastive in the system. An example given in Avery and Rice (p.184) involves Coronal underspecification: the presence of a contrastive secondary feature (eg. [retroflex]) beneath [coronal] forces the specification of [coronal] in all relevant underlying representations.

The underspecification of a default feature can, then, be overridden by a contrast in the language. For example, R&H (p.15) maintain that the unmarked PARTICIPANT value, [Speaker] (see 4.1 below), is specified as an enhancing feature in languages with "2nd person inclusive" forms. Similarly, the full underlying specification of both [Speaker] and [Addressee] might be found in languages where the inclusive is the only dual form (thus 'dual' could be expressed through the activity of both PARTICIPANT dependents, rather than through the INDIVIDUATION node).

2.3 The Structure-Building Hypothesis

Following research done in the acquisition of both syntax (eg. Guilfoyle and Noonan, 1992; Radford, 1996) and phonology (eg. Brown, 1997; Rice and Avery, 1995), I adopt the structure-building hypothesis and assume that an adult morphological system is acquired by elaborating a minimal initial structure[2] to allow the necessary contrasts. New structure is only added when necessary to represent a contrast used in the ambient language, and underspecification is maintained wherever possible throughout the developing system.

3. Literature Survey

The acquisition of pronouns, outside of binding, has received only sporadic attention in the literature, and to my knowledge there has been no attempt to analyze the

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[2] At this point, without more explicit, crosslinguistic data about the earliest stage of pronoun acquisition, I avoid making any claims about what this initial structure looks like.

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process with a hierarchy of person, number and gender features. However, there are a few studies which provide detailed data on the relative order of emergence of the various pronouns, and it is from these that I draw the material for the analyses below. In this section a summary is given of these studies.

The Data

The available information about the relative appearance of personal pronouns in six languages is summarized in Table 1, followed by a short discussion[3]. Note that entries in the same column of the table do not necessarily correspond to the same age or even the same stage of acquisition. In all cases, the first pronoun(s) recorded by the study are placed in column 1, the second in column 2, etc.

Table 1. Order of emergence of personal pronouns in child speech

	Language (Source)	1	2	3	4	5	6
A	**ASL** (Petitto 1987)	Inanimate	1sg	2sg	3sg	Plurals	
B	**English** (Brown, 1973)	1sg; 2sg; 3sgn	others				
C	**English** (Chiat 1978)	1sg	3rd person	2nd person			
D	**English** (Huxley 1970: K)	1sg; 3sgm; 3sgf; 3sgn	2sg	3pl	1pl		
E	**English** (Huxley 1970: D)	3sgn	1sg	3pl	1pl	3sgm; 3sgf	2sg
F	**French** (Clark, 1985)	1sg	2sg; 3sgm	2pl; 3plm	1pl	3plf	
G	**Hebrew** (Berman1985)	3sgn (*ze*)	1sg; 3sgm	3sgf	2sg; all plurals		
H	**Kaluli** (Schieffelin, 1985)	1st, 2nd person	Others				
I	**Mohawk** (Feuer, 1980)	1st person	2nd person	3rd person			
J	**Mohawk** (Mithun, 1989)	Singular	3pl	1pl	dual		

Abbreviations: sg = singular; pl = plural; m = masculine; f = feminine; n = neuter

Clearly, there is a lot of variation in this data: out of ten studies, no two report the exact same order. However, there are also patterns that appear again and again, so that the variation can be neatly broken up into the two categories given in (3).

    (3) a. variation in the first pronoun to emerge, between 1st person singular and 3rd singular neuter/inanimate.
        b. variation in the relative order of acquisition of second and third person, singular and plural.

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[3] For the purposes of this paper, the data presented in the literature has been taken at face value, thus overlooking some theoretical concerns, especially monotonicity. Chiat (1986) gives an overview of the difficulties inherent to studies of child language, including the difficulty of delineating stages, with specific reference to the acquisition of pronouns.

There is no crossover between these categories; for example, 2nd person or 3rd animate pronouns never emerge before both 1st person and 3rd inanimate.

Several researchers (eg. Chiat, 1986; Brown, 1973) have commented on the fact that the 3rd singular inanimate pronoun (3sg.inan) emerges not with the other 3rd person pronouns, as would be expected on grounds of semantic features, but with the 1st person singular (1sg). This observation seems to militate against the idea that a hierarchy of (person) features is involved, since such a hierarchy would predict the straightforward emergence of 1st person before 2nd person before 3rd person. The 3sg.inan pronoun is obviously not co-operating, and the observed variation in the other pronouns (see (3b)) is likewise problematic. However, I will demonstrate in this paper that these observations are readily explained by R&H's geometry of phi-features.

First consider (3a). Consistently, cross-linguistically, either 1sg or 3sg.inan is the first pronoun to appear in a child's inventory (see columns A, C, E, F, G, and I). And whichever one comes first, the other follows immediately after. Such consistency strongly suggests UG involvement; in fact, it looks like 1sg and 3sg.inan are both defaults of nodes with equal status in the geometry. Therefore, before going any further into an analysis of the data in Table 1, the status of defaults and underspecification in the current feature geometry should be clarified.

4. Default Interpretations of the Organizing Nodes

The patterns in the acquisition data indicate that 1sg and 3sg.inan are both unmarked pronouns relative to the others. A full breakdown of these into distinctive features yields person ([speaker]), number ([singular]), and gender/class ([inanimate]) – each of which corresponds to an Organizing node: respectively PARTICIPANT, INDIVIDUATION, and CLASS.

The INDIVIDUATION side is more complex, so I'll begin with the PARTICIPANT node. The overall acquisition data is unanimously in favor of a [Speaker] default, since 2nd person forms never come in before 1st person (though at times they appear at almost the same time (Chiat, 1986)). However, if there is a true default involved there should be further evidence; in this section I will argue that this is in fact the case, looking at the asymmetrical reversal errors produced by Matthew in Chiat's (1982) study.

4.1 At the [PARTICIPANT] Node

Pronoun reversal in acquisition:
The term 'pronoun reversal' refers to a common occurrence in acquisition: children appear to reverse the roles of speaker and addressee, using "you" to refer to him or herself and "me" to refer to the addressee. Chiat (1982) gives an indepth look at pronoun reversal, drawing on information both from the literature and from a case-study of Matthew (age 2;4.24 at the relevant session). Although Chiat concludes that the main cause for reversal is perspective-shifting on the part of the child, there is reason to suspect that morphology is also involved: not all pronouns are reversed equally. The data I use in this section is taken from Session 2 of Chiat's study, when reversal is most prominent in Matthew's speech.

Overall, in Session 2, pronouns are correct significantly more often than they are reversed. But among the errors, an asymmetry appears between 1st and 2nd person: the 2nd person pronoun, when used (and it was rarely used) was more often reversed than correct; 1st person was more often correct than reversed. And again, Matthew showed significantly more reversal errors in reference to his addressee than in reference to himself. In other words, 1st person pronouns were not as susceptible to reversal as 2nd person; and both pronouns referred more often to the speaker than to the addressee.

Assuming a [Speaker] default helps to account for this bias towards the 1st person. If Matthew has not yet made any elaboration under PARTICIPANT, then any reference to a participant will be represented by the bare node – which is then filled in by UG with [Speaker].

However, if this were the whole picture, we would expect to find only the 1st person pronoun in Matthew's production, which is not the case. And on the side of comprehension, there was no evidence of any difficulty: Matthew had almost perfect comprehension of *I* and *you*, yet he often confused them in production. It could be the case, then, that he recognized two PARTICIPANT pronouns (*I* and *you*) but wasn't able to represent them distinctly when it came to producing them. If *I* was analyzed as the spell-out of the UG-supplied [Speaker] default, then by process of elimination, *you* must be some other participant. This knowledge, accompanied by other non-linguistic cues, could very easily account for his successful comprehension. However, unable to represent *you* as distinct from *I*, Matthew either avoided the 2nd person pronoun altogether (thus it rarely showed up in the data), or used it much the same as he would use *I*. This second strategy would result in a sort of pronoun reversal in which 2nd person was "reversed" more often than 1st – just as we saw in Matthew's data.

This proposal is not intended to provide a full, exclusive account of pronoun reversal in child language (for more on this topic see Chiat (1986) and Charney (1980)); what it does do, however, is give an explanation for the observed asymmetry between reversal in 1st versus 2nd person pronouns, based on the assumption that [Speaker] is the default interpretation of a bare PARTICIPANT node.

4.2 At the [INDIVIDUATION] Node

In dealing with the PARTICIPANT node, the consistently early acquisition of 1st person led me to consider the activity of a [Speaker] default. Now, turning to INDIVIDUATION, it appears that the same thing is happening with the 3rd singular inanimate form; but it is not as easy to propose a default for this pronoun. To begin with, there are now two features involved, number ('singular') and gender/class ('inanimate'); and neither 'singular' nor 'inanimate' is explicitly represented in the geometry. However, with some minor revisions to (1), motivated below, defaults can be seen in all Organizing nodes.

[INDIVIDUATION]

First let's look at the number features. R&H maintain that 'singular' is the interpretation given to a bare PARTICIPANT node, a designation which corresponds closely to the notion of a default argued for in this paper. However, if the current proposal is to be kept uniform, there should not be a default interpretation which is not itself a

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dependent of the node – but this problem is quite easily solved using the available structure. If we assume that 'singular' is represented using [Minimal] (since the minimum number of referents is *one*), and that [Minimal] is the default interpretation of a bare INDIVIDUATION node, we end up with a representation of number features that differs very little from that proposed by R&H (p.16-17), quoted in (9):

(9) Number representation in R&H:
   a. "The distinction between singular and plural is normally expressed by the presence or absence of the [Group] node".
   b. "the addition of dual to a number system is attributed to the activation of the node [Minimal] as an enhancing feature for [Group]."
   c. "languages with a trial/paucal number utilize the feature [Augmented]."

Relegating [Minimal] to the status of a default does not change any of these designations, but it does call for minor adjustments. These are noted in (10a) through (10c), which parallel (9a) through (9c):

(10) Number representation with [Minimal] default:
   a. *same as (9a)*; however, I assume that this is because [Minimal] is the default feature under the INDIVIDUATION node and is thus (normally) absent from the underlying representations of singular pronouns.
   b. *same as (9b)*; note that just as an inclusive/exclusive distinction might force the specification of [Speaker] in UR's, [Minimal] likewise can be forced into underlying representations by the contrastive use of dual number in a system. As in R&H, dual is represented as a "minimal group" in such languages.
   c. *same as (9c)*; note that here is an instance where a contrastive dependent ([Augmented]) would force the underlying specification of a default feature ([Minimal]), directly comparable to Avery & Rice's discussion of underspecification outlined above.

The proposal that [Minimal] is the default interpretation of a bare INDIVIDUATION node allows for a principled explanation for the early acquisition of the singular 3rd person pronoun; from a theoretical perspective, this proposal is favored because of parallels it allows between the PARTICIPANT and INDIVIDUATION nodes. Both have default specifications which may or may not remain absent from underlying representations; for both, a relatively marked contrast in the system can force the underlying specification of the default feature; and finally, the full specification of each node, including all the relevant dependents (ie. person and number), results in more marked structures which are relatively rare in the world's languages (inclusives, duals, and trials/paucals).

[CLASS]
   Since there is good evidence that defaults exist for the other two Organizing nodes, we would also expect to find one at the CLASS node. The acquisition data, following the same reasoning as for [Speaker] and [Minimal], suggests that there is some
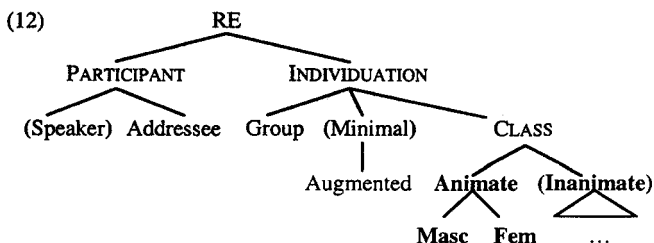
sort of [Inanimate] default: it is always the neuter/inanimate gender that emerges first, never masculine or feminine. Further, there is no evidence that children use the inanimate pronoun to refer to animates, which is what would be expected if it was an unmarked form lacking the CLASS node altogether. In fact, there is clear evidence, typified by Petitto's study on ASL, that this first 3rd person pronoun is specifically inanimate. Petitto observed that children acquiring ASL pointed[4] freely at people and objects beginning at 10-12 months; from 12-18 months the children stopped pointing at people, but continued pointing at objects. There is obviously a distinction being made between animate and inanimate, and inanimate appears first. Likewise, in addition to the English and Hebrew data (see Table 1), in the Scandinavian languages the inanimate 3rd person *det* appears before the common-gender *den* (Plunkett and Stromqvist, 1992).

Based on such (admittedly limited) evidence, I propose the following internal structure for the [CLASS] node. The default, [Inanimate], is enclosed in parentheses:

(11)   CLASS

    Animate   (Inanimate)

    masc   fem   ...
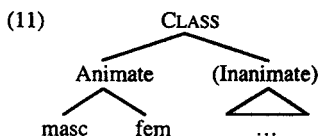
More research is certainly necessary in this area, and I will return to the problem of gender in Section 6 below. For now, the structure in (11) is sufficient to explain the 'inanimate' status of the first non-participant pronoun in children's inventories, and to give a provisional representation for adult gender systems.

To summarize this section: I have argued that each Organizing node has its own default specification. The strongest motivation for this came from the acquisition data, where pronouns composed of the features [Speaker], [Minimal] and/or [Inanimate] were always the first to emerge. Further support for the default at the PARTICIPANT node was supplied based on both child and adult data; and some, mostly theoretical, evidence was also given for the defaults at INDIVIDUATION and CLASS. The resulting geometry is given in (12), with bold type indicating a revision to (1), and parentheses around the defaults:

(12)   RE

    PARTICIPANT   INDIVIDUATION

    (Speaker) Addressee   Group (Minimal)   CLASS

        Augmented   **Animate**   **(Inanimate)**

            Masc Fem   ...

---

[4] In ASL, personal pronouns are expressed by pointing at the referent .

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In the next section, I return to the acquisition data assuming the underspecification of default interpretations, and give a detailed analysis, according to (12), of two observed paths of acquisition.

5. Acquisition Data Revisited: Huxley (1970)

This section is dedicated to the information contained in Huxley's (1970) longitudinal study of two children's acquisition of personal pronouns in English. The children, Katriona and Douglas, followed very different paths and nicely illustrate the observations in (3) above. Both children were two years three months at the beginning of the study.
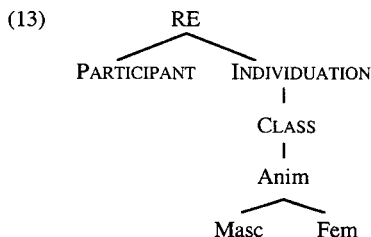
5.1 Katriona
The order of pronoun acquisition for Katriona is presented in Table 2; the row labelled **Week** records the week of the study in which a given pronoun emerged. Week 1 corresponds to an age of 2;3, and where "<1" appears it indicates that the pronoun was already in use at the beginning of the study. There is no data available for the 2nd person plural form.

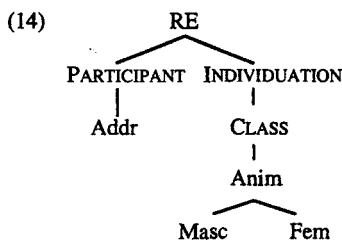Table 2. Order of emergence of pronouns: Katriona

Pronoun	I	You	He	She	It	We	You	They
Week	<1	4	<1	<1	<1	21	?	20

By Week 1, Katriona had acquired all the singular pronouns except *you*. The details of the relative appearance of 1st and 3rd person are therefore not available; but the fact that 2nd singular and all plurals are missing from her inventory can easily be accounted for with the feature geometry. The [Addressee] and [Group] nodes are not yet acquired, but [PARTICIPANT] is, and the [CLASS] node is fully elaborated as in (13)[5]. I have omitted the defaults from the representations because I assume they are absent.

(13)
$$
\begin{array}{c}
\text{RE} \\
\diagdown \\
\text{PARTICIPANT} \quad \text{INDIVIDUATION} \\
| \\
\text{CLASS} \\
| \\
\text{Anim} \\
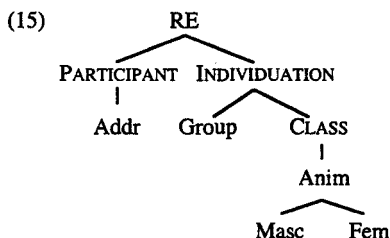\diagdown \\
\text{Masc} \quad \text{Fem}
\end{array}
$$

The next pronoun to appear is the second person singular, reflecting the addition of [Addressee] around Week 4 and yielding the structure in (14):

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[5] The abbreviations used in the figures are: RE=Referring Expression; Anim=[Animate]; Inan=[Inanimate]; Masc=[Masculine]; Fem=[Feminine]; Spkr=[Speaker]; Addr=[Addressee]

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(14)   RE

          PARTICIPANT   INDIVIDUATION
              | |
            Addr   CLASS
                              |
                            Anim

                       Masc   Fem

Finally, around the twentieth week of the study, Katriona begins to show a singular versus plural distinction in 1st and 3rd person. This can be accounted for by the acquisition of [Group] as in (15), resulting in the full English structure:

(15)   RE

          PARTICIPANT   INDIVIDUATION
              |
            Addr   Group   CLASS
                                  |
                                Anim

                           Masc   Fem

Huxley (p.154) notes the lack of the 2nd person plural pronoun, mentioning a strong preference (in both children) to address only one person at a time and suggesting either cognitive reasons or discourse factors as an explanation. Coupled with the fact that there is no phonetic difference between 2nd singular and 2nd plural in English, it is not surprising that there is no record of the latter in either Katriona or Douglas. Crucially, however, it is not the developmental inability to represent 2nd person plural that motivates its absence.
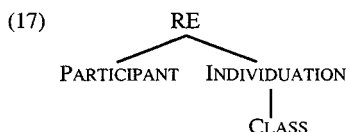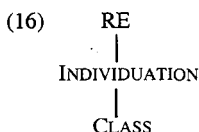
5.2 Douglas

Now consider the path chosen by Douglas. It is notably different from the one just described for Katriona, and is summarized in Table 3.

Table 3. Order of emergence of pronouns: Douglas

Pronoun	I	You	He	She	It	We	You	They
Week	17	34	22	22	16	20	?	19

The first pronoun to appear in Douglas' speech is the 3rd singular inanimate *it* at Week 16, followed a week later by the first person singular. This data corresponds to the acquisition of the Organizing nodes and the default interpretations of each. The structures at Week 16 and Week 17 are illustrated in (16) and (17), respectively:

10

(16)
```
        RE
        |
   INDIVIDUATION
        |
      CLASS
```

(17)
```
            RE
          /    \
  PARTICIPANT  INDIVIDUATION
                    |
                  CLASS
```
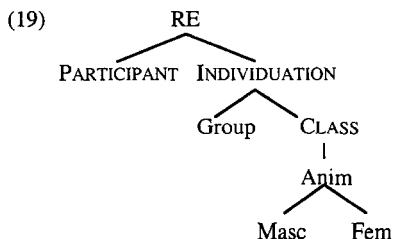
The next pronoun to appear is the 3rd person plural at Week 19, again followed a week later by the corresponding 1st person. From a semantic point of view, it is surprising that 3rd plural should emerge before 3rd singular (animate), since a group of non-participants is more complex than a single one. According to the feature geometry, however, the plurals appear first simply because Douglas has chosen to elaborate the [Group] node rather than [CLASS] as Katriona did. Hence, Douglas' feature geometry at Week 19 looks like (18).

(18)
```
            RE
          /    \
  PARTICIPANT  INDIVIDUATION
                  /    \
              Group    CLASS
```
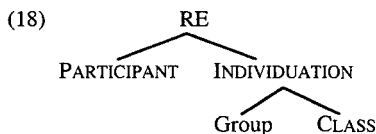
Given the representation in (18), we might expect the 1st plural to show up at the same time as the 3rd plural; but the recorded data indicates a week's delay. While the feature geometry itself cannot account for the time lag, it is interesting to note that this pattern in the plurals exactly follows what happened in the singular (see (16) and (17) above). Douglas seems to be showing a preference for the INDIVIDUATION side of the tree. Note that 3rd person makes use of only this side, while 1st person requires the activity of both branches; thus 3rd person is simpler to represent (at least until the CLASS node is elaborated). The preference for the less complex option would then account for both observed instances of 3rd person before 1st.

The INDIVIDUATION node is again the target of elaboration at Week 22, when the 3rd person singular pronouns appear. These pronouns are marked for gender in English, and are expressions of the [Animate] node dependents:

(19)
```
            RE
          /    \
  PARTICIPANT  INDIVIDUATION
                  /    \
              Group    CLASS
                         |
                        Anim
                       /    \
                    Masc    Fem
```

The final elaboration for Douglas is the addition of the [Addressee] node by the 34th week of the study, to complete the adult structure as supplied in (15) above.

6. Discussion and Conclusions

To summarize this paper briefly: after an overview of my theoretical framework, I presented the pronoun acquisition data from ten studies and summarized the overall observations; these led me to assign default interpretations to each of the Organizing nodes, and to make a proposal about the internal structure of the CLASS node; with these modifications, I returned to the acquisition data and gave a step-by-step, feature-geometric analysis of two children's acquisition of English pronouns. In the course of the analyses I found that both uniformity and variation were accounted for by the (modified) geometry.

In Section 4.2 above, I proposed that the inanimate 3rd person singular pronoun was acquired so early because it is the expression of defaults on the Individuation side of the geometry; however, the treatment of the CLASS node especially was not well-motivated. While the proposal of an [Inanimate] default at this node does provide a reasonable explanation of the acquisition data, it can only be provisional, subject to further research. For a more certain account, an in-depth look at gender is necessary both in acquisition and in adult language. Corbett (1991) provides an excellent resource for such a study.

The vast majority of acquisition studies involve gender systems; there are none to my knowledge which provide a detailed account of the acquisition of pronouns in noun-class systems. Because of their more extensive elaboration of the CLASS node, these systems could provide some essential information about the acquisition of gender/class and the representation of these features. Information could also be gained from further research into the acquisition of agreement, demonstratives, and possessives in a wide range of languages.

The purpose of this particular paper has been to examine the R&H feature geometry, proposed for adult systems, against the acquisition of these features. From such a vast topic, I focused on one area, pronouns, with a particular focus on English. A possible next step, but one that goes beyond the scope of this paper, would be to consider further the role of defaults and underspecification, in acquisition and in adult language. Again, this is a potentially huge topic, as it could extend into several areas of the grammar. In the phonology, underspecification plays a central role in the interaction of distinctive features, with extensive implications including those mentioned in 2.1.2 above. Are there correlates in the morphology? What are the implications of this feature geometry, defaults and all, for the syntax – binding, coreference, long-distance anaphora, logophoric pronouns, agreement – and for other areas of the grammar? There are, undoubtedly, many instances where two minimally distinct sets of phi-features show different behavior; such minimal pairs would be ideal places to start when considering the consequences of morphological underspecification and the feature geometry.

With the acquisition of pronouns, it turned out that assuming the feature geometry in (12) allowed the resolution of two previously unsolved problems: the heterogeneous initial set of pronouns and the extensive variation in the acquisition path. It is thus worth

considering the issues mentioned in this current section, and any other issues that might arise, in light of the feature geometry.

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