Definiteness, Animacy, and NP Ordering
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DEFINITENESS, ANIMACY, AND NP ORDERING

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In this paper, I am mainly concerned with a constraint in English on the definiteness and specificity and the humanness and animacy of NP's undergoing passive and dative movement. I would also like to show that this constraint occurs in other languages, in marked as well as unmarked constructions, sometimes as an absolute constraint on acceptability, and sometimes as just a tendency evidenced by text counts, suggesting a universal tendency in NP ordering.

Passive and dative movement, when looked at from the universal perspective of Relational Grammar[1], are both called advancement rules because a NP_i (or $Term_j$) which is higher on the hierarchy of grammatical relations, and NP_j is subsequently demoted and stripped of its grammatical relations. In English, passive and dative movement involve not only grammatical advancement, but also linear fronting, or foregrounding, of the advanced NP and backgrounding of the demoted NP. Sentences which have undergone these rules in English vary in their acceptability, or in their tendencies to occur, depending on the semantic content of NP_i and NP_j, as shown in (1) and (2):

1a) They fed a lion a lamb/ ?the lamb
b) They fed the lion the lamb/ ?the Christian
c) They fed the lion a Christian
2a) A cat is being chased by a dog/ ?the dog
b) The cat is being chased by the dog / ?the man
c) The cat is being chased by a man

In the (a) sentences, the advanced NP's are indefinite (a lion and a cat). If the demoted NP is indefinite also, the sentence is acceptable, but if it is definite, the sentence is slightly less acceptable. This constraint will be described in terms of a Definiteness-Specificity Hierarchy (DSH), which reflects the degrees of referential information present in the noun phrase.

In the (b) sentences, the advanced NP's are nonhuman-animate. If the demoted NP is nonhuman-animate also, the sentence is acceptable, but if it is human, the sentence is slightly unacceptable. This constraint can be represented by a Humanness-Animacy Hierarchy (HAH).

In the (c) sentences, the advanced NP's are high on the DSH, but lower on the HAH. The demoted NP's are low on the DSH, but high on the HAH. The two hierarchies interact so that one counterbalances the other, and thus the sentences are acceptable. In order to represent this interaction, I will combine the two hierarchies into one, which I will call the Empathy Hierarchy. This hierarchy will reflect a tendency pointed out by Kuno and Kaburaki (1975) for prominence to be given to the person or thing with which the speaker empathizes. Since it is easier to empathize with someone or something that one has more referential information about and to empathize with humans more than animals,

and animals more than things, there is a tendency for those NP's higher on the hierarchies to be given prominence over those which are lower.

Definiteness and Specificity

First I will discuss the Definiteness-Specificity Hierarchy. For simplicity, I will concentrate on the common noun and its determiner, ignoring the varying degrees of referential information present in the different types of proper or common nouns and pronouns.[2] I will deal with only three categories: definite-specific, indefinite-specific, and indefinite-nonspecific.

Definite-specific NP's are given the highest place on the hierarchy because they contain the most referential information: each is usually assumed to have a unique existence and the speaker and hearer are usually assumed to be familiar with it. The next highest NP on the hierarchy is indefinite-specific; the referent is usually assumed to have a unique existence, and the speaker is usually assumed to be familiar with it, though the hearer is not. The lowest on the hierarchy is the indefinite-nonspecific NP; its referent is assumed to have no unique existence, and it is not assumed to be familiar to the speaker or the hearer as other than a category or an unspecified member of the category. These three types of NP's form a hierarchy of referential information. For convenience in comparing the NP's, I have represented the value of each numerically:

The Definiteness-Specificity Hierarchy

i.	Definite-Specific NP's	(3 points)
ii.	Indefinite-Specific NP's	(2 points)
iii.	Indefinite-Nonspecific NP's	(1 point)

Now I would like to show how this hierarchy interacts with the advancement rules. In sentences (3) and (4) below, the advanced NP's are definite-specific (the lion and the cat), and thus highest on the hierarchy with three points:

3a)	They fed the lion the lamb	(3/3)
b)	They fed the lion a lamb	(3/2)
c)	They feed the lion a lamb daily	(3/1)
4a)	The cat was chased by the dog	(3/3)
b)	The cat was chased by a dog	(3/2)
c)	The cat is often chased by a dog	(3/1)

The demoted NP's are either equal to or lower than the NP's they replaced, but never higher, and the sentences are all acceptable.

In sentences (5) and (6) below, the advanced NP's are indefinite-specific (a lion and a cat), and thus they are next to highest on the hierarchy with two points:

5a)	?They fed a lion the lamb	(2/3)
b)	They fed a lion a lamb	(2/2)
c)	They feed a (certain) lion a lamb daily	(2/1)
6a)	?A (certain) cat was chased by the dog	(2/3)

b) A (certain) cat was chased by a dog (2/2)
c) A (certain) cat is often chased by a dog (2/1)

In the (a) sentences, the advanced NP's are lower on the hierarchy than the demoted NP's by one point, and the sentences are slightly unacceptable. In the other sentences, the advanced NP's are equal to or higher than the demoted NP's and the sentences are acceptable.

In sentences (7) and (8) below, the advanced NP's are indefinite-nonspecific (a lion and a cat), and thus lowest on the hierarchy with one point:

7a) ??They often feed a lion these lambs (1/3)
b) ?They often feed a lion (certain) lambs (1/2)
c) They often feed a lion a lamb (1/1)
8a) ??A cat is often chased by these dogs (1/3)
b) ?A cat is often chased by (certain) dogs (1/2)
c) A cat is often chased by a dog (1/1)

In the (a) sentences, the advanced NP's are lower on the hierarchy than the demoted NP by two points, and the sentences are quite unacceptable. In the (b) sentences, the advanced NP's are lower on the hierarchy by one point, and the sentences are also unacceptable. However, in the (c) sentences, the advanced NP's are equal on the hierarchy with the demoted NP's and the sentences are acceptable.

From these observations, I conclude that there is a definiteness-specificity constraint between advanced and demoted NP's which can be stated as follows:

The Definiteness-Specificity Constraint
If an advanced NP is lower on the Definiteness-Specificity Hierarchy than the NP it replaces, the sentence will be less acceptable.

This constraint reflects a tendency for sentences to be more acceptable when the old or predictable information in a definite NP precedes the new or unpredictable information in an indefinite NP, as has been observed for English and other languages by Halliday (1970), Kuno (1972, 1975), Keenan (1975b), Givón (1975b, 1976a), and many others. It also reflects a tendency, pointed out by Kuno and Kaburaki (1975), for prominence to be given to the person or thing with which the speaker expects the hearer to feel empathy, because it is easier to empathize with a referent that one assumes to exist rather than one that has no unique existence, and it is easier to empathize with information that one has previous familiarity with than with new information.

In English, this constraint is evidenced mainly on the marked word order in advancement constructions, but not in unmarked word order.[3] Thus the active sentence 'A man gave a gun to John,' is acceptable even if not stylistically the most preferable. In other languages, one finds the constraint operating in marked as

well as unmarked work order patterns.

According to Givon (1975b, 1976a) and Keenan (1975b), subjects and datives tend to be definite and specific in reference. There is also a tendency for definite NP's to be more prominent in the sentence. Where these constraints are not absolute, they are often evidenced by text counts.

Turkish, according to Underhill (1972), usually has its subject in sentence initial position, but an indefinite subject must be placed after a definite object or a definite indirect object:

9a) adam tas - ɨ oglan - a at - tɨ
man stone(obj)boy(dat) throw(past)
'The/*A man threw the/*a stone at the/a boy'

b) tas - ɨ oglan - a bir adam at - tɨ
stone(obj)boy (dat) a man throw (past)
'A/*The man threw the/*a stone at the boy'

c) oglan-a bir adam tas at-tɨ
boy(dat) a man stone throw(past)
'A/*The man threw a/*the stone at the boy'

Mandarin, according to Li and Thomson (1973), requires a sentence initial noun to be interpreted as definite:

10) Shu bei haizi mai le (Mandarin)
book by child bought
'The/*A book was bought by the/a child'

Malagasy, Tagalog, the Philippine languages, Kinyarwanda,and much of Bantu, according to Keenan (1975a,b), usually require the subjects of basic sentences to be definite. Also, he pointed out that in Tagalog, when objects are definite, they must be presented as surface subjects:

11) Sinampal ng lalake ang babae
hit-by Agt man subj woman
'The/*A woman was hit by a/the man

Thus, what appears in English as a constraint on acceptability in marked sentence patterns sometimes appears in other languages as an absolute constraint on grammaticality in marked as well as unmarked sentence patterns, showing a universal tendency for NP's higher on the hierarchy to be given a more prominent position in sentences.

Humanness and Animacy

Now I would like to turn to the Humanness-Animacy Hierarchy and examine how it affects ordering.

For simplicity, I will distinguish only three levels: human-animate NP's which refer to human beings, like 'woman'; nonhuman-animate NP's, which name or describe animals, like 'cats'; and nonhuman-nonanimate NP's, which name or describe things like plants, objects, ideas, or forces, such as 'morning glories', 'fences', 'theories', or 'lightning'. In other languages, one finds other divisions. In Navaho (cf., Creamer 1974) for example, NP's are ranked according to the power of one thing over another, so that a newborn baby is ranked lower than men, and sheep lower

than bears. These categories reflect the interest value that each speaker places on objects in the universe, and within our ontological framework, humans are viewed as inherently more interesting and valuable than animals, and animals more so than things.

These three levels of animacy can be represented on the Humanness-Animacy Hierarchy, with humans highest, animals lower, and things or ideas lowest.[4] Again for convenience in comparing, I have represented the values of each level with numerical points:

The Humanness-Animacy Hierarchy

i.	Human-Animate NP's	(3 points)
ii.	Nonhuman-Animate NP's	(2 points)
iii.	Nonhuman-Nonanimate NP's	(1 point)

Now I would like to show how this hierarchy interacts with advancement rules in English. In sentences (12) and (13) below, the advanced NP's are human-animate (the cannibal and the linquist) and thus highest on the hierarchy with three points:

12a)	They fed the cannibal the missionary	(3/3)
b)	They fed the cannibal the lamb	(3/2)
c)	They fed the cannibal the steak	(3/1)
13a)	The linguist was attacked by the informant	(3/3
b)	The linguist was attacked by the dog	(3/2)
c)	The linguist was struck by lightning	(3/1)

In each case, the advanced NP is equal to or higher than the demoted NP, and the sentences are all acceptable.

In sentences (14) and (15), the advanced NP's are nonhuman-animate (the lion and the cat), and thus are worth two points on the hierarchy:

14a)	?They fed the lion the Christian	(2/3)
b)	They fed the lion the lamb	(2/2)
c)	They fed the lion the steak	(2/1)
15a)	?The cat was attacked by the man	(2/3)
b)	The cat was attacked by the dog	(2/2)
c)	The cat was struck by lightning	(2/1)

In the (a) sentences, the advanced NP's are lower on the hierarchy than the demoted NP's by one point, and the sentences are a little less than acceptable. However, they do not seem as unacceptable as the comparable definiteness and specificity cases (5a) and (6a). And if one imagines a discourse context in which a certain lion or a certain cat is the major topic of discussion, the sentences become more acceptable, especially the passive sentence. Perhaps the point to be made with humanness and animacy is that certain topics of discussion have a greater tendency to occur, or expectation of occurrence, than others. Thus those that have a lower tendency or expectation seem questionable in isolation. In the (b) and (c) sentences, the advanced NP's are either equal to or higher than the demoted NP's, and the sentences are all acceptable.

In sentences (16) and (17), the advanced NP's are nonhuman-nonanimate. This presents a problem for the dative NP, which is usually required to be animate, and possibly receives an animate

interpretation. Nevertheless, even these sentences seem to have constraints on the animacy of the demoted NP:

16a) ?(?)They offered the school the linguist (1/3)
b) (?)They offered the school the watchdog (1/2)
c) They offered the school the stone (1/1)
17a) ??The fence was jumped by the man (1/3)
b) ?The fence was jumped by the horse (1/2)
c) The fence was struck by lightning (1/1)

In the (a) sentences, the advanced NP's are lower than the demoted NP's by two points, and the sentences are of questionable acceptability. In the (b) sentences, the advanced NP's are lower by one point, and the sentences are a little less questionable. In the (c) sentences, the advanced and the demoted NP's are the same level, and the sentences are acceptable.

From these observations, I conclude that there is a humanness-animacy constraint between advanced and demoted NP's which can be stated as follows:

The Humanness-Animacy Constraint
If an advanced NP is lower on the Humanness-Animacy Hierarchy than the NP it replaces, the sentence will be less acceptable.

This constraint reflects a tendency for speakers to talk about what interests them most and what they are most likely to empathize with, since it is easier to empathize with humans before animals, and animals before things.

One can find similar constraints in other languages. Keenan (1975b) says that animacy is usually predictable for subjects. Givon says that there's a universal tendency for both datives and subjects to be animate. Osgood and Bock (1975), Bloom (1970) and others have noted in various languages that children rather rigidly place animate nouns in subject position and inanimate nouns in object position.

In Navaho, according to Hale (1973), there is a passive-like inversion which can apply only if the advanced NP is animate:

18a) 'at'eed 'ashkii biiłtsa
girl boy seen by
'The girl was seen by the boy'
b) łeechaa'i yas bistin
dog snow frozen by
'The dog was frozen by the snow'
c) *dził dine boo'i
mountain man seen by
'The mountain was seen by the man'
d) *'abe' yas bistin
milk snow frozen by
'The milk was frozen by the snow'

In (a) and (b), the advanced NP's (the girl and the dog) are both animate, and the sentences are acceptable; but in (c) and (d), the advanced NP's (the mountain and the milk) are both inanimate, and the passive-like inversion is ungrammatical. Furthermore, Hale points out that passive is obligatory if the active object is

animate and the active subject is inanimate:

e) *yas leecha'i yistin
snow dog froze
'The snow froze the dog'

In (e), the active subject (the snow) is inanimate while the active object is animate (the dog), and the sentence is ungrammatical, although its passive counterpart in (b) is grammatical.

In Japanese, Akatsuka has noted an animacy constraint on passives as shown below:[5]

20a) Neko-ga Nezumi-Ni kamareta
cat rat bitten by
'The cat was bitten by the rat'

b) *Cheese-ga Nezumi-Ni taberareta
cheese rat eaten by
'The cheese was eaten by the rat'

c) *Hon-ga Alice-Ni kawareta
book Alice bought by
'A book was bought by Alice'

Because cheese and book are nonanimate, the sentences in (b) and (c) are grammatical.

In a quantitative study of transitive relative clauses in German, Zubin (1976) has found that if the relative pronoun is not the subject, then the subject is almost always higher than the relative pronoun on an egocentric hierarchy (speaker-hearer-other person-concrete (inanimate) -abstract). Out of 428 instances of relative clauses in running text, only 19, that is 4%, had unrelativized subjects which were lower on the egocentric hierarchy than the relative pronoun, as in (21):

21) (...Riese...), den der Stein traf.
(...giant...) whom the stone hit.
'The giant whom the stone hit'

The stone, which is the unrelativized subject, is lower on the egocentric hierarchy than the relative pronoun, which refers to the giant. While these sentences sound acceptable to the native speaker, nevertheless, they are low in frequency.

Thus one finds that the Humanness-Animacy constraint functions not only in English, but in other languages as well. Also, it functions not only in marked word orders such as those derived by passive and dative movement, but sometimes in unmarked word orders, reflecting universal tendencies to rank objects according to interest, empathy, power or salience, and to place the more interesting or empathetic, or more powerful or salient ones in a more prominent position.

Empathy

Now I would like to show how the Definiteness-Specificity Hierarchy and the Humanness-Animacy Hierarchy interact so that one counterbalances the other. In order to represent this interaction, I will combine the two hierarchies into an Empathy Hierarchy. Kuno has defined Empathy as 'the speaker's identifying himself

with, in varying degrees, persons who participate in the event he describes in a sentence.'[6] The Empathy Hierarchy will reflect the degrees to which one is capable of empathizing with the persons, animals, or things described by the NP. Those highest in referential information and in animacy will be the highest in Empathy value. Those lowest in referential information and in animacy will be the lowest. The numerical values of the previous hierarchies will be combined to give the relative values on the Empathy Hierarchy, as shown below:

The Empathy Hierarchy

i.	Definite-Specific + Human-Animate NP's	(3+3=6)
ii.	Definite-Specific + Nonhuman-Animate NP's	(3+2=5)
iii.	Indefinite-Specific + Human-Animate NP's	(2+3=5)
iv.	Definite-Specific + Nonhuman-Animate	(3+1=4)
v.	Indefinite-Specific + Nonhuman-Animate	(2+2=4)
vi.	Indefinite-Nonspecific + Human-Animate	(1+3=4)
vii.	Indefinite-Specific + Nonhuman-Nonanimate	(2+1=3)
viii.	Indefinite-Nonspecific + Nonhuman-Animate	(1+2=3)
ix.	Indefinite-Nonspecific + Nonhuman-Nonanimate	(1+1=2)

The Empathy Hierarchy will be shown to place constraints on the advancement rules just as the preceding hierarchies did. In the sentences in (22), the advanced NP's (the lion and the cat) are definite-specific, and thus high on the Definiteness-Specificity Hierarchy with three points. They are also nonhuman-animate with two points on the Humanness-Animacy Hierarchy. These two hierarchies, when combined, give the total NP a value of five points on the Empathy Hierarchy:

22a) They fed the lion a Christian (3+2=5/2+3=5)
b) The cat was chased by a man

The demoted NP's (a Christian and a man) are low on the Definiteness Specificity Hierarchy with two points, while they are high on the Humanness-Animacy Hierarchy with three points. In combination, these NP's yield five points on the Empathy Hierarchy. Thus the advanced NP's and the demoted NP's are equal on the Empathy Hierarchy and the sentences are acceptable.

In (23) and (24), the same kind of counterbalancing can be seen to give the advanced NP equal or higher rank with the demoted NP, and the sentences should be acceptable; however these are not as acceptable as those in (21), so that definiteness seems to be more important than animacy:

23a) ?They gave a boy the dog (2+3=5/3+2=5)
b) ?A boy was chased by the dog
24a) ?They may give a child the toy (1+3=4/3+1=4)
b) ?A child could be crushed by the stone

In (25), there are two possible readings, where 'a linguist' could be interpreted either as specific or as nonspecific:

25a) They may give a child the dog {?(1+3=4/3+2=5) (2+3=5/3+2=5)}
b) A child may be attacked by the dog

If the nonspecific reading is chosen, that NP would have a lower ranking on the Empathy Hierarchy than the demoted NP and the sentence would be unacceptable. Thus the only acceptable reading would be the specific one. It is cases like this that have led people to think that transformations 'changed meaning', when in fact, one reading was more acceptable than another as a result of semantic constraints.

From the preceding observations, I conclude that there is an Empathy Constraint that can be stated as follows:

The Empathy Constraint

If an advanced NP is lower on the Empathy Hierarchy than the NP it replaces, then the sentence is less acceptable.

This constraint, when looked at within Kuno's framework, can be seen as related to his 'Ban on Conflicting Empathy Foci' (Kuno and Kaburaki 1975). The Empathy Hierarchy, on the one hand, specifies which NP's would be most likely to receive Empathy focus. The advancement rules, on the other hand, can be seen as rules which move NP's to positions of Empathy focus. Given a sentence with two NP's, one higher in Empathy potential than another, if the one lower in Empathy potential is advanced into the position of Empathy focus, and the higher one demoted, then one has two conflicting Empathy foci--one based on the advanced position, and one based on the meaning of the demoted NP.

This interaction of definiteness and specificity with humanness and animacy in terms of what can be called Empathy can be found in languages other than English. In Navaho, an analysis by Frishberg (1972) shows the following data:

26a) *tsin shilii adah abiilgo
branch my horse off pushed
'The branch was pushed off by my horse'

b) eitsin lii adah abiilgo
that branch horse off pushed
'That branch was pushed off by a horse'

In an earlier section of this paper, sentences like (26a) were described an unacceptable because passive was supposed to apply only if the noun to be advanced was animate. However, Frishberg states that 'by qualifying an inanimate with a possessive or deictic, sentences like [(26a)] become grammatical and ambiguous. By making it clear that a NP refers to a specific item, the NP is raised in the hierarchy.'

In Japanese, Murakami (1976) has pointed out a similar phenomenon:[7]

27a) *Cheese-ga Nezumi-Ni taberareta
cheese rat eaten by
'The cheese was eaten by the rat'

b) Watashi no cheese-ga Nezumi-Ni taberareta
my cheese rat eaten by
'My cheese was eaten by the rat'

While (27a) is unacceptable because cheese is inanimate and the

rat animate, (27b) is acceptable because 'My' or even 'this' or 'that' would add the referential information that would raise the level of 'the cheese' on the hierarchy.

In conclusion, I would like to point out that Osgood and Bock (1976), through experiments in psycholinguistics, have found evidence for principles of constituent ordering quite similar to those mentioned here. They use the term salience as a key term for three principles: naturalness, vividness, and motivation in the speaker. About naturalness, they say that 'the natural order of constituents will correspond to that most frequently experienced in prelinguistic, perception-based comprehending.' Vividness refers to 'the inherent salience of the semantic features, their affective intensity (vampire vs. man)'. Osgood and Bock say that those constituents with the most vividness will tend to shift leftward in sentencing--thus earlier in expression. Motivation of the speaker refers to the salience attributed by the speaker to the meaning components as wholes (interest, concern, ego-involvement, and focus). These will tend to shift leftward in sentencing and be earlier in expression.

Thus it seems that the constraints described here are not just linguistic strategies, but are closely connected with perceptual strategies as well.

Footnotes

[1]The terms 'advance' and 'demote' are from Perlmutter and Postal's theory of Relational Grammar (as presented at the LSA Summer Institute 1974), in which the grammatical relations subject, object, and indirect object are undefined primitives called Terms and are ranked hierarchically (I, II, III, respectively). In this theory, Advancement Rules are rules which advance a NP up the hierarchy such that it assumes the grammatical relation of another NP. In Dative Movement, a Term III is advanced to a Term II, and in Passive, a Term II is advanced to a Term I. The NP which is replaced ceases to bear any grammatical relation and is said to be 'demoted' or to be a 'chomeur' (i.e., unemployed).

[2]For simplicity, I have used only determiners with common nouns, because proper names and the personal pronouns seem to vary slightly in the degree of referentiality exhibited. I am also ignoring variations in the referentiality of indefinite-specific NP's which can be very concrete in their existence, or merely presumed to exist.

[3]Other marked constructions in English, like Topicalization, Left Dislocation, and Tough Movement, have a constraint prohibiting promoted or fronted NP's from being indefinite specific, but that constraint does not involve interaction with another NP in the sentence, nor does it involve humanness and animacy:

*A/The lamb, they fed to the lion/the Christian

*A/The lamb, they fed it to the lion/the Christian

*A/The lamb was easy to feed to the lion/the Christian

[4]For simplicity, I have restricted this hierarchy to three levels. Nevertheless, there are rankings within each level. Hawkinson and Hyman (1974) present a hierarchy of 'natural topic' which deals with the ranking of animacy in Shona, from the personal pronouns to inanimate things. Kuno and Kaburaki (1975) use a speech-act

participant hierarchy (speaker-hearer-third person) as well as a humanness hierarchy. Zubin (1976) uses an egocentric hierarchy (speaker-hearer-other person-concrete (inanimate)-abstract). And Cooper and Ross (1975), in examples of their 'me first' principle for ordering coordinate NP's, use everything from animacy, male chauvinism, and patriotism to solidity, generality, and count.

[5]This observation was made by Noriko Akatsuka in a class presentation at the University of Illinois in 1968.

[6]This definition was given in a class lecture at the Summer Linguistics Institute in 1976.

[7]These examples were from personal communication.

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