ACQUISITION OF LISTING INTONATION IN ENGLISH CHILDREN

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ABSTRACT
This paper examines the intonation of lists (enumerations) in two British children at ages 2:0.3 and 2:4.27. The patterns found are compared to standard reports in the adult intonation literature for British English. Theoretical proposals are then advanced as to how such patterns are constructed and employed in both child and adult language.

INTRODUCTION
This research forms part of a doctoral study examining functions of intonation in the speech of five children between 1:10.3 and 2:8.14. Data were recorded naturally in the children's homes with at least one parent and one researcher present (recordings and transcriptions were kindly supplied by Dr. E. Lieven). Intonation was transcribed auditorily by the present author by means of an interlinear tonetic notation (instrumental analysis was attempted but proved impractical due to recording conditions).

This paper specifically considers the intonation of counting sequences (a type of listing activity) produced by two of the subjects of the larger study. The author is aware of only one published mention (in passing) of listing intonation in the acquisition literature but there are a number of references to lists or enumerations, albeit usually brief, in standard accounts of adult British English, and it will be helpful to consider some of these first.

ADULT LISTING PATTERNS
It is common in the literature to make a distinction between incomplete and complete lists, in this paper hereafter referred to as open vs. closed lists. Crystal describes this as "the distinction between a limited or an unspecified number of alternatives" [2]; where there is a fixed number of items, he gives the pattern as rising nuclei on prefinal items with a falling nucleus on the final item as in his following example (here, relevant pitch accents are shown schematically immediately prior to the accented syllable):

1. Would you like gin or whisky or tea?
This is in contrast to a realisation with a final rise, where the number of possible items in the list is not limited to three actually given, thus:

2. Would you like gin or whisky or tea?

Both patterns are commonly given in the literature, but a variety of other patterns are also reported. (3) below represents a summary of the patterns described by Crystal [2], O'Connor & Arnold [3], Halliday [4], Kingdon [5], Cooper-Kuhlen [6] and Schubiger [7].

(3)
(a) Closed Listing Patterns (Adults)
(i) rise+rise+...+rise+fall
(ii) rise+rise+...+rise+fall-rise
(iii) rise+rise+...+rise+fall-rise+fall
(iv) rise+fall+fall-rise
(v) rise-fall-rise+fall
(vi) level+level+...+level+fall
(vii) level+level+...+level+fall-rise
(viii) fall+fall+...+fall+fall
(ix) fall+fall+...+fall+fall-rise

(b) Open Listing Patterns (Adults)
(i) rise+...+rise
(ii) fall+fall+...+fall

Working on the assumption that these patterns give an accurate account of adult British English listing intonation, we can make the following generalisations. A closed listing pattern must finish on a fall, or in certain cases on a complex rise (fall-rise or rise-fall-rise); it must not finish on a simple rise. Prefinal tones are generally of a uniform type and will typically be rises (whether simple or complex) or levels (which we will treat as a subtype of rise, following Cruttenden [8]); exceptions are where the entire list is realised on a string of simple falls, or where only the penultimate item bears a rise, flanked by simple falls on all other items. An open listing pattern will have uniform tones throughout (final and prefinal) and will typically involve either simple rises or simple falls, the simple fall sequence thus being ambiguous between the two categories.

It should be observed, however, that the remainder of this paper will be primarily concerned with counting sequences, and whilst it seems highly reasonable to treat these as a form of listing activity (cf. [3] pp.58-9), intuitively the author feels that Kingdon's patterns ending in a fall-rise or rise-fall-rise (i.e. (3a ii, iii and vii)) would only be expected to be appropriate where some sort of correction of a previous miscount is involved. Leaving these three patterns aside produces a rather generalisation about the remaining closed listing patterns: they all end in a variety of fall (for the grouping of nuclear contours into falls and rises according to final pitch movement, see inter alia [8]).

The schematic overview in (3) above marks the fact that these adult listing patterns can be considered in two ways: as compositional sequences of concatenated nuclei; or as holistic contours. Both views are implicit in the literature, although rarely elaborated. O'Connor & Arnold [3] and Crystal [2] imply the compositional view by inserting tone unit boundaries after each item in the enumeration. Halliday [4], Kingdon [5], Schubiger [7] and (following Schubiger) Cooper-Kuhlen [6] suggest the holistic view for some of the closed listing patterns. Halliday does this notationally by treating the prefinal pitch accents as constituting a listing pretonic segment, with the whole pattern as a single tone unit; likewise Kingdon [5] states that enumerations form "single sense groups" (all his examples are closed). Schubiger [7] and Cooper-Kuhlen [6] are most explicit of all, arguing that the itemisation is realised on a string of simple falls, or where only the penultimate item bears a rise, flanked by simple falls on all other items. An open listing pattern will have uniform tones throughout (final and prefinal) and will typically involve either simple rises or simple falls, the simple fall sequence thus being ambiguous between the two categories.

CHILD LISTING PATTERNS
We now turn to an examination of some of the counting sequences occurring in the child language data for this study. Examples (4), (5) and (6) below were produced by child AT at age 2:0.3 (in all excerpts shown here, M designates the child's mother and C the child). Here we see three counting sequences produced by child AT: two (those in (4) and (6)) are elicited by a prompt from AT's mother; that in (5) however is a spontaneous production. At first glance, all three patterns look very adult-like, and on the basis of the adult patterns given in (3a & b) we can hypothesise that (4) contains a closed list (pattern (3a i)) whilst (5) and (6) contain open lists (pattern (3b i)). In view of this hypothesis, let us now consider these examples more closely. In (4), we know that there are four jigsaws to be counted. M prompts C to start counting, and C counts to five. Whilst the number is inaccurate, the decision to realise the sequence as a series of prefinal rises plus a final fall is appropriate, since the situation involves a specific limited set of items. It is clear that this is not a case of imitation, despite M's...
prompt, since at the lexical level different
numbers are inserted by C and at the
prosodic level it is her own decision to
employ the final fall. What we do not
know here, unfortunately (due to insuffi-
cient contextual information), is whether
C is associating each number with a
visible referent or whether she is
uttering the counting sequence in ab-
stract. More will be said on this point
later.

(4)
M: How many jigsaws did you do?
C: One —
M: No, you only did four, didn’t you?

(5)
M: Are you going to put all these bits in?
You’ve got to count them. We need
twelve, don’t we?
C: Seven — eight — nine —ten
M: Eleven. . . Let’s have a look: two —
four, six, . . .

(6)
M: We need four of these bits —
so one —
C: Two — three — four
M: . . . We’ll do that one again before
we put it away, shall we?

In (5), we know that there are twelve
items to be counted, and since C stops
her sequence at ten, the final rise is four
may be an appropriate indication that the list
is unfinished (sadly, again, we do not
know whether each number is being asso-
ciated with a referent here). However,
if we consider the similar case in (6), we
find that C is in fact not making the
open-closed distinction consistently: in
this case we know that there are four
items to count, and whilst C counts to
four, the fourth and final item receives a
rise, which makes this an inappropriate
use of an open listing pattern on a
closed list. So we can conclude here
that child AT has mastered the intona-
tional form of counting sequences but
not yet their function.

We can now look briefly at data from
one other child. Examples (7) and (8)
are from child AH at age 2;4.27. Both
these examples are unelicted (and
probably uttered referent-free):

(7)
C: One — two — three — four — five
(8)
C: One — two — three — four — five

(7) seems to be an archetypal closed
listing pattern as in (3a) i, and we might
wish to conclude from this that child
AH has mastered at least the form of
this closed listing pattern. However, the
pattern in (8) deviates to some extent
from the adult forms; it introduces high
shallow falls in penultimate and antepen-
ultimate positions. This may nonetheless
be not too far from adult real-
alisations: it is sometimes claimed that
overall high pitch and suspension above
the baseline for units of continuity are
related to an actual rising movement (e.g.,
[9]). There may also be related regional di-
ialectal considerations in the case of this
particular child (Glasmwegian and Mancunian influences; cf. [10]). The
final fall in these examples is however
not subject to variation, so this child is
probably well on the way to mastering
the formal characteristics of the closed
list.

THEORETICAL DISCUSSION

The majority of the listing patterns
considered in this paper and in the liter-
ature involve rising tones in prefinal
position. It is tempting to view the use
of rises in listing sequences as fulfilling
a continuity function, whether in the
case of prefinal rises which are then
indeed followed by further material, or in
the case of final rises in open lists,
where there is the potential for further
material to follow. Indeed, this interpre-
tation of adult listing intonation is im-
plied by O’Connor & Arnold [31] and
suggests a compositional view of listing
patterns.

However, in view of the acquisional
data, the issue seems more com-
plex than this. We have already made
a distinction between acquisition of the
form of listing patterns and acquisition of
their function (i.e. appropriate choice
of variant). In the data we have consid-
ered, the children do not seem to be
constructing continuity rises by one by one and indicating completion
with a final fall; rather, they seem to
have a holistic pattern, or template, in
mind for the sequence as a whole, for
example: rise+rise+. . .+rise+fall, into
which varying lexical material can be
inserted in varying amounts, but which
must retain certain intonational charac-
teristics across all instantiations.

The question then arises: what are
adults doing when they produce listing
sequences? Are they constructing these
units by unit on the basis of continuity
rises? It seems perfectly possible that,
adults too have a ‘stretchable’ template
in mind in advance for the entire se-
quence, and need only really consider
the question of continuity with regard to
the final item; this decision itself might
be made in advance in selecting a
closed rather than an open template be-
fore the sequence is started, or it might
be made towards the end of the produc-
tion of the sequence. In the latter case,
both two templates, an open one and
its closed equivalent, would have to be
available in parallel; or else the first part
of the pattern only would be holistically
planned, and the last one or two items
added semi-compositionally. This tem-
plate hypothesis does not deny that the
use of rises in listing patterns originated
(historically) in a genuine continuity
function, but such patterns seem so in-
grained as speech habits that it seems
more likely that they are stored and
activated as prefabricated templates than
that they are built, as it were, brick by
brick each time, even when they are
being used functionally. It is also im-
portant to observe that even adults treat
counting sequences in two ways: as a
series of labels applied to successive
related referents (a functional use), and
as a series of prememorised recitation
sequence (a predominantly formal use —
as in response to: “Close your eyes
and count to ten”). Although it is the ab-
stract recitation form which a child ac-
quires first, the fact of this dual adult
usage means that unlike in many other
cases of early item-learning [12], the
child must still retain and employ
the unanalysed recitation sequence even af-
ther he/she has learnt the functional use
of its analysed components. It would
thus seem more reasonable that as an
adult and even in functional contexts
a speaker bases the form of his/her count-
ing sequences on the analogy with the
prememorised sequence rather than
constructing it from scratch on each oc-
assion.

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