Using Production Clusters to Measure Learner Oral Production in Pair Work Tasks

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ABSTRACT:
This paper introduces an experimental concept called the production cluster. The production cluster is a unit for measuring language complexity in open-ended pair work tasks. Current task-based studies often rely on units that when applied by the researcher involve breaking down learner production rather than looking at it holistically. The production cluster is a holistic macro-unit comprised of AS-units (Analysis of Speech Unit) that reflects concentrated learner engagement in his/her oral production and learning.

1.0 Introduction and Background
The idea of experimenting with a new measurement tool for language complexity came from reviewing learner task production data, and being dissatisfied with current measurements that did not appreciate the nature of learner performance during open-ended thematic based pair work tasks. Analyzing learner production tasks I observed that there was a specific characteristic of performance that distinguished productive learners from unproductive learners. At some point during a pair work task productive learners would focus their language resources on a specific topic and push their language production. This pushed output by the learner produced a cluster or concentration of language that established an overall topic that was built up incrementally. This process I discovered was partially recognized by Chafe (1980) as a speaker’s ‘center of interest’. Describing a center of interest Chafe (1994) writes:

We constantly try, nevertheless, to push the capacity of focal consciousness beyond the bounds of a single focus, attempting to embrace larger more intellectually challenging conglomerates of information. ( . . . ) These centers of interest are not limited by our wired-in mental capacities, but represent attempts, with varying degrees of success, to push the mind beyond the constraints of active consciousness (pg 140).

According to Chafe (1980) ‘centers of interest’ represent attempts to stretch our limited cognitive capacity as we engage in unfolding language production. Chafe believes that this process is the result of the limitations of our cognitive capacity and reflects the nature of our consciousness. These cognitive limitations are as follows:

- Limited capacity for activating information
Chafe sees a center of interest as a process where a topic is held in ‘peripheral consciousness’, and is then ‘scanned’ and utilized to produce an extended piece of production. For Chafe as his quote notes, a center of interest is comprised of unfolding verbal judgments that are made during the ongoing process of language production in regards to available information. Another way of understanding this process in relation to language production is to understand that speakers in conversation regularly employ an incremental clausal chaining strategy. In regards to this process, and how the speaker achieves language complexity through it, Thornbury and Slade (2006) write:

The complexity is achieved not by embedding constituents within a pre-determined sentence frame, but through the successive (and potential limitless) accumulation of individual clause like units. The logical connections between such units are indicated using discourse markers (but, because, unless, in which case, so . . . ) to signal the incremental twists and turns of the speaker’s train of thought (pg 75).

‘Bit by bit’ production complexity when it is unpacked is ‘syntactically simple’, but the overall ‘cumulative effect’ is syntactically complex. For beginner L2 learners it is of course a significant challenge to produce the type of complexity described by Thornbury and Slade when doing real-time conversation. I therefore decided to think of language complexity, or orientation towards it in relation to centers of interests or their structural equivalent, what I call ‘production clusters’. I also suggest that production clusters reflect learner ‘engagement’ in language learning and development. According to Ohta (2001: 250) engagement by the language learner is positive and sustained multifaceted orientation towards L2 use. Engagement relates to a number of learner activities that could involve taking risks with grammar or vocabulary to extend or improve meaning, or it could also involve attending to language form by self-correcting. Finally, it could involve the learner trying to improve their fluency.

2.0 The AS-unit as a base unit for Production Clusters

To turn the concept of center or interest into a structural unit that can be used to measure learner performance, I decided to employ the AS-unit (Analysis of Speech Unit) (see Foster et al. 2000) as the base unit for production clusters. The AS–unit is one of the more popular tools used to reduce learner speech into analyzable units. The AS-unit is a syntactical unit that is comprised of a main clause, and any attached subordinate clauses. In addition sub-clausal units may constitute AS-units. A sub-clausal unit is a minor utterance or any utterance that can be made into a full clause by adding ‘ellipted’ parts. While the AS-unit is primarily a syntactical unit, Foster and et al. argue that for the AS-unit to be valid, it must
reflect the psycholinguistic processes of what a learner can do in a ‘single unit’ of micro-planning. For identifying AS-units Foster et al. consider the unit to be primarily syntactic, but prescribe an important secondary role for intonation and hesitation phenomena. In this paper the production cluster is comprised of a cluster of AS-units that relate to a single theme or topic. In this sense clausal chaining which is the main process behind a center of interest is instead in this paper AS-unit clustering.

The first step in identifying production clusters is to identify speaker topics. In my data I found that production clusters are demarcated in a dialogical tasks by shared pausing, or by questions that are used by either participant to change the topic or turn. My data showed that many times the speaker completes his/her production cluster by asking a question similar to the one they are talking on. A learner repeating himself/herself is also evidence of the end of a topic (see Tannen 1985). Questions that are used to negotiate meaning, content, or form are not used to end a production cluster. In the next section I will provide two examples of production clusters from two learners and demonstrate the concept of learner engagement.

2.1 Learner L’s Production Cluster

Below in excerpt (1) is learner L’s production cluster (in bold letters) taken from her larger task performance (see appendix 1 for both learners’ complete task performances). The production cluster below is 16 AS-units long with the AS-units ranging from one word to ten words. AS-units are demarcated by slashes: 13 L: /It it don’t become round/ (1AS 5). In this example, the first bracket within the AS-unit is a dysfluency. Dysfluent words are not counted as part of an AS-unit’s word count. The second bracket contains the number of AS-units present in L’s one turn, and then how many words the AS-unit contains. In this case there is only one AS-unit in her turn, and it is five words.

(1)

2 P: Hello have you ever had a pet?
3 L: /Yes I have a rabbit in my parents house/ /(mm 3.0) It’s name is Maru / (2AS 9+5)
4 P: Maru?
5 L: /Maru/
6 P: Mm
7 L: /Because (its mm 2.2) it sleep round/(1AS 4)
8 P: Round?
9 L: /(When) when it sleep it become (rou) round (1AS 6)
10 P: Ah ah
11 L: /But (mm) in summer (it) it sleep (2.5) up length up length/ (1AS 7)
12 P: Mm
13 L: /It don’t become round/ (1AS 5)
Shared pause 6.20
14 L: /And it likes to/ it likes (1.57) to (.84) bite anything/ (1AS 6)
15 P: Ah ah
16 L: /It bites my clothes, shoes, and pole of my house/ (1AS 10)
Both laugh
17 L: /Ah my mother (mm 1.59) sometimes angry (laughs)/ (1AS 4)
18 P: You and your family mm (don’t try to mm 3.70) don’t try to (mm 3.80) have Maru have Maru stopped
19 L: /Yes/(1AS 1)
20 P: Ah do you do so?
21 L: /(laughing) Every time (P: same time says every time) but he runaway very fast/ (1AS 8)
22 P: Ah (laughing)
Shared pause 2.68
23 L: /And (it it runaway) sometimes it runaway from his box/ (1AS 7)
24 P: Mm (1.70)
25 L: /And one day (I) I sleep in my room /And (1.60 mm) (I heard 3.30 mm it ) ah I heard (4.50) (his his) his voice (laughs)/ (He) he enter my house and (he sleep) he slept in my room (2.72) / Because he runaway from his box/ (4AS 8+5+10+6)
Shared pause 5.45
26 L: /How about you?/ (1AS 3)

At turn 25L the learner produces four AS-units, With the exception of one AS-unit, which is coordinated, none of the units are complex; however, combined they produced a fairly complex mini-narrative. The AS-units in this learner’s center of interest are mostly comprised of simple clauses. The center of interest is about her rabbit, which with the help of her partner she clearly attempts to elaborate on. For example in response to her partner’s initial question, she answers that she has a rabbit. From here based on her partner’s interest, and clarification request, she then explains the reason for its name, and even attempts to describe its different sleeping patterns. After a shared pause, she pushes her center of interest by describing her rabbit’s biting habit, for which she further adds detail by explaining her mother’s reaction to the biting. Next L’s partner asks a question to further push L’s production for which L then produces a small story about her rabbit.

This learner’s production cluster has a number of positive production and learning activities that constitute the concept of engagement. First, there was the negotiation of meaning and negotiation of content between the pair. In the case of the former, on two occasions the speaker is asked to clarify the rabbit’s name and its
meaning. With negotiation of content, the interlocutor asks the speaker to explain why her family can’t stop the rabbit from biting. A second feature of engagement applies to her final turn, and the four AS-units that combined produce a mini-narrative. From a processing perspective this is difficult in that it requires the L2 speaker to ‘keep track’ of prior units while adding on language that maintains the direction and coherence of the narrative. Moreover, while keeping track of units, the learner also manages to show an orientation to accuracy by correctly reformulating the past tense of sleep. In the last turn there is also arguably another type of engagement or ambition being demonstrated by the learner. The dysfluencies are the result of the learner trying to push the limits of her processing capacity, and produce an extended piece of production. If psycholinguistic standards for AS-units were ignored then the first two units would be coordinating clauses rather than separate AS-units. Task-based research tends to focus only on successful risk taking, and not acknowledge risk taking or ambition that is unsuccessful as in the example above. The reason for recognizing unsuccessful risk taking is because it is evidence of learner engagement in the L2 for the purpose of language development and learning. One other final important point that is worth considering about the production cluster is that inside it the learner is engaged in fluency (meaning), form (accuracy), and complexity simultaneously. Kumaravadivelu (2007) calls this all at once focus the ‘multidimensionality’ of task performance. Accordingly, the three dimensions are interrelated, and, moreover emerge out of each other. In the excerpt above the learner shifted her focus as her language production unfolded in time. The idea of multidimensionality of task performance contrasts with the popular idea in task-based research that learner focus is an either/or dimension. (see Van Patten 1990, 1996).

2.3 Learner M’s Production Cluster

Excerpt (2) is from learner M and it is on a different topic. Like the first learner, the production cluster below is the best part of learner M’s task performance. The excerpt below contains a number of examples of learner M trying to be ambitious in her production.

(2)

Shared Pause 6.73

5 M: /(Before laughs) before conversation (the) she says (the 1.32) the age had nothing to do with marriage (inaudible) /but (mm) I think her idea is (1.88) right /(1.73) because I/(2AS 12+7)

6 P: (Interrupts) nani to nani ga kankei nai marriage to

7 M: /Marriage (to toshi) age/

8 P: Ah

10 M: /Because I also think (2.74) the age is (not) not so important so my mother’s friend married the person ah who is the same age my grandpa/ (1AS 24)

11 P: Oh Oh great story great story
12 M: /great story/(So and so the she her her) her son is (my) my same age/ (1.91 but 2.60) but he said his father grandpa/ (2AS 6+6)

Both Laugh

13 P: Ah little strange

14 M: /(So that umm between the fufu between the)

15 P: Eh couple

16 M: / Between the couple so (age) age (is) has nothing to do (with) with marriage / (but 2.02)
and (kids) the kids care the father’s age because he always seems a little strange (from eve) from someone/ (2AS 11 + 17)

This production cluster starts from a question from M to her partner about marrying someone older. After a shared pause M pursues the topic at the fifth turn of the performance by introducing her previous partner’s opinion. This consists of two AS-units both of which contain two utterance launchers with a personal pronoun + lexical verb phrase. M also employs a five-word formulaic bundle, noun + has nothing to do with + noun (note: she uses it again at the end of her cluster with the correct tense). M then tries to qualify what she just said, and does this by producing one AS-unit that involves clausal embedding (see 10 M). She starts with Because I think with a that-clause (that is omitted), followed by the subordinator so, which appears to be part subordinator and part discourse marker. Finally, she finishes the AS-unit with a relative clause involving the relative pronoun who. At 12M the speaker continues to expand her production started at 10M. Here M produces two short AS-units, which involve a dysfluency in the first unit, and then a long pause in the second. In the second despite the pause, she still produces a unit that is mostly incomprehensible. At this point M is struggling with her production; she appears to know what she wants to say, and tries to, but is unsuccessful. One possible reason is that the previous unit with its multiple clausal embedding taxed M’s processing capacity to the point where she is unable to keep her production going in real-time at that rate. In addition what she wants to say, which becomes evident at 16M, is quite difficult. While this part of her task performance appears to be production failure, from another perspective it demonstrates learner risk-taking despite obvious limitations doing so. What is more M does not give up, but again attempts in her final two units to qualify what she unsuccessfully previously said and while not being completely successful her explanation is comprehensible enough. This final cluster also has a formulaic-like pronoun/noun + always seems + adjective + to + noun/pronoun or verb.

3.0 Summary and Conclusion

Production clusters in this paper represent learner engagement in the L2. As demonstrated this engagement is multidimensional in that in any productive cluster learners will be shifting focuses between fluency, accuracy and complexity. The product of this engagement is a lot of AS-units in close proximity, focused on a related theme or what Chafe calls a centre of interest. This period of engagement, which normally
centers on a topic or theme, contrasts with when in the same task performance or a repeated task performance the same learner is ‘disengaged’, and only producing minimal and elliptical language, which in the end has no benefit for the learner’s language development and learning. Learner task performances are not constant from start to end, and productions clusters represent portions of performances or even whole performances of productive learner engagement. It is also possible that production clusters may be absent from a whole task performance.

In regards to the production cluster I believe there are three problems with it. The first weakness of the clustering concept is that inside the cluster most activities by the learner can be classified as learner engagement. I viewed all engagement as positive; however, this is not too problematic as the production cluster is supposed to represent holistic learning, and, therefore, it is not supposed to discriminate for example between degrees of risking taking or the reformulating of errors as opposed to reformulating of performance mistakes. The second obvious problem of the production cluster is that whether it is productive or unproductive depends on my interpretive judgement of what constitutes learner engagement. The researcher cannot know for certain what the learner was doing or trying to do. As Batstone (2007: 89), notes nothing in the classroom is self-evident, and everything in the classroom involves interpretation by the researcher. He rightly points out that quantitative studies are also interpretive in that researchers convert data into ‘abstract tokens’ that involve the researcher ‘cutting away’ data and decontextualizing it. By doing this, researchers are sometimes guilty of forcing the data to fit the research. In the case of the production cluster no discourse or language is left out, and while some of my examples are disputable in terms of their relevance to language learning and development, nonetheless, it does seem fair to conclude the productive cluster does reflect a certain reality of learner performance during a task performance that again is holistic and constitutes engagement in the L2 relative to other parts of the same performance.

The biggest problem with the production cluster is that it is focuses on the production of the individual learner, despite being demonstrated that the success of the learner was significantly dependent on the willingness of the interlocutor to ask questions and give support. The most productive clustering was clearly supported by the interlocutor, and so the productive cluster is somewhat wrongly classified as being an individual’s engagement of his or her own production. However, it is incorrect to attribute the production of the speaker strictly to the interlocutor’s support, as the speaker also makes the choice to demonstrate engagement, and this of course influences the interlocutor actions. Productive clustering involves a collaborative process between two learners, but the interlocutor’s role is almost entirely supportive and secondary to the speaker’s engagement in the L2. The interaction is not a dialogical conversation, but rather involves a learner establishing his/her own center of interest within his/her own recognized individual discourse space, which is supported then by the interlocutor. This type of discourse pattern appears to be one of the more ideal ways to have learners push their output production. From
looking at other data, more conversational-like production between learners consisted of more topics and shorter turns, which resulted in that portion of their production not being classified as productive. This means that pairs that tried to be conversational were deemed as unproductive. In this sense the production cluster reflects that part of a conversation that is perhaps the least ‘conversational’. In concluding this paper I have tried to demonstrate that production clusters are useful for analyzing learner performance holistically. While the concept is still in its exploratory stage my future work is to continue to test and refine it.

Appendix 1: Transcripts

Transcript Conventions
1 L:        Identified learner and turn (L’s first turn)
2 P:        Indicates partner (not focused on in study)
( ):        Dysfluencies and timed pausing (not counted as part of an AS-unit)
/ /:        AS-unit boundaries
(2AS 4+3 10.00): Indicates two AS-units per turn, their word count (four words and three words) and time in seconds to produce the units (ten seconds)

Appendix 1.1 Learner L’s Task Performance

1 L:        /Hello/
2 P:        Hello have you ever had a pet?
3 L:        /Yes I have a rabbit in my parents house/ / (mm 3.0) Its name is Maru / (2AS 9+4 8.60 seconds)
4 P:        Maru?
5 L:        /Maru/  
6 P:        Mm
7 L:        /Because (its mm 2.2) it sleep round/ (1AS 4 6.95)
8 P:        Round?
9 L:        /(When) when it sleep it become (rou) round (1AS 6 3.47)
10 P:       Ah ah
11 L:       /(But (mm) in summer it) it sleep (2.5) up length up length/ (1AS 7w 10.30)
12 P:       Mm
13 L:       /(It) it don’t become round/ (1AS 5 2.46)
Shared pause 6.20
14 L:       /And (it likes to) it likes (1.57) to (.84) bite anything/ (1AS 6 8.07)
15 P:       Ah ah
16 L:       /It bites my clothes, shoes, and pole of my house/ (1AS 10 6.52)
Both laugh

17 L: /Ah my mother (mm 1.59) sometimes angry (laughs)/ (1AS 4 3.63)
18 P: You and your family mm (don’t try to mm 3.70) don’t try to (mm 3.80) have Maru have Maru stopped
19 L: /Yes/(1AS 1 .2)
20 P: Ah do you do so?
21 L: /(laughing) Every time (P: every time) but he runaway very fast/ (1AS 8 4.60)
22 P: Ah (laughing)
Shared pause 2.68

23 L: /And (it it runaway) sometimes it runaway from his box/ (1AS 7 6.51)
24 P: Mm (1.70)
25 L: /And one day (I) I sleep in my room /And (1.60 mm) (I heard 3.30 mm it ) ah I heard (4.50)
(his his) his voice (laughs)/ (He) he enter my house and (he sleep) he slept in my room
(2.72)/ Because he runaway from his box/ (4AS 8+5+10+6 40.56)
Shared pause 5.45

26 L: /How about you?/ (1AS 3.45)
27 P: Ah (I I’m) I have not have pet (.98) but (a h.70) I like animals (Ah 3.84) (when I was when I
when I walk to) when I go walk in the park (ah 3.26)
In the park (um 2.70) many (5.56) (people) other people ah also go to the park (with their) with
their dogs so (uh 2.25) at the weekend in the park there are many dogs/ (is this change ok) ah I
think the number of dogs (2.9) are (more) than ah (people) the number of people (laughs)
Shared pause 3.8

28 P: Ah (5.0 mm I I) ah If possible I would like to have a cat (3.56) (but ah 2.16 now) but now I live
in (ah 2.06) apartment (ah 1.41) So (mm 2.12) (I can’t I can’t) I can’t have a pet
29 L: /You like cat better than dog?/ (1AS 6 3.80)
30 P: Ah mm yes uh but (I don’t like ah I don’t hate to) I don’t hate dogs
Shared pause 6.00

31 P: How about you?
32 L: /I like dog/Cat is (1.99 not) not dislike but (1.98) dog is better/ (2AS 3+8 10.02)
33 P: Mm
Shared pause 4.52

34 L: /Cat (1.68) it don’t like to be touched/ (1AS 8 7.21)
35 P: Mm
36 L: /Ah if I try to touch they don’t like that so I can’t touch/ (1AS 15 9.39)
To be touched (B says this right when A says ‘try to’) (I) ah (3.00) (the reason) the reason why I like cats is (mm 9.81) (I assume that (1.50) was (1.50) I tend to be like by cat mm I don’t know (laughs)

So (ah 2.73) when I went to the house of friends (ah 1.78) the friends had a pet a cat (1.34) (don’t ah be were not 2.25) were not friendly with my friend but ah (7.38) they (2.4) (4.97) they (3.0) they (3.0) they makes they makes around they makes (11.18) (the cat) go to me (3.42) (go to me) go around me (ah 3.32 make their head) make their head touch my leg

So I like cats they are very pretty

Have you ever have goldfish? (1 AS 5 4.07)

Ah yes

Me too goldfishes is very popular? (1 AS 6 3.02)

Yeah

But we can’t touch or (P: interrupts yes) speak? (1 AS 7 6.33)

Ah also have had a goldfish (ah 3.49) (I have) a goldfish (I have) I had (is was very) (2.65) was very (3.07 when I was a child) when I was a child (um 1.88) I get it in the festival of summer

Ah in shrine? (1 AS 2 0.73) (cuts in on P after summer)

Appendix 1.2 Learner M’s Task Performance

(Wo would) would you marry the person who is ten years older than you? (1 AS 12 4.90)

Ah I want to get married thirty-three years old

(restates question in Japanese)

(laughs) (Ah I don’t want to closest) I to a want a man who is closest

Shared Pause 6.73

(Before laughs) before conversation (the) she says (the 1.32) the age had nothing to do with marriage (inaudible) But (mm) I think her idea is (1.88) right (1.73) because I (2 AS 12 + 7 21.45)

(nani to nani ga kankei nai marriage to)

(Marriage to toshi) age/

/Ah/
Because I also think (2.74) the age is (not) not so important so my mother’s friend married the person ah who is the same age my grandpa/ (1AS 24 18.41)

10 M: /Because I also think (2.74) the age is (not) not so important so my mother’s friend married the person ah who is the same age my grandpa/ (1AS 24 18.41)

11 P: Oh Oh great story great story

12 M: /great story/(So and so the she her her) her son is (my) my same age/ (1.91 But 2.60) but he said his father grandpa/ (2AS 6+6 18.74)

Both Laugh

13 P: Ah little strange

14 M: /(So that umm between the fufu between the)

15 P: Eh couple

16 M: /Between the couple so (age) age (is) has nothing to do (with) with marriage / (But 2.02) and (kids) the kids care the father’s age because he always seems a little strange (from eve) from someone/ (2AS 11 + 17 32.75)

17 P: (I think I want) Ah I think that age is important (but but ah 2.63 age is ahh 2.34) but (my my mother 2.26 say eh today today ) my mother today live with a man (eh 3.52) (one eh ju-ichi) eleven years old 2.00 toshi shita

18 M: /Ah/

19 P: (asking for help in Japanese)

20 M: /Younger?/ (1AS 1 .41)

21 P: You younger younger hmm she looks happy (I think) recently I think mm 2.73 age is not important

Shared Pause 6.64

22 M: /Ah (ja tsugi wa where where would you would you ah) where do you want to go (by) in honeymoon?/(1AS 8 8.13)

23 P: (Ah I want to)I want to go abroad (as marriage) at the honeymoon (I don’t I never have been have been have gone to have been to have been to) I never (have been to abroad) have been to abroad and I want to get married abroad Where (do you) do you want to get married?

24 M: (Confirms in Japanese)

Both Laugh

25 M: /(I want to) I want to get marry in Japan/ (1AS 7 3.88)

26 P: /In Japan/

27 M: /Yukan ryoko wa/

28 P: Shinkan ryoko gomen

29 M: /Honeymoon is (P: Un) I want to go abroad/Especially I want to go England/ (2AS 7+6 8.39)

30 P: England
M: /Because (I have never) I have never been to England / And I want to go England (1 AS 7+6 6.84)

P: Ah (my sister is) my sister live in England today (She is) she is scone is really delicious (both laugh + slight pause 2.63) Ah England is maybe good place (I haven’t never gone I have never I have been) I have never been to there Ah what do you look for in a person?

M: /How long?/ (1AS 2 2.88)

M: /Ah ah/

P: (inaudible Japanese) (three) three qualities Do I use if there is Japanese

M: /Eh and ah first is his character (P: character) whether he is funny or not/ (1AS 11 8.37)

P: Laughs

M: /(I) I don’t want to married (si silence) silence man/ (1AS 8 3.61)

P: Silent man no hito

M: /Un and second is money/ (1AS 4 1.89)

P: Money

M: /Money/Because poor is very hard to live together and (thi) third is he’s tall/(1AS 14 14.63)

P: Tall

M: /Tall/

P: Oh

M: /(I I don’t want to) I don’t want to the man who is (talder) taller than I especially his tall over hundred seventy-five (Bah) I want/ (But but if I if I find there 2.78) if I fall in love that man so he is smaller than I maybe I don’t care/

P: Care

M: /(But) but (my wish) it’s my wish/ So what is your three qualities?/ (4AS 20 + 18 + 5+6 38.48)

P: First first 2.52 mm kindness because I think kindness is very very important eh second eh 3.05 hu humor humor

P: /Eh/Laughs

P: I love I love a man who is in who is funny funny third life’s stability Antei

M: /Ah/

P: Life’s stability because money is important important/ But love is important important which do want to which do you want to get eh do small or big marriage

M: /Ah I want a small marriage/(1AS 5 3.39)

P: Small marriage th that’s all girl that’s all girl that girl small too

(Teacher ends task)
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References


