

Drone Prosodics as Tradeoff for Working Memory Resources: Evidence from Play-by-Play Sports Commentary

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Résumé

Souvent décrit comme le ton typique du reportage sportif, le mode drone ne se trouve en fait que dans le commentaire sportif en direct, dont il est l'un des nombreux ingrédients prosodiques. De récentes études abordent la prosodie dronesque dans une perspective psycholinguistique, dans l'étude de traditions orales formulaires. Il y a de bonnes raisons de penser que le mode drone est un sous-produit de l'usage, extrêmement fréquent, de formules toutes faites, qui sont stockées et retrouvées comme des tous dans la mémoire à long terme, afin d'alléger la charge de la mémoire de travail à court terme.

Keywords: working memory resources, drone mode, speech formulas

1. Introduction

« Sports commentary can usually be identified by its intonation. Even when the words themselves cannot be heard, the fact that the speech is sports commentary: it is discernible even through a closed door », Judy Delin (2000) argues in her book on the Language of Everyday Life, and other linguists have agreed that an expressive use of prosody is a salient feature of sports commentary (e.g. Hoyle 1993, Pawley 1991, Kuiper et al.).

The typical *tune* that make sports commentary so easily identifiable is termed *drone prosodics* and carries aspects of pitch, volume and in particular intonation. Interestingly, drone prosodics is discussed in various studies as one of the key characteristics of *oral formulaic traditions* along with abnormal fluency of speech and syntactic fragmentation (Pawley 2007, Kuiper et al., Bowcher 2003). Auctioneers and aerobics instructors, as two further examples of communicators in oral formulaic traditions, show very similar characteristics of speech as sports commentators despite their different communicational goal.

A look at fast-paced live commentary of televised American basketball games will first highlight the main characteristics of drone prosodics at stake and the situational factors as likely trigger candidates. This will then allow drawing parallels to related types of oral formulaic traditions in order to get to the root cause of drone prosodics.

2. Prosodics in Sports Commentary

The advantages of studying drone prosodics with sports commentary are not only in the abundance of available natural speech data, but especially in the extreme parameter values of the droning. A prosodic analysis at a surface level can therefore be done without (or a minimum) of technical equipment.

Aiming at being informative and entertaining at the same time, sports commentary combines many different communicational tasks in order to provide the audience a complete and extensive coverage of a sports event. Four different utterance functions can be found that not only hold for basketball commentary, but for most televised team sports as well (Delin 2000):

- Narrating; describing the events of a running game play-by-play.
- Evaluating; personal opinions about completed action cycles.
- Elaborating; background information, motives, thoughts, etc.
- Summarizing; periodic overviews, updates about score and time, etc.

Color-commentary (evaluating, elaborating and summarizing) operates on the prosodic rules of everyday conversations. This is plausible, because the setup usually provides at least two commentators covering the three color-commentary utterance functions together as a team. On the contrary, play-by-play commentary (narrating) is covered only by a single commentator and deviates from normal conversational prosody. It can therefore only be this utterance function that is associated with the typical tune of sports commentary. Hence, we must look only at play-by-play, which roughly makes up only 30% of a basketball game coverage, to find the root cause of drone prosodics (Hartmann 2005).

2.1. *Volume and Pitch*

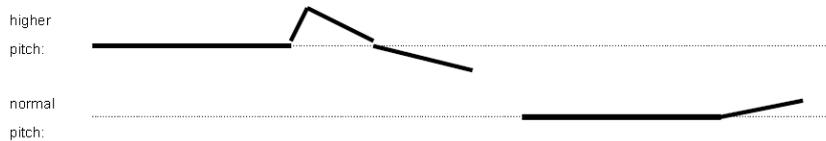
Depending on emotional factors a speaker may use a section of the pitch that is different from the natural one (Delin 2000). In play-by-play commentary excitement and involvement are often believed to be the triggering factors on pitch variation and the reasoning is that if a commentator during play-by-play picks up the excitement he will naturally use a higher section of his normal pitch range. Additionally,

increased volume often accompanies and reflects the involvement and excitement as well, but it is not conditional on pitch variation. Both features stand independently and are to be seen as two variables that create the characteristic tune of sports commentary (Pawley 1991, Kuiper et al.).

Kuiper and Haggio (1985) have argued that in horse race calling, the commentator's pitch rises significantly towards the end of the race. From the start of a race the event itself and the commentator accordingly build up excitement that is conveyed in the higher pitch range of the commentary until a climax is reached when the first horse crosses the finish line. Basketball and other team sports consist of a large number of small « races ». Every action cycle has a climax situation at some point: it can end in a successful or unsuccessful shot, turnover, foul, etc. However, unlike horse racing, where the excitement rises gradually, the pitch is kept at a relatively high level throughout the cycle.

- (1) Robinson goes down the lane NICE STRIP by MALONE ...(1.1) you could hear that all the way up HERE

Paul: *Robinson goes down the lane NICE STRIP by MALONE ...(1.1) you could hear that all the way up HERE ...(0.8)*



Example (1), taken from an original transcript, illustrates the relationship between pitch range and utterance function (Hartmann 2005). Up to the first longer pause of 1.1 seconds speaker Paul is narrating the events play-by-play audibly on a higher pitch with minimal variation that is accompanied by increased volume (marked as capital letters) indicating an event element of surprise. Immediately after the pause the commentary type shifts into color-commentary, specifically evaluating, which is produced on his baseline pitch of normal conversation.

It gets clear that color-commentary does not have the same prosodic patterns as play-by-play. Every shift from play-by-play commentary to color-commentary, and vice versa, is accompanied by the selection of the corresponding pitch range.

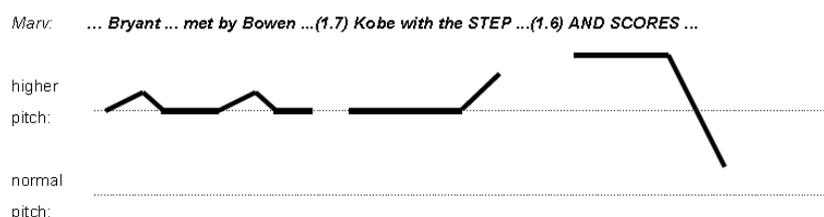
2.2. Intonation Contours

In sports commentary the conveyed message of an intonation contour carries the same non-referential meaning as in ordinary conversation (Delin 2000). The two most frequent patterns in the discussion of play-

by-play commentary are the *Rise-fall* and *Fall* contour. Rise-fall contours typically convey surprise or vehemence. Basically, the tension that is built up during a game cycle is released with a rise-fall contour. On the contrary, a neutral statement or utterance that is not considered the climax of the action cycle will finish in a falling contour, followed in most cases by at least a medium pause, indicating that a thought has been completed. What is exclusive to play-by-play commentary, and related oral formulaic traditions, is the *Drone mode* for which there is no equivalent from in ordinary conversation.

A typical play-by-play intonation contour is displayed in example (2) where speaker Marv's whole turn is uttered during a time slot of play-by-play. Again, it is produced on a higher pitch than his baseline.

(2) ... Bryant... met by Bowen ... (1.7) Kobe with the STEP ... (1.6) AND SCORES ...



Marv's intonation contour up to the first long pause is a drone mode with only minimal variation. Its only audible accentuations are the two names <Bryant> and <Bowen>, but as the action comes to a climax before the second long pause, we find an increased pitch from the already high basic pitch of play-by-play commentary. In this case the climax situation is also accompanied by increased volume (marked by those elements in capital letters). What typically follows the completion of a play-by-play utterance cycle is some sort of evaluation of the action. The heavy pitch dropping in <scores> already foreshadows this shift to color-commentary.

3. Drone Mode, Working Memory and Formulaic Language

The observation that play-by-play stays on a higher pitch even when there is no constant degree of excitement during play-by-play commentary and that the intonation contours do not differ from everyday talk raises skepticism about the role of emotional factors behind play-by-play's idiosyncrasy. As a consequence, it must be the drone mode that describes and the speaker's involvement that explains the typical tune.

There is wide agreement linking the idiosyncratic drone prosodics of play-by-play to limited working memory resources (cf. Wanta 1988,

Pawley 1991, Kuiper et al.). Play-by-play commentary, as a verbalization of non-verbal dynamic domains, uses a highly resource-demanding and complex form of input, due to the additional steps needed to process non-verbal material in general, and the event-formation task that is required in dynamic scene description in particular. A series of visual stimuli needs to be segmented, structured and selected pre-linguistically (Habel and Tappe 1999) before they can be conceptualized, formulated and eventually articulated (Levelt and Indefrey 2000, Carletta et al. 1995). Under normal circumstances and for untrained speakers this chain of cognitive processes weighs so heavily on the shared resource pool of working memory, that it can « overload » working memory's capacity, affect speech production negatively or break it down completely.

Some authors describe the drone mode as *strategic tradeoff*, although not a conscious one, in that the role attributed to the drone mode is to relieve the speaker from making intonational choices; that is, selecting particular and variable prosodics in advance. Kuiper and Haggio (1985) call the drone mode a function of working memory load, a load which is only present when the commentator is narrating visual events. The argument is that the use of drone prosodics relieves the commentator from making intonational choices. This view is supported also by Delin (2000) who suggests that the monotonous level tone of play-by-play commentary is a « neutral option », since the speaker has not enough capacity to select the kind of intonational pattern that would correctly signal the intended meaning of the utterance.

However, in a holistic look at pre-fabricated speech formulas as long-term memory solutions to working memory overload in sports commentary, Hartmann (2013) has provided evidence to characterize the drone mode as a *collateral tradeoff* for working memory resources: Play-by-play almost exclusively consists of pre-fabricated speech formulas that enable a relatively fluent and effective verbal coverage of the visual stimuli even under increased working memory load deriving from the sum of all cognitive processes. An analysis of indicators of cognitive load in speech production has revealed that the highly formulaic play-by-play shows a better output quality (in terms of disfluencies), a lower frequency of silent as well as filled pauses, and a higher overall articulation rate than the conversational color-commentary.

Pre-fabricated speech formulas are finite-state grammars indexed for specific discourse structure constituents that are stored in and retrieved from long-term memory as wholes (Wray 2002, 2008). They are lexicalized pieces of syntax with all the words supplied or with

systematic gaps which are to be filled by one of a small set of possible fillers and therefore do not exclude novel content from entering and being formulated. Routine is a prerequisite in order to allow the speaker to activate and retrieve such pre-fabricated and holistically stored material, because it is essentially the perceived and then conceptualized routine that triggers the lexical entry of a speech formula.

Their benefit may be most obvious for the formulator component of speech production (Levelt 1989), automatizing the linguistic processes of lexical selection and grammatical encoding to a large extent, but the intriguing aspect of the storage and retrieval of formulas as wholes is the idea that they are articulated as wholes as well (Wood 2002). In that sense, there is very little room for the inclusion of elaborate intonation patterns during the articulation of an action cycle with semi-productive speech formulas and drone prosodics are therefore very likely collateral tradeoffs of these particular linguistic means applied to avoid working memory overload.

Bibliography

- Bowcher, W. L. (2003). Speaker contributions in radio sports commentary. *Text: an interdisciplinary journal for the study of discourse*, 23 (4), 445-476.
- Carletta, J. C., Caley, R., & Isard, S. (1995). Simulating Time-Constrained Language Production. *Language and Cognitive Processes*, 10 (3/4), 357-361.
- Delin, J. (2000). *The Language of Everyday Life*. London: SAGE Publications Ltd.
- Habel, C., & Tappe, H. (1999). Processes of segmentation and linearization in describing events. In R. Klabunde & C. von Stutterheim (Eds.), *Representations and Processes in Language Production* (pp. 117-152). Wiesbaden, Germany: DUV, Dt. Univ.-Verl.
- Hartmann, C. (2005). *The language of sports commentary: an analysis of linguistic features of sports commentary on live television coverage* (Lizenziatsarbeit). Zurich: UZH University of Zurich.
- Hartmann, C. (2013). *Pre-fabricated speech formulas as long-term memory solutions to working memory overload in routine language* (Doctoral dissertation). Zurich: UZH University of Zurich.
- Hoyle, S. M. (1993). Participation Frameworks in Sportscasting Play: Imagery and Literal Footings. In D. Tannen (Ed.), *Framing in Discourse* (pp. 114-45). New York: Oxford University Press.
- Kuiper, K., & Haggio, D. (1985). On the nature of Ice Hockey Commentaries. In R. Berry & J. Acheson (Eds.), *Regionalism and National Identity* (pp. 167-175). Christchurch, New Zealand: Association for Canadian Studies in Australia and New Zealand.

- Kuiper, K., & Austin, P. (1990). They're off and racing now: The speech of the New Zealand race caller. In A. Bell & J. Holmes (Eds.), *New Zealand Ways of Speaking* (pp. 195-220). Bristol: Multilingual Matters.
- Kuiper, K., & Flindall, M. (2000). Social rituals, formulaic speech and small talk at the supermarket checkout. In J. Coupland (Ed.), *Small Talk* (pp. 183-207). London: Longman.
- Kuiper, K., & Lodge, M. (2004). Formulae of command: Form and function in controlling the body. In C. Földes (Ed.), *Res humanae proverbiorum et sententiarum ad honorem Wolfgangi Mieder* (pp. 141-153). Tübingen: Gunther Narr.
- Levelt, W. J. M. (1989). *Speaking: From Intention to Articulation*. Cambridge, MA: MIT Press.
- Levelt, W. J. M., & Indefrey, P. (2000). The Speaking Mind/Brain: Where Do Spoken Words Come From? In A. Marantz, Y. Miyashita, & W. O'Neil (Eds.), *Image, Language, Brain: Papers from the First Mind Articulation Project Symposium* (pp. 77-94). Cambridge, MA: MIT Press.
- Pawley, A. (1991). How to talk cricket: On linguistic competence in a subject matter. In R. Blust (Ed.), *Currents in Pacific Linguistics: Papers on Austronesian languages and ethno-linguistics in honour of George Grace* (pp. 339-368). Canberra: Pacific Linguistics.
- Pawley, A. (2007). Developments in the study of formulaic language since 1970: A personal view. In P. Skandera (Ed.), *Phraseology and Culture in English* (pp. 3-45). Berlin: Mouton de Gruyter.
- Wanta, W., & Leggett, D. (1988). 'Hitting Paydirt': Capacity Theory and Sports Announcers' Use of Clichés. *Journal of Communication: an official journal of the International Communication Association* 38 (4), 82-89.
- Wood, D. (2002). Formulaic Language in Acquisition and Production: Implications for Teaching. *TESL Canada Journal* 20, 1-15.
- Wray, A. (2002). *Formulaic Language and the Lexicon*. New York, NY: Cambridge University Press.
- Wray, A. (2008). *Formulaic Language: Pushing the Boundaries*. New York, NY: Oxford University Press.