1. Below is an excerpt adapted from Gervain & Werker's work published in *Nature Communications* (2013). Provide a title for this article (10%) and summarize the article in less than 150 words (20%).

When hearing speech in an unfamiliar language, the listener has no explicit information signaling the underlying structural rules that speakers use to produce sentences. Similarly, acquiring the grammatical properties of the native language constitutes a seemingly formidable learning problem for young infants, and the means by which infants succeed are only beginning to be understood. Acquiring grammar in a bilingual environment where the two languages have conflicting word orders like English and Japanese is an even more challenging task, and the mechanisms that bilingual infants use to solve this problem are not yet known. As the majority of the world's population today is exposed to multiple languages from birth, a better understanding of their early cognitive development might have considerable impact on social and educational policies worldwide.

Even a rudimentary knowledge of word order is of particular relevance for language development, because its successful mastery might have a cascading effect on learning even before infants can actively use this knowledge in production. Knowing the canonical word order might allow infants to parse utterances into constituents and assign grammatical functions to unfamiliar words, making it easier to identify their referents and learn their meanings.

The languages of the world differ in their basic word order type in systematic ways. The basic word order of a language is defined by the relative order of the verb (V) and its object (O). This order, in turn, correlates with the relative order of other constituents. In VO languages, like English, Italian or Spanish, for example, prepositions and articles typically precede nouns (*to London*, *the house*), whereas in OV languages, like Japanese, Turkish or Basque, they most often follow them (Japanese: *Tōkyō ni* 'Tokyo to'; Basque: *etxe bat* 'house one/a'). Thus, in VO languages, functors, that is, grammatical morphemes such as prepositions, articles, pronouns and so on (for example, *to, in, it, the* and so on), typically occur in phrase-initial positions, while in OV languages, they usually occupy phrase-final positions.

Monolingual infants can use functors as anchors to segment speech into syntactically relevant chunks, from which the basic word order of a language might be deduced. Functors provide a reliable, systematic and easily recognizable signal, because they are more frequent than content words and they have distinct perceptual characteristics. Further, the relative order of function words and content words strongly correlates with basic word order. Consequently, tracking the positions of the most frequent words in the input can help infants acquire more general knowledge about word order. Indeed, after several months of experience with their native language, Italian infants parse a continuous artificial speech stream with alternating frequent and infrequent words into chunks starting with a frequent word, followed by an infrequent word, mirroring the function word-initial word order of Italian (*a Rome*' to/in Rome'), whereas Japanese infants prefer the opposite, function word-final order, characteristic of Japanese (*Tōkyō n* 'Tokyo to').

However, for bilingual infants growing up with a VO and an OV language at the same time, frequency alone is not sufficient, as both frequent word-initial and frequent word-final phrases occur in their input (from the VO and the OV language, respectively). Phrase-level prosody provides an additional cue, which might be informative, as it correlates with word order and is readily available in the acoustic signal. Specifically, in VO languages, prosodic prominence is realized as a durational contrast, with the semantically and syntactically prominent content word being lengthened as compared with the functor, resulting in an iamb or weak–strong pattern (*to **Rome***). In OV languages, prosodic prominence is implemented as a pitch/intensity contrast, with the prominent content word being higher in pitch and/or intensity than the functor, giving rise to a trochee or strong–weak pattern ('*Tokyo ni*). A sensitivity in bilingual infants to prosodic prominence could be used, together with word frequency, to disambiguate word order in the two native languages. Results from our studies indicate that 7-month-old bilingual infants are indeed able to exploit these two cues to select the word order characterizing each of their languages.

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For the following questions, you will be graded on the clarity of your exposition, as well as on the appropriateness, correctness and relevance of the particular examples and facts that you use to illustrate or to support your points. Please limit your answer to 200 words for each question asked.

2.

METAPHOR COMPREHENSION

Studied for centuries by rhetoricians, metaphor is considered the paradigmatic example of the trope —that is, a word used in its figurative sense. Itself somewhat metaphoric, trope is the Greek word for twist, or turn. Nonliteral language has traditionally been viewed as a deviation from normal language use and one that takes extra effort to understand. The standard pragmatic model (Grice, 1975; Searle, 1979) stipulates that (1) metaphors are "special" and consequently are processed with qualitatively different mechanisms than those for literal language, and (2) the computation of literal meaning precedes that of metaphoric meaning.

Cognitive linguists have attacked the specialness assumption by noting that metaphor is pervasive in everyday language and that it plays a pivotal role in historical language change. Given systematic relationships between literal and metaphoric uses of the same words, Lakoff (1993) has suggested that metaphors reflect the output of a cognitive process by which we understand a target domain by exploiting cognitive models from an analogically related source domain. In conceptual metaphor theory, clusters of related expressions (e.g., fuming, boiling, blowing one's top) are the manifestation of underlying conceptual metaphors (e.g., anger = fluid in a heated container). Lakoff has further argued that "the system of conventional conceptual metaphor is mostly unconscious, automatic, and is used with no noticeable effort, just like our linguistic system and the rest of our conceptual system" (pp. 227–228).

A variety of reaction time measures have indicated that metaphor interpretation is neither slow nor optional, casting doubt on the second tenet of the standard model. When the metaphoric interpretation of a sentence has adequate contextual support, metaphors are read no more slowly than literal language. Furthermore, readers take longer to reject statements that are literally false but metaphorically true than to reject nonmetaphoric false statements. This finding suggests that literal and metaphoric meanings become available simultaneously, thus producing response competition. Also, Blasko and Connine (1993) showed that following metaphors rated as apt (viz. readily interpretable), lexical decisions for target words related to figurative meanings were made just as fast as those for targets related to literal meanings. For example, after a phrase like hard work is a ladder, advance and rungs both received faster responses than did pastry. Because the target words were presented immediately after the offset of the last word of a spoken metaphor, these authors concluded that the figurative meaning was rapidly available.

In contrast to the standard model, current processing models of metaphor comprehension all assume that literal and nonliteral language comprehension invoke the same mechanisms. These mechanisms include one's noting the potential correspondence between semantic attributes or relational structure associated with the source and target domains (alignment) and a selective projection of properties from one to the other. Most models also assume that metaphor comprehension involves the selection of some attributes at the expense of others, a process previously described as necessary for the interpretation of both ambiguous and unambiguous literal words in context (Tabossi, 1991).

Similarly, Gernsbacher and Robertson (1999) have suggested that metaphor comprehension necessitates suppression of irrelevant semantic attributes, but that the same general mechanism is invoked during the interpretation of anaphors, lexical ambiguities, and syntactically ambiguous phrases. In contrast to Lakoff's (1993) claim that metaphor processing is effortless, current processing models suggest that, ceteris paribus, metaphoric language places heavier demands on the mechanisms of alignment, selective projection, and inference than does literal language. For instance, Blasko (1999) writes, "If metaphor involves creating a bridge between dissimilar semantic domains and filtering out or suppressing unimportant characteristics while selecting relevant ones, then it should require considerable working memory capacity for both access and mapping processes" (p. 1679).

Surprisingly, data supporting the prediction that comprehension of metaphoric language should involve some extra effort is largely absent from psycholinguistic research. As is noted above, most studies suggest that when metaphors are preceded by sufficient context to be interpretable, literal and metaphoric language are processed in the same amount of time. However, equivalent processing

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times need not imply equivalent effort. By analogy, it may take the same amount of time to lift a 5- and a 20-pound weight, but the latter recruits more resources. The failure to demonstrate longer processing times for metaphoric language might also reflect a mismatch between the power of the dependent measures and the subtlety of the processing differences between literal and nonliteral language. In many studies, reading times for entire sentences or large sentence fragments have been found, so minor slowing on critical words might have gone undetected. Frisson and Pickering (2001) have noted that word frequency, plausibility, and cloze probability have not always been adequately controlled in studies in which reading times for literal and figurative language are compared.

Text taken from: Coulson, S., & Petten, C. V. (2002). Conceptual integration and metaphor: An event-related potential study. *Memory & Cognition, 30*(6), 958–968.

Based on Coulson and Van Petten (2002), use your own words to answer the following questions. Do the authors agree that the current processing models should be discarded, as data supporting the prediction that comprehension of metaphoric language involves extra effort is largely absent in the literature? What are the reasons provided by the authors to justify their stance? (20%)

3. Consider the following talk exchange between Humpty Dumpty and Alice in Lewis Carroll's *Through the Looking Glass:*

> "When I use a word,' Humpty Dumpty said in rather a scornful tone, 'it means just what I choose it to mean — neither more nor less.'
>
> 'The question is,' said Alice, 'whether you can make words mean so many different things.'
>
> 'The question is,' said Humpty Dumpty, 'which is to be master — that's all."

a) If the above were taken as human communication, what seems to be problem, if any, of this talk exchange? Justify your answer by referring back to the talk exchange. (15%)
b) What do you think would happen if children were taught to interact according to Humpty Dumpty's idea about the use of a word? In your answer, comment on what communication system would be like then. (15%)

4. According to Aristotle, one must study three points in making a speech: first, the means of producing persuasion; second, the language; third, the proper arrangement of the various parts of the speech. Do the points made also apply to writing? Justify or refute your point by analyzing your answers to either one (a or b) of the Humpty Dumpty questions above. (20%)

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