Speed and accuracy trade-off of semantic composition involving highlighting and adjustment

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Abstract: In a Speed-Accuracy-Tradeoff (SAT) paradigm we investigated how adjective type and polarity modulate the online semantic composition of noun phrases (NPs). 22 German speakers read sentences like "The tradesman — buys — a real diamond". Enriched adjectives ("real/fake") highlighted or adjusted the noun's meaning, whereas non-enriched adjectives ("white/flawed") simply specified a property. Adjectives had positive ("white/real") or negative polarity ("flawed/fake"). Upon the display of critical NPs, participants indicated by a series of key presses if the sentence was correct. For the SAT response function we computed the (i) asymptote (response accuracy as d'), (ii) rate (response speed) and (iii) intercept (point when accuracy departs from chance). Accuracy was significantly lower for semantically enriched vs. non-enriched NPs, suggesting that highlighting and adjusting certain properties during composition is costly. Polarity affected temporal dynamics with negative NPs showing a slower rate than positive NPs, indicating that negative information is processed in more depth.