

We All Want to be Understood: The Role of (Mis)Communication in Canine Stress/Anxiety

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Introduction

To establish preventative measures for behavioural pathologies, the normal must first be extracted from the abnormal, and risk factors identified. To do so, this project has monitored 36 puppies over 24 months using a combination of tests (modified from the Canine Intelligence Test Protocol (CITP)) and owner-completed questionnaires (modified from the Working Dog Questionnaire (the WDQ-Pet)). Combining repeated measures from the CITP tests and quantitative client evaluations of their pups' behaviours as they age should indicate when abnormal developmentally diverges from normal. These easily performed and repeatable risk assessments are tests that can be utilized in everyday practice. We focused on one assessment, known as the 'Sit/Down/Stay Test', that examines behaviour during communication breakdown as a possible predictive factor.

Following Bryant et al. (1), breakdowns in communication were simulated through a series of three requests (*sit*, *down*, *stay*) given by the owner. These were first given facing the dog to allow for normal signalling, where the dogs could see the owner's face and eyes, thus establishing a baseline. The test was repeated with the owners' back facing the dog, removing facial cues. Using continuous sampling analysis of video of the test, successful completion of the task was assessed and frequencies of the following 7 pre-determined behaviours typically associated with fear/anxiety were obtained: autogrooming, lifting of the forepaw, lowered body posture, restless movement, head tilting, vocalizing, and looking away from the owner (1,2). Returning to the front of the owner was recorded in the back-facing condition only.

Methods and Materials

The 'Sit/Down/Stay Test' was one of 6 tests that 36 puppies completed every 4 months (at 3-, 6-, 9- and 12-months) during their first year; 1 test was completed only at 3- and 12-months. The WDQ-Pet was completed at the same times and throughout the dogs' 2nd year. We present data from the 3- and 12-month 'Sit/Down/Stay Test'.

This test requires three signals to be given in the order of 'sit', 'down', and 'stay'. Owners were instructed via demonstration to give these signals as they would at home, permitting synonyms, hand signals, and giving rewards. These permissions were granted since to a previous study showed that restriction was fruitless (1). This signal series was then repeated with the owners' back facing the dog (Fig. 1). Additional guidance was verbally given throughout testing, as required.

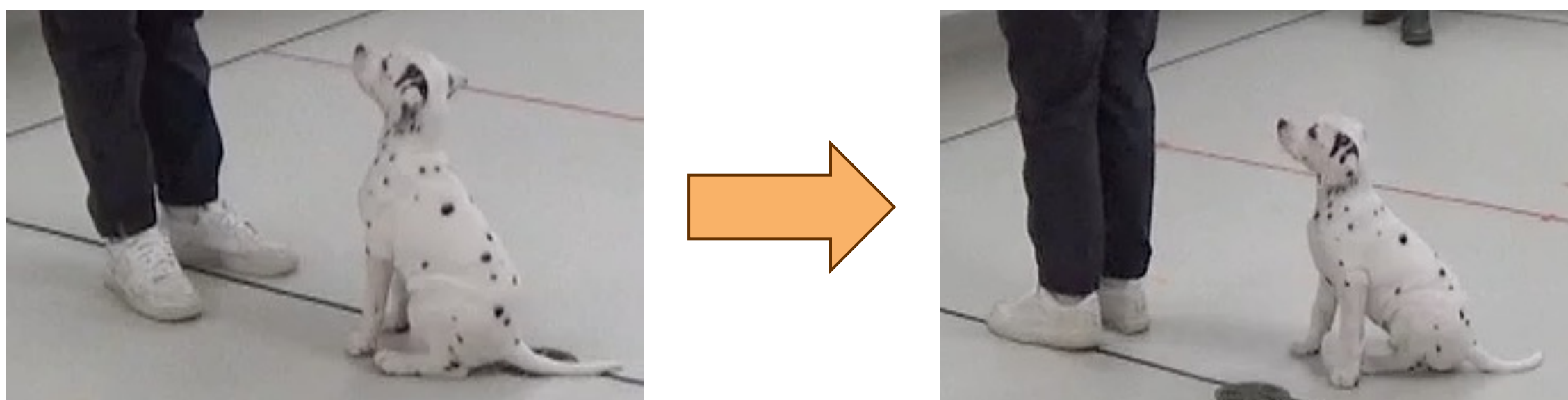


Figure 1. Signals are first given in the front-facing condition, then repeated in the back-facing condition.

Using continuous sampling on video recordings, the primary goal was to count the number pre-determined fearful/anxious behaviours during the 'latency period' - the time between command and reward/release - for both the front-facing and back-facing conditions. Data were analyzed

using the Wilcoxon signed-rank test. Second, successful task execution was analyzed using both the Wilcoxon signed-rank test, and the chi-square test. Measures assessed not included here were latency to completion (seconds), hand signal use by the owner, instruction repetition, type of praise (verbal/physical), and severity of praise (volume/physical force).

Results

Despite demonstration, many owners found it difficult to follow the instructions of the test, requiring guidance. Guidance could only be given verbally, to minimize distraction while still ensuring completion. Such guidance was still distracting for some pups, as well as some owners.

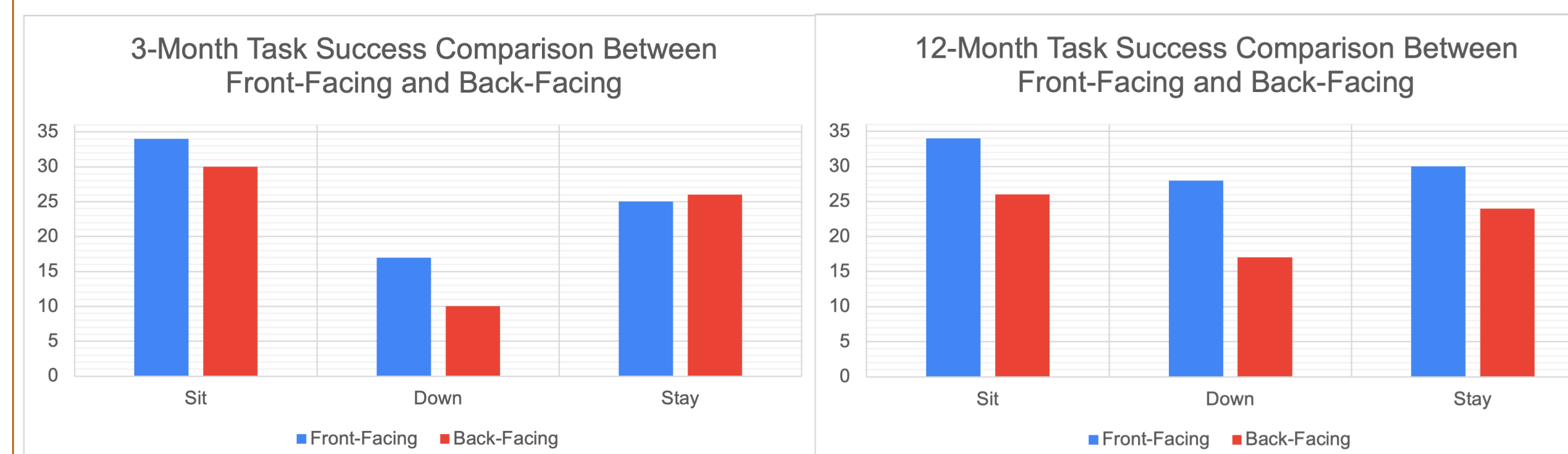


Figure 2. Success rate of task completion at 3- and 12-months of age between the front-facing and back-facing conditions, where n=36.

Task success was compared between front-facing and back-facing conditions (Fig. 2). At both ages, 'sit' was satisfied most often, followed by 'stay' and 'down'. All tasks had a higher success rate during the front-facing condition, with the exception of 'stay' at 3-months. While at 3-months there was no statistical significance between front and back-facing conditions (Wilcoxon signed ranks; = 130.50, $p = 0.087$), there was a significant difference at 12-months ($W = 48.00$, $p < 0.001$). 'Down' during the front-facing condition differed significantly between the two ages (Chi-square test; $\chi^2(1) = 7.17$, $p = 0.007$, Cramér's $V = 0.32$).

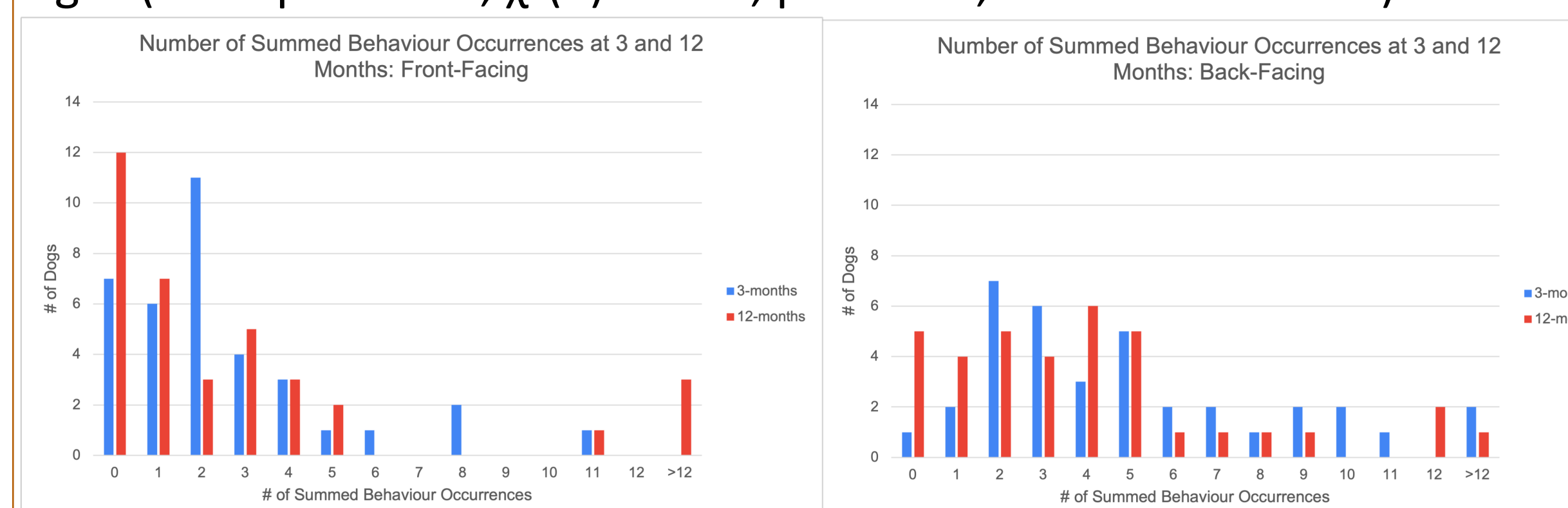


Figure 3. The number of dogs performing differing frequencies of behaviours during the latency period at 3- and 12-months, by condition.

Behaviour occurrences between front-facing and back-facing conditions differed significantly for both ages (3 month: $W = 484.50$, $p < 0.001$; 12-month: $W = 759.50$, $p = 0.015$). At 3-months, the number of behaviours shown in the back-facing condition increased by 106.7% relative to the front-facing condition. At 12-months, this increase was 40.6% (Fig. 3).

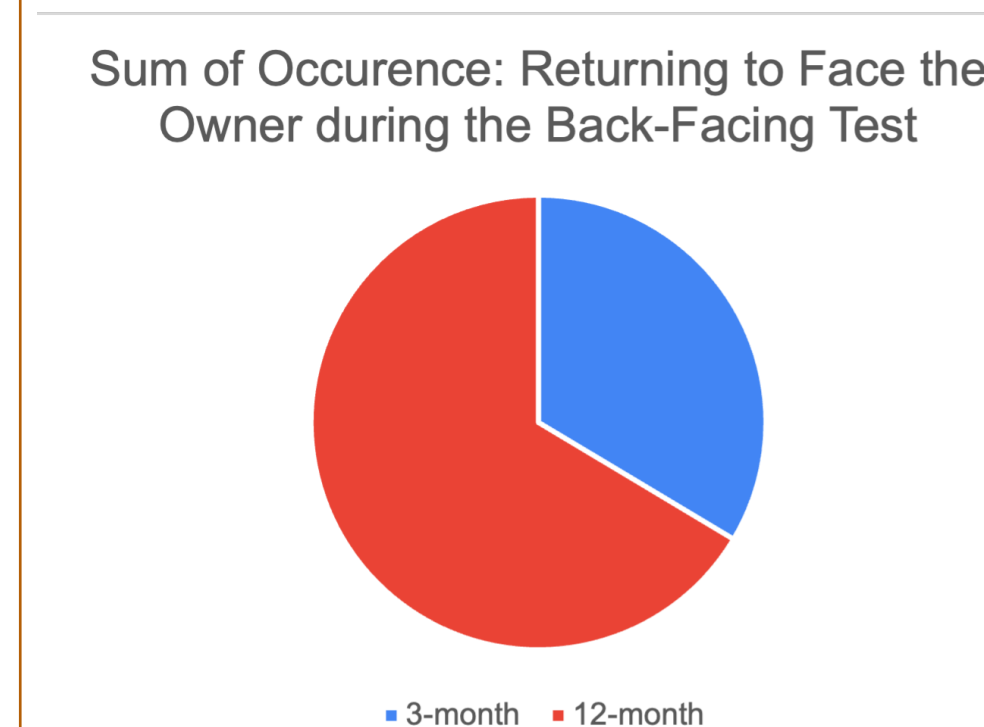


Figure 4. The frequency of returns to the front of the owner during the back-facing condition at 3- and 12-months.

During back-facing tests, occurrences of dogs returning to the front of their owner were summed. Dogs returned to face their owner significantly more when they were 12-months compared with 3-months, comprising $\frac{2}{3}$ of all occurrences ($W = 109.50$, $p = 0.032$) (Fig. 4).

Conclusions

Communication is a skill like any other - it must be learned. This conclusion is demonstrated in the differences in success rates between 3- and 12-months, as when the dogs were younger, they had yet to learn the cues and their meaning. This result also showed that although signals and requests can be taught, it is critical for the adult dog to be able to read subconscious cues from their owner's facial expression and body language. Studies have shown across species that fluency in communication/confirmation depends on such cues.

As with all social creatures, dogs require clear communication to succeed. As communication broke down in the back-facing condition, tasks were failed more often than in the front-facing condition. The result for the front-facing 'stay' at 3-months is more likely due to confusion than comprehension where pups opted to stay put rather than make another fruitless attempt, thus accidentally completing the task, rather than intentionally. This hypothesis is likely confirmed given that the older group succeeded significantly far more often than their younger selves in the front-facing 'down' task. Taking intention into account, it is clear that subconscious cues play an integral role in communicating with our pets, and their resulting successes.

Moreover, failure is not easy. At both ages, breakdowns in communication during the back-facing condition not only made it difficult to succeed, it also significantly elevated the dogs' stress/anxiety levels. Anxiety-related behaviours indicating uncertainty during the back-facing condition rose significantly, by 106.7% and 40.6% for the 3- and 12-month groups, respectively.

Interestingly, dogs in the back-facing condition returned to the front of their owner more frequently at 12-months than they did at 3-months, suggesting that these dogs had learned to use facial signaling to confirm information transfer and/or needed to ask questions when they were uncertain.

Initiation of later training may be responsible for the improvement in the 12-month measures, but results for both ages were statistically significant with respect to condition, indicating that dogs experience signs of anxiety when they are uncertain about messages and signals. Learning and maintaining communication is imperative at all ages.

Breakdowns in communication between dog and human have been proven to produce behaviours suggestive of fear/anxiety/stress - regardless of age. Moving forward, these results will be cross-referenced against the WDQ-Pet to determine whether there is an association between these behavioural occurrences and the development of a behavioural pathology. If proven, the Sit/Down/Stay Test would be an excellent candidate for a quick and accurate risk assessment, potentially paving the way for behavioural pathology prevention.

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References

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