

## Guide Dogs for the Blind

Anna Cho

**Overview.** Dogs have been guiding the blind since the late 18<sup>th</sup> century (International Guide Dog Federation). Guide dogs are in the unique position of serving both as a working teammate and as a companion to their blind owners. These working dogs are successful because of their ability to organize situations and obstacles to keep their visually impaired owners safe.

**What is being organized?** As both pets and working companions, guide dogs must organize both situation and environment. This allows guide dogs to differentiate between times when they are working or simply serving as a pet. When guide dogs are actively leading their owners, they must organize and differentiate between obstacles in order to communicate the appropriate signal to their blind companion. They must not only be aware of objects within their own vicinity, but also of obstructions within their owner's vicinity. These obstacles and the owner's path are the primary resources being organized. They are classified into categories that require specific actions from the dog. For example, when a working dog approaches a change in elevation, such as a sidewalk curb, it will sit to communicate the change to its owner. The dog's actions are the description resources that allow the blind person to interact with these obstacles. Information about an environment are placed into three categories including *changes in elevation*, *overhead obstacles*, and *obstacles within a path*. When a guide dog is off-duty or not actively leading its owner, instead of organizing its environment, its primary resources become situations rather than objects. These situations include tethering, riding vehicles, greeting visitors, and grooming, and several other skill categories. As information about a situation is organized, the dog's behavior will adapt and allow the blind owner to interact with otherwise inaccessible resources effectively and safely.

**Why is it being organized?** Guide dogs organize situations and their environment to help their owners interact with their surroundings independently, safely, and comfortably. A guide dog will communicate the resources it is organizing to its owner. This communication allows the blind person to interact with resources they cannot see. When the dog is not actively guiding, it organizes information about situations, such as riding a vehicle, and modifies its behavior accordingly to allow the blind companion to focus on the environment rather than the guide dog's behavior.

**How much is it organized?** The granularity with which information is organized depends on whether the guide dog is actively guiding its owner or serving as a companion. Contrary to popular belief, guide dogs do not navigate for their blind companions. Instead, they follow specific commands while the owner navigates. It organizes resources into a hierarchical structure that allows the dog to practice "intelligent disobedience". When a blind owner commands the dog to cross an intersection, the dog will disobey the owner if a vehicle is approaching. In this instance, the dog is prioritizing the owner's interaction with the oncoming car over her interaction with the intersection since the primary organizing principle is safety. The guide dog is trained to support only the few interactions that are necessary to safely lead its owner around an obstacle. There would be little added value with more granular resource

categories. Although there isn't a controlled vocabulary for resources, guide dog schools provide consistent training across programs that is based on the resources a person interacts with in their daily environments. Since no two environments are the same, the categories that make up the organizing system have broad definitions so that the dog can adapt to all scenarios and quickly organize information into these categories. When the dog is serving as a companion, information isn't organized to the same extent as physical resources. The dog's expected behavior is customized to the owner with the primary organizing principle being a well-mannered pet.

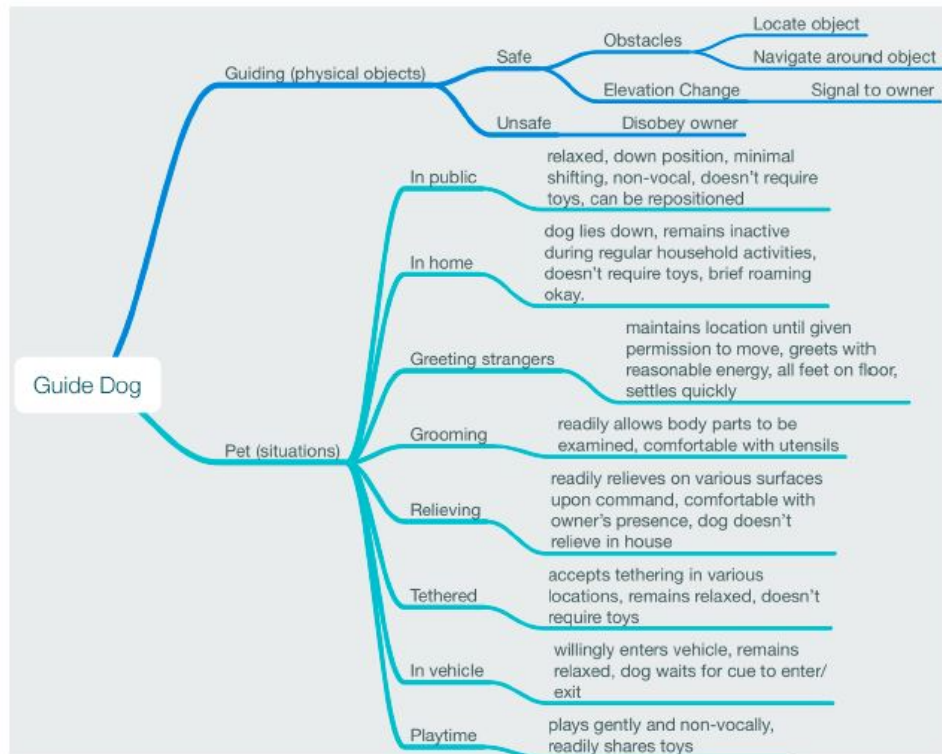
**When is it being organized?** Resources are organized by guide dogs as they are presented. The guide dog must first select the situation or object that they will organize. Then, it will modify its behavior accordingly and communicate the situation to its owner. Since the dog's environment and function (guide or companion) is constantly changing, the dog must be able to rapidly select resources and organize them before the owner's safety is jeopardized. For this same reason, the temporal effectivity of a resource is short. The dog doesn't need to search for or identify resources because they are simply presented to the dog. Organization also occurs when the guide dog is a puppy in training. This is when they learn the hierarchical structure of resources in intelligent disobedience and the expected behavior for specific situations.

**How or by whom is it organized?** Before the guide dog organizes the resources it encounters, the professionals at guide dog schools identify the situations and objects that often hinder a blind person from leading an independent life. These specialists determine the hierarchical structure of objects within the organizing system. Although the guide dogs might communicate resources to their owners differently at different guide dog schools, the resources and structure of the organizing system will resemble one another across schools because of their shared organizing principle of safety. Once guide dogs have graduated from training, they use physical intrinsic properties to communicate resources that their blind owners would otherwise be unable to identify.

**Where is it being organized?** The dog serves as the organizing system, so organizing occurs within the guide dog's logic. Dogs are intelligent, but they are still unable to perform more complex tasks such as finding a specific destination or path. With this consideration, the designers of guide dog programs have chosen to organize resources that dogs have the capability of identifying and organizing on their own. Guide dogs are however highly adaptable and can be trained to organize new resources.

**Other considerations.** As the guide dog ages, it will lose some of its learned behavior unless training is continuously reinforced. Dogs are unable to logically define danger, so the structure of their organizing system depends on constant maintenance through training and repetition. Unlike organizing systems for digital resources or physical resource collections, guide dogs are emotionally-intelligent animals. Their behavior will adapt to the needs of its owner. For this reason, guide dogs are oftentimes preferred over other organizing systems for navigation like canes. Furthermore, while a cane will allow a blind user to interact with a resource by bringing them in contact with an object physically, guide dogs allow interactions by helping the user

avoid obstacles. These are factors that the visually impaired take into consideration as they choose which organizing system is best suited for their lifestyles



**Figure 1.** The concept hierarchy for a working guide dog. The guide dog must first determine whether it is actively guiding its blind owner or simply serving as a pet. If the dog is guiding, it will first determine whether a task is safe or dangerous based on its previous training and experiences. Only if a command is deemed safe will the dog organize physical resources. If the dog isn't guiding and is serving as a pet, it will organize each situation that it finds itself in. These situations are non-physical information resources for which the guide dog will modify its behavior. Many of the guide dog behavior goals for these situations include expectations of calm behavior because the primary organizing principle is to allow the blind owner to focus on interacting with the physical resources within their environment without worrying about their dog's behavior. The guide dog is expected to be compliant and demonstrate well-mannered energy so that the owner can experience her home, vehicle, and public spaces. Many of the situations that the guide dog must organize also serve to help maintain the dog and ensure its health as an effective organizing system. Source: [http://www.gdb-official.com/site/DocServer/Puppy\\_Raising\\_Final\\_Goal\\_Behaviors\\_FINAL.pdf](http://www.gdb-official.com/site/DocServer/Puppy_Raising_Final_Goal_Behaviors_FINAL.pdf)

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