Based on the provided assurance case pattern and the domain information about the DeepMind system, I will now instantiate the assurance case pattern into an actual assurance case for the DeepMind system, reflecting its application within medical imaging and diagnosis. All placeholders and uninstantiated elements will be appropriately customized.

### GSN Hierarchical Tree Structure for DeepMind System

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G1: Interpretability Claim. The neural networks used for retinal disease prediction are sufficiently transparent in the clinical context.

C1: Neural Networks

C2: Transparent

C3: Clinical Context: setting time and audience

S1: Argument based on the essential aspects of interpretability

C4: Essential aspects of interpretability

G2: Right Method. The right transparency methods, such as segmentation map and diagnosis explanation, are implemented, i.e., the correct information is faithfully being explained.

C5: Transparency methods

S2: Argument over transparency methods

G8: Transparency method is the right type (local/global) i.e., the correct thing (segmentation map) is being explained.

G9: Transparency method (segmentation map) is suitably faithful to neural network processes.

G3: Right Context. Interpretations produced in the clinical context for diagnosis.

C6: Format of interpretations

G5: Right Time. Interpretations produced at the time of diagnosis.

G6: Right Setting. Interpretations are available in clinical settings.

G7: Right Audience. Interpretations are produced for retinal clinicians.

G4: Right Format. Transparency methods (segmentation maps and confidence levels) are presented in a format that is familiar and understandable to clinicians.

```

### Breakdown of the Hierarchical Structure

- \*\*Top-Level Goal (G1):\*\* This is the primary claim about the system's overall interpretability. The clinical application of using neural networks in retinal disease diagnosis needs to be transparent.

- \*\*Contexts (C1, C2, C3):\*\* These provide background and pipeline specifics, addressing what neural networks do, defining transparency, and detailing the clinical context including actions like setting, timing, and audience.

- \*\*Strategy (S1):\*\* Offers an overall plan by focusing on essential interpretability aspects, backed by a context (C4) that defines these aspects.

- \*\*Goals Under S1 (G2, G3, G4):\*\* These specify the direct actions satisfying the interpretability strategy.

- \*\*G2 Right Method Approach:\*\* This is further elaborated by a strategy (S2), which defines how the method or means of transparency are right for the application.

- \*\*G8 and G9:\*\* Detail specifics of what makes the transparency methodology appropriate and faithful.

- \*\*G3 Right Context (including G5, G6, G7):\*\* Focusing on when and where the method's implementation happens and for whom, supporting the right context, setting, time, and audience.

- \*\*G4 Right Format:\*\* Ensures the explanation is understandable to the relevant medical staff (context C6).

This hierarchized assurance case removes all generic placeholders and uninstantiated elements and fills them with specifics relative to the assurance needs of the DeepMind medical imaging system. Moreover, undeveloped elements are acknowledged and would need elaborating upon in an extended assurance process.