

## int.1 Introduction

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The interpolation theorem is the following result: Suppose  $\models \varphi \rightarrow \psi$ . Then there is a **sentence**  $\chi$  such that  $\models \varphi \rightarrow \chi$  and  $\models \chi \rightarrow \psi$ . Moreover, every **constant symbol**, **function symbol**, and **predicate symbol** (other than  $=$ ) in  $\chi$  occurs both in  $\varphi$  and  $\psi$ . The **sentence**  $\chi$  is called an *interpolant* of  $\varphi$  and  $\psi$ .

The interpolation theorem is interesting in its own right, but its main importance lies in the fact that it can be used to prove results about definability in a theory, and the conditions under which combining two consistent theories results in a consistent theory. The first result is known as the Beth definability theorem; the second, Robinson's joint consistency theorem.

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## Bibliography